Bloomberg Businessweek
March 23, 2020

THE CURE STARTS HERE

David Ho’s drug research helped save millions of lives from HIV. Now his lab is trying to crack the coronavirus 44


possibilities
are everywhere
Access them with over 200 ETFs.
Invesco

Bloomberg Businessweek

March 23, 2020

◀ A Ph.D. student in the lab at the Aaron Diamond AIDS Research Center at Columbia University, where David Ho and his colleagues have turned their attention to Covid-19

PHOTOGRAPH BY SAMANTHA CASOLARI FOR BLOOMBERG BUSINESSWEEK

FEATURES

We dedicate this issue to our colleague Barry Maggs (1964-2020)

CORRECTION

"Should We Bail Out Companies Left Reeling?" (Covid-19 / Government, March 16, 2020) quoted Senator Lindsey Graham as saying that Senator James Lankford, an Oklahoma Republican, suggested a bailout for the shale drilling industry. Lankford denies it.

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

■ COVER TRAIL

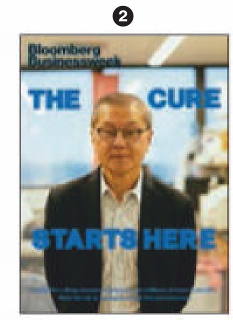
How the cover gets made

❶ *[Logs in to group video chat]*

"This week's story is about David Ho. He's a scientist working on a coronavirus cure."

"He better be working fast. Me and my cat are about to kill each other."

❷



"Can we make the type faster?"

"You know, the world is falling apart, and this is just a magazine cover, we're not actually—"

"FASTER!"

Cover: Photograph by Samantha Casolari for *Bloomberg Businessweek*

YALE BULLETIN BOARD: PHOTOGRAPH BY ELIZABETH HIBBARD FOR BLOOMBERG BUSINESSWEEK

IN BRIEF

By Benedikt Kammel

● To help stem the economic fallout from the pandemic, U.S. Treasury Secretary Steven Mnuchin asked Congress to approve a stimulus package worth

$1.3t

The measure would include fast loans for small businesses and direct payments to workers. ▷ 30

● Global deaths from the virus have exceeded

8,700

with more than 205,000 people infected around the world as of March 16. In Europe, which now has more confirmed cases than China, Italy has been hit especially hard, reporting more than 31,500 infections and more than 3,000 deaths. ▷ 40

● Personnel at Nairobi's Mbagathi Hospital take a visitor's temperature on March 18. Kenya has confirmed seven cases of Covid-19 so far. African countries have been hit late by the disease; many are taking strict measures to block its spread.

● Bailing out airlines around the world may cost as much as

$200b

industry group IATA estimates. Already, some carriers are asking for state aid, and Italy has said it will take control of Alitalia.

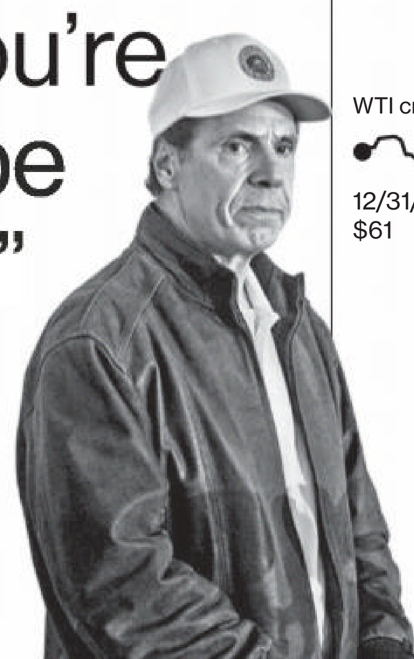
● Former Vice President Joe Biden scored victories in the Democratic presidential primaries in Arizona, Florida, and Illinois, padding his already substantial lead in delegates over Bernie Sanders. The Vermont senator's campaign manager said on March 18 that Sanders is speaking with supporters to "assess his campaign" moving forward.

● HSBC named Noel Quinn as its permanent CEO, after keeping him in the position of interim leader for seven months.

Before settling on Quinn, the bank had approached at least three high-profile leaders at rival institutions, none of whom could be persuaded to jump ship. Quinn took over in August after Chairman Mark Tucker ousted John Flint, who lasted 18 months in the job.

● Amazon.com, which is having difficulty meeting demand triggered by the pandemic, plans to hire 100,000 people. The online retailer is focused on providing medical supplies, household staples, and other high-demand products, restricting independent merchants from shipping nonessential goods to its fulfillment warehouses. ▷ 18

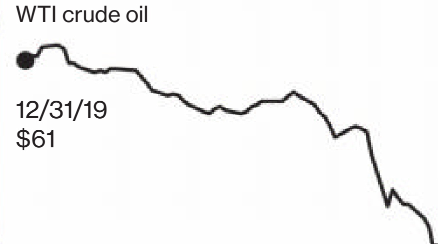
● "I have to do more? No—YOU have to do something! You're supposed to be the President."



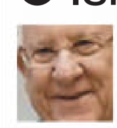
New York Governor Andrew Cuomo tweeting in response to a tweet from President Trump saying Cuomo needed to do more to address the coronavirus crisis.

● Oil prices fell below $22 a barrel for the first time in almost 18 years after Saudi Arabia doubled down on its price war with Russia. ▷ 8

WTI crude oil



● Israeli President

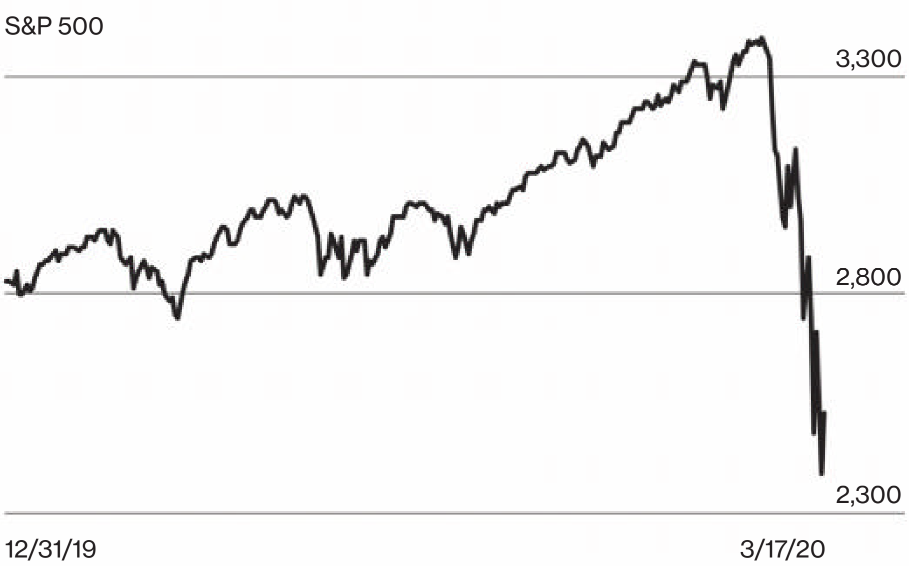


Reuven Rivlin asked Benny Gantz to make another attempt to form a coalition government.

Gantz was assigned the task after being endorsed by a majority of the Knesset. Israelis voted for a third time in less than a year in March, but the result delivered yet another stalemate between Gantz and embattled Prime Minister Benjamin Netanyahu.

KENYA: LUIS TATO/AFP/GETTY IMAGES. RIVLIN: GETTY IMAGES. CUOMO: ANGUS MORDANT/BLOOMBERG. *PRICE AS OF 1:30 P.M. DATA: COMPILED BY BLOOMBERG

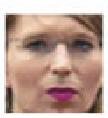
● The S&P 500 had its third-worst daily loss ever on March 16, and the Dow suffered its biggest decline since the Black Monday crash in 1987. ▷ 23



● King Felipe VI of Spain severed his financial ties with his father, King Emeritus Juan Carlos I, renouncing an inheritance and cutting a stipend to him. The former monarch has been engulfed in a Swiss offshore account investigation. He abdicated in 2014, citing health issues.

● Bill Gates is stepping down from the board of Microsoft.

Gates, who co-founded the company in 1975, says he'll devote more time to philanthropy. He served as CEO until 2000, the year he started his foundation, and was chairman until early 2014.



● Whistleblower Chelsea Manning was released from prison following a suicide attempt.

She'd been held for more than a year for refusing to cooperate with a grand jury investigating the WikiLeaks platform. Manning had previously spent seven years in jail for leaking classified videos and cables, before her sentence was commuted by President Obama.

● Iraqi lawmaker Adnan Al-Zurfi was appointed prime minister on March 17 and tasked with building a cabinet within the next 30 days. He'll need to act quickly to overcome deadly antigovernment street protests that have destabilized the country for months.

● Tom Brady will leave the New England Patriots after 20 seasons with the team, which he led to six Super Bowl championships. Brady, 42, said it's "time for me to open a new stage for my life and career."

● Lockheed Martin named board member James Taiclet as its next CEO.

The move puts an outsider at the helm of the world's largest defense contractor. His predecessor, Marillyn Hewson, will become executive chairman.

■ AGENDA

▶ Ready, Set, Cut!

Ten days after taking over as governor of the Bank of England, Andrew Bailey chairs his first monetary meeting on March 26. Like other central banks, the BOE has made emergency rate cuts to ease the impact of the pandemic.

▶ Israeli telephone company Cellcom reports earnings on March 23. It's warned that the coronavirus crisis may hurt access to capital and equipment.

▶ U.K. Chancellor Rishi Sunak takes questions from lawmakers in Parliament on March 24. Sunak, who's been in the job for only a few weeks, recently delivered his first budget.

▶ The U.S. reports its weekly crude oil inventories on March 25. Given the slump in air and road travel, the focus will be on refined products such as gasoline.

ILLUSTRATION BY AHAOK. FELIPE: GETTY IMAGES. MANNING: ERIC BARADAT/AFP/GETTY IMAGES. BRADY: ADAM GLANZMAN/GETTY IMAGES. DATA: COMPILED BY BLOOMBERG

REMARKS

Behind The Oil War

● The Russians may have started the price war, but the Saudis were waiting for the opportunity to jump in

● By Javier Blas

On March 4, Prince Abdulaziz bin Salman, the 59-year-old Saudi oil minister, was locked down in his suite at the Park Hyatt hotel in Vienna, preparing for what would turn out to be the most important meeting of his life.

A veteran negotiator, the prince is skilled in the Byzantine diplomacy and backroom deals that have characterized OPEC since its founding 60 years ago. Few others can bridge the political enmities among oil producers, who often have little in common other than their addiction to petrodollars. It's a world where a few barrels here or there in a production deal often make all the difference. "How can we work in dividing these things?" Prince Abdulaziz told Bloomberg TV last year. "It is not going to be a science. It's science, art, and sensibility."

But when Prince Abdulaziz met his Russian counterpart, Alexander Novak, that day at the OPEC building in Vienna, both science and art failed. The talks were the prelude to a seismic oil price decline that's still reverberating through the global economy—a crash that may reshape the energy industry for decades to come. And what started as a price war may turn out to be a much more important strategic rethinking of Saudi oil production policy, as the kingdom seeks to monetize its giant petroleum reserves as fast as possible rather than shepherding that store of wealth through the generations. Such a shift would fundamentally change the economics of the industry, using Saudi Arabia's ultralow cost advantages to win a race to the bottom. For Prince Abdulaziz' younger half-brother, Crown Prince Mohammed bin Salman, it would represent a massive gamble: the world's preeminent oil exporter choosing to live with lower long-term oil prices.

Riyadh has kept mum on its motivations, but if the suspicions of many in the oil market prove true, this oil war will be a Darwinian survival of the fittest. As the world steps up the fight against climate change, the demand for oil will peak in a few decades. Saudi Arabia and Russia will likely emerge bruised but standing. Many others, including U.S. shale producers, will be in dire straits.

In the kingdom, the current thinking is to let free markets work. If officials are worried about low oil prices, they aren't showing it. Saudi Arabia is hunkering down for one to two years of cheap oil, adjusting government spending and drafting measures to protect the vulnerable among its citizenry. "We are very comfortable with $30," Khalid Al-Dabbagh, finance director of state-owned Saudi Arabian Oil Co., told investors on March 16, an opinion widely repeated in the ministries and royal palaces in Riyadh. "In a nutshell, Saudi Aramco can sustain very low oil prices and can sustain it for a long time, and that is especially the case compared to others in the sector."

Looking back, the omens for the Vienna meeting weren't good. With oil prices falling rapidly because of the economic impact of the coronavirus outbreak in China, Riyadh was pressing Moscow to deepen the production cuts they implemented together in late 2019. Cutting output by only an additional 1.5 million barrels a day would suffice to rebalance the market, Prince Abdulaziz argued. Almost everyone else in the OPEC+ alliance—22 countries that account for half the world's output—agreed with him.

Novak was unmoved. The oil supply and demand outlook, the Russian said at the Vienna meeting, was too cloudy—better to roll over the existing cuts for another three months and then decide what to do next. Moscow also felt that output cuts and higher prices were simply fueling the U.S. shale industry. Instead, the time had come for lower prices.

With the talks in Vienna at an impasse, Prince Abdulaziz delivered an ultimatum: Accept the output cuts, or Riyadh will abandon the deal altogether, unleashing a wave of extra oil. Novak called what many thought was a bluff, and he walked out. When he left the OPEC building, he turned to the television cameras and delivered his counterpunch: Beginning on April 1, every OPEC+ member country was free to pump at will.

The shock waves are still being felt. By the estimate of some traders and consultants, global oil demand is in free fall, down about 10% from the previous year—the largest drop ever. "This is an epic fail," says Bob McNally, founder of Rapidan Energy Group and a former oil official in President George W. Bush's White House.

Riyadh will say Novak started the oil price war, not Saudi Arabia. But the kingdom was ready for a fight. Unknown to anyone but a few royals and senior officials in Riyadh, the kingdom had been preparing precisely for that moment for several weeks. For the Saudis, Novak's pump-at-will comment was a green light to ramp up the country's own production.

The first sign that something was amiss went largely unnoticed, even in the world of oil. Saudi Aramco had set its oil prices like clockwork at the same time, on the same day of each month. But without explanation on March 5, a day after Prince Abdulaziz and Novak met, it didn't.

When Saudi Aramco finally set its price a few days later, it was the oil market equivalent of a declaration of war. The company cut its prices by the most in 30 years, offering unprecedented discounts to its customers, which include some of the world's largest refiners, such as Exxon Mobil, BP, and Chevron. The refiners also got word that Aramco was about to increase output significantly, by as much as 25% to a record of more than 12 million barrels a day. "The Saudis are looking to intensify short-term pain with the goal of drawing everyone back to the negotiating table to impose a more favorable supply management deal," says Roger Diwan, a veteran OPEC watcher at consultant IHS Markit Ltd. ▶

◀ When Brent crude, a global oil benchmark, opened for trading on March 8, it plunged within seconds by more than 30%—the largest one-day price drop since the Gulf War in 1991. In early January, Brent had briefly risen above $70 a barrel; now, it's fallen below $30.

The price plunge reverberated well beyond oil. It hit the markets at a vulnerable time: Stocks had been rising for years, and valuations were sky-high. Meanwhile, economic growth looked wobbly in the face of the novel coronavirus. When the price of petroleum plunged, it triggered a domino effect across global equity and credit markets.

The Saudi shock-and-awe campaign was so brazen that many took it as an attempt to impose maximum pain on Russia. The aim, according to this theory, was to bring Moscow back to the negotiating table.

The argument made sense: Why would Saudi Arabia want to push oil prices down and keep them there? It's true that Riyadh would seem to have the advantage over Russia in a price war, mostly thanks to its spare production capacity and the world's lowest production costs—less than $3 a barrel.

Russia can't match Saudi Arabia's ability to boost oil production. But Moscow is much better at defense than the Saudis are. Russian President Vladimir Putin used the last few years to build a war chest of petrodollar reserves. At $577 billion, the cash pot is up 60% since 2015. Over the same period, Saudi petrodollar savings have declined 28%, to $502 billion. Moreover, Russia benefits from a floating exchange rate, which absorbs part of the blow of low oil prices. Perhaps more important, Russian society has already endured a few tough years of U.S. sanctions: It can absorb more pain.

So far, the tactics aren't prompting the Russians to seek talks. The Kremlin has said it isn't surprised by the fall in prices and doesn't see a need to meet with OPEC. That's partly because the price war is giving Moscow something it wanted: It's prompting U.S. shale companies to announce big spending cuts. Rather than wait and see, as U.S. shale executives did when the Saudis tried to bankrupt them in 2014-16, this time spending cuts "have been swifter than expected," says Brian Singer, a managing director at Goldman Sachs Group Inc.

So why didn't Saudi Arabia cut production to support prices earlier and unilaterally? History provides some perspective on going it alone. For several years after the oil crisis in 1979, then Saudi Arabia oil minister Sheikh Ahmed Zaki Yamani, cut production unilaterally, with little help from others at OPEC, to keep oil prices high, at about $34 a barrel. In 1985, with output plunging, Riyadh turned his policy around, and soon after Yamani was fired.

Overnight, the kingdom boosted production significantly, and oil prices collapsed almost 70% from November 1985 to May 1986. When Riyadh made peace with its OPEC allies about a year later, the group targeted a price of about half what it had been before the Saudi production increase: $18 a barrel. Except for a brief spike during the 1990-91 Gulf War, it took 15 years for oil to trade again at its 1985 level of $34 a barrel. Every Saudi oil minister since Yamani has promised not to repeat his mistake of cutting production unilaterally. Prince Abdulaziz is no different.

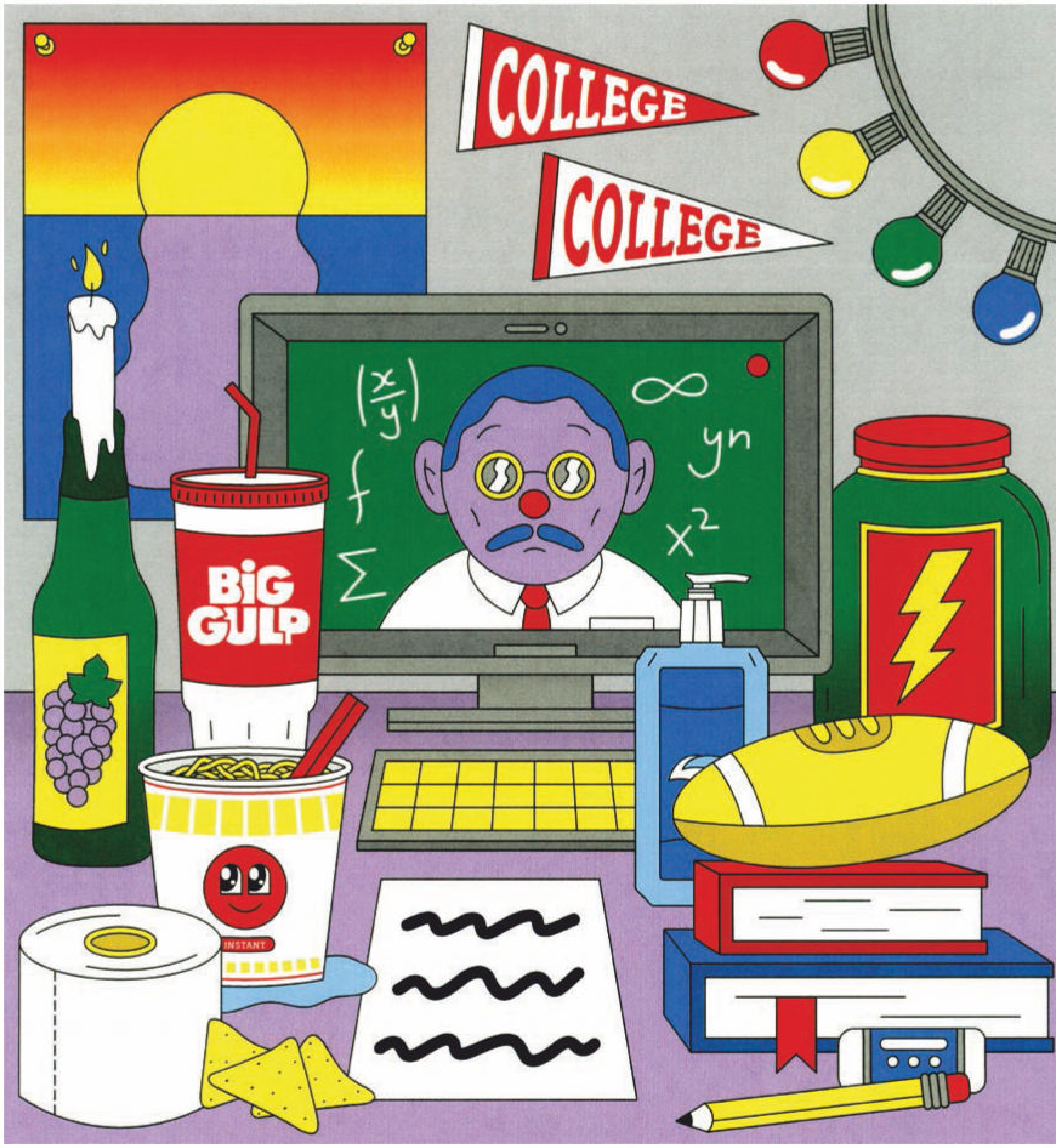
Once the Russians opened the floodgates in Vienna, though, the Saudis opportunely jumped in. The kingdom has ordered Aramco to boost production capacity to 13 million barrels a day, up from 12 million. The expansion is a hugely expensive commitment. When Aramco decided in 2004 to lift output capacity to 12 million from 11 million, it spent six years and billions of dollars working on the project. Khalid Al-Falih, then Saudi energy minister, said in 2018 that lifting production capacity by another million barrels would cost the kingdom $20 billion to $30 billion.

It will also be difficult to reverse course. "As Saudi Arabia increases its productive capacity, its willingness and ability to cut production becomes more challenging, as no producer wants to be operating well below its maximum sustainable capacity," Bassam Fattouh, director of the Oxford Institute for Energy Studies, wrote in a research paper published last year.

Riyadh is obsessed with an energy market that is being shaped by the fight against climate change. Aramco, on the prospectus for its 2019 initial public offering, warned that oil demand might peak within 20 years. The Saudis may be choosing a completely new strategy. As owners of a huge geological petroleum endowment, they could be moving to monetize their reserves more quickly to avoid being stuck with a rapidly depreciating asset. Energy scholars call it a "fast monetization strategy," and Saudi advisers have been discussing it in private for some time.

The approach has advantages. It would secure a growing share for Saudi crude, as higher cost producers are pushed out of the market. Not just shale drillers, but even Big Oil, which is already under pressure from shareholders to boost profits, will have to cut spending on the development of new wells and, therefore, supply. Lower oil prices could also slow down the adoption of green technologies, particularly the electric cars that Tesla Inc. and others are building. And if Saudi Arabia and Russia can drive enough rivals out of business, perhaps the oil market would tighten again.

But the monetization strategy also carries enormous risk. Higher production, alongside weaker demand, is a certain recipe for low prices. If the kingdom follows it, others in OPEC will join, too, pushing even more crude into the market, further depressing prices. Saudi Arabia can barely afford that. According to the International Monetary Fund, Riyadh needs an oil price of about $80 a barrel to balance its budget. More important, its balance of payments only breaks even at about $50 a barrel. Without higher prices, Saudi Arabia will start to run large and sustained balance of payments deficits, putting the peg between its currency, the riyal, and the U.S. dollar at risk. Since he became de facto ruler of Saudi Arabia, Mohammed bin Salman has made a number of risky economic and political moves—the change of oil policy is one of the riskiest yet. Ⓑ



Ready or Not, Colleges Go Online

● As the coronavirus shutters campuses, schools scramble to provide distance education

Analisa Packham, an economist who studies health and education, would seem ideally suited for teaching in the age of Covid-19. Yet last weekend the 30-year-old assistant professor at Vanderbilt University in Nashville realized she had a lot to learn—about technology.

Packham taught herself two popular software programs for videoconferencing, Zoom and Kaltura. She plans to hold office hours via Skype and produce TikTok videos to explain the importance of food stamps in the current economic crisis. She's already recorded a video lecture for her 41 students, but is far from satisfied with it. "If I was a student, I would not want to watch this," she says.

America has 1.5 million faculty members, and, like Packham, 70% have never taught a virtual course before, according to education technology researcher Bay View Analytics. To promote social distancing during the pandemic, universities are sending students home en masse to learn

Edited by
James E. Ellis

on their laptops. In a matter of weeks, as spring breaks end, the $600 billion-plus higher education industry must suddenly turn to an approach many have long resisted: online education.

Evangelists of distance learning have lauded its promise of expanded access and lower costs. They hope the crisis could spur reluctant institutions to fully sign on to the web, but also fear a potential disaster if things go poorly. “Schools that haven’t historically embraced online education are now being forced into it,” says Michael Horn, co-founder of the Clayton Christensen Institute for Disruptive Innovation and a higher education consultant. “Rather than becoming a crowning moment for online education, this crisis could provoke a backlash.”

The nation has had a previous experience with mass emergency education. That was after the devastation of Hurricane Katrina in 2005, which disrupted about 20 colleges. The Sloan Consortium, an association of colleges supporting online education, offered free virtual classes originating from more than 100 schools. The so-called Sloan Semester enrolled more than 1,700 students, helping many keep on course with their studies. Still, professors lost track of students who dropped out as they scrambled to find a safe place to live or found they couldn’t concentrate on their work. “The biggest problems were the ‘life happens’ issues,” says Bay View Analytics Director Jeff Seaman, who worked on the consortium then.

In that disaster, many students could, at least, rely on family and friends beyond Louisiana and the Gulf Coast; not so today, when the virus is wreaking havoc worldwide. And poor students or those living in remote regions with spotty web access suffered then—a challenge facing educators today.

Online education has since grown steadily. Some 2.4 million undergraduates, or 15% of the total undergrad student body nationwide, studied entirely online in the fall of 2019, according to research and consulting firm Eduventures. An additional 3.6 million enrolled in one or more online courses while otherwise studying on campus. “Twenty years ago, there was practically nothing,” says Brad Farnsworth, a vice president at the American Council on Education, which represents colleges.

Many universities already offer some online classes to on-campus students when courses don’t fit into their schedules, or to free up faculty so they can concentrate on smaller sessions. And many schools use a “learning management system” from companies such as Blackboard Inc. or Instructure Inc., which operates a popular platform called Canvas. Students can log on to access course materials, hand in assignments, see their grades, and converse online.

Pearson, John Wiley & Sons, and other publishers craft more tailored online programs for universities, helping develop curriculum and recruit students. So does 2U Inc., which works with well-known schools such as Georgetown, Northwestern, the University of North Carolina at Chapel Hill, and the University of Southern California.

Such offerings can require millions of dollars in investments, according to Trace Urdan, managing director of Tyton Partners, an education-focused investment banking and consulting firm. And some faculty have been enraged by contracts with education tech businesses that allow the companies to keep 50% or more of revenue from classes. In some setups, students learn at their own pace, logging on at will and chatting online. In others, professors hold classes in real time, where students can speak via video feeds and virtually raise their hands.

A relative handful of institutions, including major public universities and private nonprofits such as Southern New Hampshire University, enroll a disproportionate number of U.S. online students, making them ideally positioned for this environment. Last fall, Arizona State University enrolled 45,000 online students, mostly undergraduates—more than the total number who attend the University of California at Berkeley in person. One-fifth work for Starbucks Corp., which pays their tuition. Phil Regier, the ASU dean overseeing these initiatives, says schools that suddenly adopt virtual learning will encounter new challenges, such as securely offering tests to avoid cheating and holding students’ attention. “Here’s the first lesson,” he says. “There’s nothing more boring than a 45-minute video. They’re horrible; nobody can get through those.”

Studies have reached mixed conclusions about the efficacy of online courses, which vary widely in quality. Concerns include low completion rates, especially among underprivileged and less prepared students. With a few notable exceptions, such as Georgia Tech’s roughly $7,000 online computer science master’s degrees, institutions often charge about the same for an online degree as an in-person one, undercutting the promise of lower costs via technology.

Distance learning dates to 19th century snail-mail correspondence courses and has long had a dubious reputation, often for good reason. After the government in 2006 dropped anti-fraud provisions that barred federal aid for fully online programs, for-profit companies—many of them publicly traded—jumped into the fray. The ▶

▼ Four-year undergraduate fall enrollment in the U.S.

Only distance education courses

Some distance education courses

No distance education courses

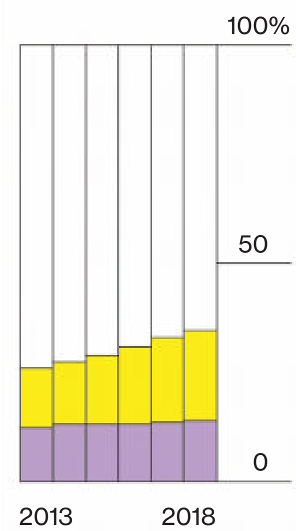


ILLUSTRATION BY XAVIER LALANNE-TAUZIA. DATA: NATIONAL CENTER FOR EDUCATION STATISTICS

▲ Empty seats at Yale

◀ companies, such as Corinthian Colleges Inc. and Apollo Education Group Inc.'s University of Phoenix, said they were reaching out to lower-income, minority students ill-served by the education establishment. But many were, in fact, hard-selling expensive degrees of questionable value, leaving students with crushing debt, government investigators found. After media scrutiny and congressional inquiries, that market started collapsing a decade ago, and traditional nonprofit and state colleges stepped up their online games.

Many elite colleges, including small liberal arts schools, have resisted online classes. They've always justified their cost, which can top $70,000 a year, by trumpeting their small classes, mentoring from professors, and extracurricular activities. But the coronavirus is forcing them to embrace distance learning for likely the rest of the school year.

Students and families aren't thrilled at the prospect, either, even after some schools—including Harvard, Princeton, and Middlebury—offered room-and-board refunds. Amelia Pollard, a 21-year-old junior at Middlebury, has already been told by her history of American conservatism professor that the seminar's scheduled time may not work anymore because her own young child's school was shut because of the virus. "There's a lot of moving parts that were not anticipated," Pollard says.

Lab sciences and music classes present special challenges. Nora Heaphy, a 20-year-old junior at Yale, expects her Arabic language class will be fine online, but she isn't sure about her introductory physics course. "That's going to be a hard one, mostly because I and many other students heavily rely on office hours and study halls to complete the homework," she says. "I don't know how that's going to work." —*John Hechinger and Janet Lorin*

THE BOTTOM LINE Just 15% of undergraduates in the U.S. did their coursework totally online in September 2019. That number is about to explode.

Now, Even Masks Can't Cross Borders

● Some nations restrict exports to ensure they have enough at home

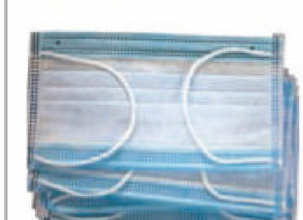
Michael Einhorn's medical supply company in Brooklyn, N.Y., may run out of masks used to protect against coronavirus in two weeks unless the Chinese manufacturer of his branded protective gear resumes production soon. He's already rationing supplies.

"We're having to make tough decisions every day on who gets masks and who doesn't," says Einhorn, president of Dealmed-Park Surgical, which employs almost 100 people. "Do masks go to the suburban hospital or the 911 responders? It's a huge responsibility, and we know we're going to make some mistakes."

Einhorn's dilemma is playing out on a global stage. With the deadly virus now present in more than 130 countries, companies are unable to match demand for the millions of masks needed by health workers. That's led governments to jockey for supplies: The U.S. is stockpiling, while Russia and South Korea have banned mask exports altogether.

The bans are desperate measures by governments to save what little domestic production they have for their own citizens. In some countries, including Japan and Germany, doctors are being told to reuse the single mask they get daily. China produces about half of the world's masks, and the shortages have governments and companies rethinking their reliance on the country for critical medical supplies.

"Most places are not prepared, so you now have a cascade of countries putting these export bans in place," says Stephen Morrison, director of the Global Health Policy Center at the Center for Strategic and International Studies (CSIS) in Washington. "It's not a long-term solution. Everyone throwing up export bans isn't going to solve the problem of how you will get the products in time to serve these acute needs."



● Chinese-made masks

Peter Navarro, an adviser to President Trump, is pushing the U.S. to enact an export ban on medical supplies such as face masks and to compel drug companies to manufacture domestically.

The U.S. only has about 1% of the 3.5 billion masks it needs to combat a serious outbreak, Health and Human Services Secretary Alex Azar has said. HHS plans to buy 500 million N95 respirators—which block out 95% of airborne particulates—over the next 18 months for the national stockpile.

"This purchase will encourage manufacturers to ramp up production of the personal protective equipment now with the guarantee that they will not be left with excess supplies if private sector orders are canceled once the Covid-19 response subsides," says Stephanie Bialek, an official at the government's Strategic National Stockpile.

Manufacturers need to boost production of masks by an additional 40% to meet demand, according to Tedros Adhanom Ghebreyesus, the World Health Organization's director-general. While WHO has shipped supplies to 47 countries including Iran, Cambodia, and Uganda, shortages will hit soon, especially of the N95 masks. "Industry and governments must act quickly to boost supply, ease export restrictions, and put measures in place to stop speculation and hoarding," Tedros said in a statement on March 3. "We can't stop Covid-19 without protecting health workers first."

Despite Tedros's appeal, South Korea, Germany, and Russia have restricted exports of masks and other protective gear, while France said it would requisition all face masks produced in the country. Switzerland summoned the German ambassador to complain about the decision to block a shipment of 240,000 face masks, while Austria called on Germany to release supplies. Other nations including India, Kenya, Thailand, and Kazakhstan had already instituted restrictions on mask sales. "The accumulated impact of these measures is to create paralysis—one big logjam," says Morrison of CSIS.

China has pushed other mainland businesses—from carmakers to energy providers—to begin churning out masks at their factories. BYD Co., the electric carmaker backed by Warren Buffett's Berkshire Hathaway Inc., on March 13 billed itself as the world's biggest face-mask manufacturer and said it can make 5 million masks daily. Founder Wang Chuanfu in late January led a team of 3,000 engineers to build production lines from scratch using 90% in-house components. Guangzhou Automobile Group Co., which makes cars with Toyota Motor Corp. and Honda Motor Co., is also cranking out masks. And iPhone assembler Foxconn Technology Group is making masks for 1 million of its workers. That's helped to boost production more than fivefold, from 20 million units daily before the epidemic, according to Chinese state media service Xinhua.

DuPont De Nemours Inc., which makes masks and protective gear worn by first responders, says it's increased production to more than three times its usual global capacity. Meanwhile, 3M Co. says it's increased production of N95 respirators at its factories since the outbreak and makes millions monthly.

"We immediately ramped up production in this facility," Andy Rehder, plant manager at 3M's factory in Aberdeen, S.D., said in a post on the company's

◀ Masks being made at a plant in Hong Kong

blog. The plant has gone "from more of a standard five-day week to more of a seven-day week, with additional equipment as well that we've been able to bring in and turn on," he said. Still, 3M spokeswoman Jennifer Ehrlich says the company expects "demand for respirators and other supplies to continue to outpace supply for the foreseeable future."

The dependence on China and a few other countries for masks has some calling for a rethink of supply chains. The World Medical Association, which represents physicians, wants governments to establish factories in major markets such as the EU and the U.S. to ensure adequate supply of critical drugs, vaccines, and other medical necessities.

● Number of N95 respirators the U.S. government plans to buy

500m

Back in Brooklyn, Dealmed's Einhorn thinks the shortage isn't likely to let up until the summer. The crisis may finally persuade Americans to pay more for masks made in the U.S., rather than cheaper imports, he says. "The world shouldn't be relying on one country for health-care products," Einhorn says. "We absolutely need to look at the supply chain." *—K. Oanh Ha, with Jenny Leonard and Richard Clough*

THE BOTTOM LINE The global supply chain for masks is dependent on China, where half are made. The coronavirus pandemic has sparked calls to locate more factories elsewhere.

CLASSROOM: PHOTOGRAPH BY ELIZABETH HIBBARD FOR BLOOMBERG BUSINESSWEEK. FACTORY: PAUL YEUNG/BLOOMBERG (2)

The (Shaky) Plans to Narrow the Testing Gap

● Silicon Valley is working on Covid-19 diagnostic tools. There's still a ways to go

When President Donald Trump finally addressed the nation's dire shortage of testing capabilities for the coronavirus on March 13, he did what many people do when they seek answers: He turned to Google. But Trump's announcement that the Alphabet Inc. unit would be harnessing 1,700 engineers to build a national website to screen people for symptoms, and if necessary direct them to a nearby testing site, was overly optimistic. Google is rushing to rise to the occasion.

Across Silicon Valley, tech companies big and small are stepping up to help in any way they can. Amazon.com Inc. is prioritizing shipments of medical supplies and household staples and plans to hire 100,000 workers to help speed those orders. Facebook, Microsoft, Twitter, YouTube, and others have pledged to work with one another and alongside government agencies to stop the spread of misinformation about the virus.

Tech billionaires are getting involved. Bill Gates, Microsoft Corp.'s co-founder, stepped down from the company's board to focus fully on his philanthropy and dedicate research to helping stop the virus's spread. Alibaba Group Holding Ltd. co-founder Jack Ma, working with his philanthropic organizations, has donated millions of dollars to support medical research efforts and disease prevention and has prepared 500,000 testing kits and 1 million masks for the U.S. Smaller companies such as health-care software providers Phreesia Inc. and Buoy Health Inc. are helping medical providers triage potential patients for testing and care.

Every day matters as authorities race to track and slow the virus before it overwhelms the fragmented U.S. health-care system. States are trying to limit the damage from the pathogen, which experts believe could infect at least half the country's 329 million people, sharply reduce economic and personal activity for weeks or months, and plunge the economy into recession.

There have already been problems with the promised Google website. First, it wasn't being built by Google exactly, but by a sister company under the Alphabet umbrella, health-care unit Verily Life Sciences. On March 15, Vice President Mike Pence and public health officials followed up with more details. As they explained it, tests were being rushed to sites across the country, and at least 10 states were already running drive-thru testing centers. Pence said Google's website would tell people whether they needed a test and direct them on to one of dozens of new clinics popping up in Target and Walmart parking lots across the country.

For now, the website is available only in the San Francisco area. And on its first full day of operation, it reached capacity and stopped scheduling new testing appointments. Only 20 people got tested on Day 1, according to a person familiar with the operation. "In these first few days of this pilot, we expect appointment availability to be limited as we stand up operations and that testing capacity will increase in the days to come," says Verily spokeswoman Carolyn Wang.

The site faced immediate criticism from privacy advocates for its requirement to use a Google account to log in. The company said the step is necessary to keep in touch with patients and that Verily won't share the data with any other part of Alphabet. Separately, Google plans to launch a website dedicated to information about the coronavirus soon. It also plans to use the site to direct people to a Covid-19 screening tool being developed by the U.S. Centers for Disease Control and Prevention.

In the meantime, state and local health authorities have established hotlines for people to call and speak to a nurse who assesses whether each caller qualifies for testing or not, and labs are increasing their capabilities for running tests. Letting a computer handle the testing triage over the internet would be more efficient, but it's hard to know yet if the Verily system can even accurately decide who should be tested. "What's working against Google succeeding is the absolutely impossible timeline and

Edited by Jeff Muskus and Molly Schuetz

expectations that just got set on them with no warning," says Michael Slaby, a technologist who helped lead the Obama administration's effort to fix the disastrous rollout of the Healthcare.gov insurance exchange in 2013. Developing and troubleshooting tech infrastructure during a national crisis was a gargantuan task for Obama's team, Slaby says: "They didn't sleep for two weeks. It was incredibly intense."

Asia could serve as a model for how technology can be deployed to help in the crisis, but many of the measures used there wouldn't pass muster in the U.S., where civil liberties are more protected. In South Korea, one of the hardest-hit countries, the government used GPS phone tracking, credit card records, and surveillance video to track the movements of virus carriers and publish them on a public website.

In China, tech giants such as Alibaba and Tencent Holdings Ltd. acted as extensions of the government, helping develop a color-coded health rating system to identify people's level of risk and monitor their movements. The system, in use at offices, malls, and subways, scans people seeking to enter and allows or denies them access based on their ratings. E-commerce companies were also asked to report the identities of people buying cough or fever treatment in certain cities, while WeChat added functionality so users of its social network could see if they were in proximity to virus cases.

The digital tracking in China and Korea has its own consequences. Lists of people suspected to have the virus, and their contact information, were leaked in China and spread on social media, attracting online harassment. There's also evidence that the apps from Tencent and Alibaba send personal data to police, which could lead to other human-rights issues.

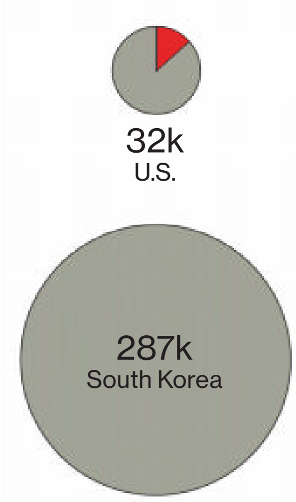
Even in a time of crisis, such invasive methods might not be legal or acceptable in the U.S. For now, the country will have to make do with the haphazard system it has. "There are going to be people a week from now who are going to say, 'I tried to get a test but I couldn't get it,'" Anthony Fauci, director of the National Institute of Allergy and Infectious Disease, said in a TV interview on Fox. "But the totality of the picture is going to be infinitely better than it was a few weeks ago." *—Gerrit De Vynck, with Shelly Banjo*

THE BOTTOM LINE Google has rarely met a problem it doesn't want to try to solve, but the coronavirus, combined with a fractured U.S. health system, is proving especially challenging.

▲ White House officials hope Verily's digital effort can backstop struggling analog testing facilities

▼ Coronavirus tests performed through March 16, 2020*

■ U.S. CDC labs



JUSTIN SULLIVAN/GETTY IMAGES. *U.S. DATA FOR MARCH 12-16 ARE INCOMPLETE DUE TO LAG IN RESULT REPORTING. DATA: CENTERS FOR DISEASE CONTROL AND PREVENTION, KOREA CENTERS FOR DISEASE CONTROL AND PREVENTION

Amazon Is No Longer The *Everything* Store

● With workers getting sick, the company will stop restocking nonessential items

While the Covid-19 pandemic keeps everything besides grocery stores and pharmacies shuttered in a growing number of cities around the world, Amazon.com Inc. has offered a relative sense of normalcy to shoppers who could still get most things delivered within two days. That's changing. On March 17, Amazon told its sellers that until at least April 5, high-demand products such as medical supplies and household staples will take priority, and that it's halting inbound shipments of all nonessential products to keep up with the need for those basics.

Toys and flatscreen TVs are on hold while Amazon ramps up shipments of toilet paper, bleach, and sanitizing wipes "so we can more quickly receive, restock, and ship these products to customers," the company said in a blog post updated on March 17. The new rules don't apply to products already in or on their way to Amazon warehouses, the company said in an emailed statement.

These changes may offer some relief to Amazon's warehouse employees, who are struggling with a next-level version of the company's notoriously brutal shift work. At least five of its warehouse workers in Spain and Italy have contracted Covid-19, according to union officials and people familiar with the matter, who spoke on condition of anonymity for fear of reprisals. The countries' respective unions have complained that Amazon is putting sales ahead of safety by refusing to close the facilities for cleaning. In response, on March 16 workers at its main Italian logistics hub in Castel San Giovanni called for a strike.

"We are giving our support to the employees that are currently in quarantine," Amazon said in a statement. "The security and safety of our employees is our main concern and we are following the directives of the local and international health authorities, and we have applied a series of preventive health measures in our centers across the world."

On the other side of the Atlantic, the company and its workers have felt the strain, too. On March 16, Amazon said it planned to hire 100,000 people and raise pay in the U.S. and Canada by $2 an hour through April to ensure it can make its deliveries. So far, the company hasn't confirmed any cases among blue-collar workers in its home country, but it's tough to imagine that its hundreds of thousands of workers are all virus-free. Amazon has to consider closing facilities and slowing the pace of deliveries to protect workers and make sure customers can trust its deliveries, says Alex Colvin, dean of Cornell's labor relations school. "If a worker in an Amazon facility delivering groceries to people gets sick with Covid-19, that could really shake public confidence," he says.

Amazon has offered two weeks of sick pay to workers diagnosed with the disease or placed in quarantine and says warehouse employees can

▼ In the U.S. alone, Amazon has hundreds of warehouses, sorting centers, and other facilities

HIROKO MASUIKE/THE NEW YORK TIMES/REDUX

also take unpaid time off through the end of March without risk of termination. Amazon doesn't offer paid sick leave to all workers, however, and seasonal employees and contractors without it may not be able to afford to miss a paycheck. Amazon, which reported $11.9 billion in profits in 2019, says it has set up a $25 million fund for contractors and part-time workers who can apply for as much as two weeks' pay if diagnosed with Covid-19 or quarantined.

In the U.S. alone, Amazon has hundreds of warehouses, sorting centers, and other logistics facilities. It's capable of rerouting orders to other locations to accommodate the temporary closure of a building or two. It does something similar when a warehouse becomes overwhelmed with orders during the peak holiday shopping season, diverting them from the overburdened facility to others nearby until the backlog clears. Amazon has also rerouted operations during floods, tornadoes, and other natural disasters. That'd be tougher in Europe, where there are fewer depots, or in the U.S. if a string of nearby facilities also went offline, according to logistics consultants and former Amazon employees familiar with its network.

The company wasn't at its most prepared to replace sick workers. The beginning of the year, just after the holiday shopping season, is when it cuts ties with tens of thousands of temporary staff. "You don't design operations for this kind of thing," says Marc Wulfraat, a logistics consultant who tracks Amazon's network. "The only way to handle that unplanned spike is more manpower." Job listings in Amazon's logistics and operations unit have more than tripled this month, to more than 4,000.

Amazon has told delivery companies to be ready to shoulder an extended uptick in demand, and it's offering overtime and bonus pay in cities across the U.S. for grocery shippers. An Amazon delivery company in Texas recently told its drivers they should expect to work extra shifts over the next six weeks.

Even as the company tries to hire more people, members of its existing workforce are having second thoughts about reporting for duty. One warehouse worker in the Midwest says she's taking advantage of Amazon's offer of unpaid time off to care for her kids, whose schools have closed. Some of her co-workers, she says, were scared away by reports of coronavirus cases in the county where the warehouse is located. Amazon posted signs reminding employees to wash their hands and set up extra hand sanitizer stations, but it hadn't been screening employees. "We are going to great lengths to keep the buildings extremely clean and help employees practice important precautions," the company said in a statement.

Union reps in Europe say that Amazon isn't taking the pandemic seriously enough and that it shouldn't be so eager to squeeze more people into its warehouses. Julien Vincent, a representative with the CFDT union who works at an Amazon warehouse in Montelimar, in the south of France, says his union asked the company to cut the number of workers at its facilities, but that hasn't happened. "For now they haven't done anything," Vincent says. "Things are continuing like things were normal."

Customers in Los Angeles, New York, Seattle, and other major cities have reported in the last two weeks that the Prime Now fast delivery program, designed to deliver orders in as little as one hour, has repeatedly showed no open delivery slots, an indication the company wasn't able to entice enough drivers to keep up with demand. On Sunday the company acknowledged a technical glitch that disrupted deliveries for its Whole Foods and Prime Now services.

Contractors who take shifts to bag delivery items at Whole Foods stores in dozens of states were offered an extra $5 an hour if they worked on March 16, according to an email the company sent to its gig economy workers. Amazon also raised the weekly cap on hours for such workers to 60, up from a typical 20 to 30.

The bonus and overtime pay wasn't enough for one occasional Whole Foods worker in the Denver area, who canceled a shift on Sunday out of concern the company wasn't doing enough to protect workers jostling for produce in aisles crowded with shoppers. "They claim to care about their workers, yet clearly not enough to rein in two-hour-delivery expectations," says the worker, who spoke on condition of anonymity for fear of reprisals. "Not enough to tell them to stay home." Whole Foods was criticized after Chief Executive Officer John Mackey suggested that workers with spare sick leave donate it to those in need. The company says it has stepped up in-store sanitation protocols and relaxed rules around calling in sick.

Many of Amazon's delivery drivers are contractors. The company issued advisories to Amazon Flex drivers, who make deliveries in their own vehicles, asking them to stay home if they've had a fever and to avoid personal contact. But that's almost impossible for a person who ferries groceries or has office buildings on their package route. For those drivers, who don't get Amazon health benefits, the extra overtime still might not mean they can afford to get sick. *—Matt Day, Daniele Lepido, Helene Fouquet, Macarena Munoz Montijano, and Spencer Soper*

THE BOTTOM LINE Amazon is ratcheting back the kinds of items it's taking in as it tries to vastly increase staffing to keep up with demand for essentials.

● Amazon has said it plans to hire as many as

100k

3

FINANCE

Edited by
Pat Regnier

● Business has to live with social distancing to save lives. But what if the money shuts down, too?

The Great Coronavirus Crash has been frightening in its speed and breadth. Stocks have lurched lower worldwide, with brief rallies between the falls, like wounded bulls in a *corrida*. Through 1 p.m. on March 18 the S&P 500 index was off 27% for the year to date, Germany's DAX was down 38%, and Japan's Nikkei was off 29%. In the credit market, investors have fled junk bonds. Even U.S. Treasury bonds—traditionally a safe harbor in crisis times—have come under pressure, possibly because investors are selling them to cover losses elsewhere.

"This is different. The thing that is scarier about it is you've never been in a scenario where you shut down the entire economy," Steve Chiavarone, portfolio manager and equity strategist with Federated Hermes, told Bloomberg News on March 16. "You get a sense in your stomach that we don't know how to price this and that markets could fall more."

The scariest aspect of the crash is that, for once, it's about something real. The crash of October 1987, which featured the largest one-day decline ever, was a hiccup, a market malfunction that didn't even cause a recession. The crash of 2008 also had an internal cause: the popping of a debt bubble inside the financial system, which was addressable with fiscal and monetary stimulus. This crash hasn't been caused by an imbalance in balance sheets but a life-and-death struggle with a microscopic invader, the virus that causes the lung disease Covid-19. Investors are wrapping their minds around the awful reality that the pandemic is out of control. The coronavirus infects stealthily: It's too late to stop it at the border or to seal off hot spots within a nation. It has spread so widely, the only way to halt it now is to operate on the assumption that anyone could be a silent carrier.

When sickness can come from anywhere, the agreed-upon solution is extreme social distancing—for a long time. President Trump said on March 16 that "people are talking July, August, or something like that." That's a big step for Trump, who's repeatedly played down the severity of the pandemic, but he's probably still being too optimistic. The Covid-19 response team at Imperial College London, headed by Neil Ferguson, issued a report that same day saying that to prevent new waves of infection, extreme distancing measures need to remain in place until a vaccine is ready. Scientists say that's likely to take a year to 18 months, if not longer. More optimistic forecasters point to China, which is encouraging people to go back to restaurants after a steep drop in new infections. But if China eases up too much, it could see a fresh outbreak.

Extreme social distancing is hell for airlines, cruise ships, restaurants, hairdressers, retailers—the list goes on. Few companies have announced mass layoffs yet, but they're bound to do so soon if no money is coming in. The American Hotel & Lodging Association said on March 17 that the industry would be forced to shed 1 million jobs in the next few weeks. Economists, some of whom have been almost as reluctant as Trump to look on the dark side, are finally facing up to the likelihood that a global recession will set in soon, if it hasn't begun already. Goldman Sachs Group Inc. predicted on March 15 that the U.S. economy would not grow at all in the first quarter and would then shrink at a 5% annual pace in the April-June quarter. Goldman and other forecasters are looking for a second-half rebound, but that's contingent on an easing of distancing measures, which many epidemiologists doubt will occur by then.

In that light, the retreat from stocks and low-grade credit doesn't look panicky. It looks rational. As of midday on March 18, stock prices had retreated only to where they were in February 2017. The Covid-19 bear market has wiped out most of the Trump bull market, but nothing more than that so far.

"The thing that is scarier about it is you've never been in a scenario where you shut down the entire economy"

To the extent that there's been panic, it's been in the scramble for liquidity. You've seen the photos of people loading shopping carts with toilet paper, hand sanitizer, and milk? The same primitive hoarding instinct grips Wall Street, except what people hoard there is money. Not financial assets, which can lose value, but pure money—the stuff that's honored everywhere and instantly transactable. In particular, dollars, which became scarce on the store shelves of finance in mid-March.

Corporate treasurers from Boeing to Carnival Cruise Line to Anheuser-Busch are borrowing as many dollars as they can from their credit lines while the money is still there for the taking. Eight banks, including JPMorgan Chase & Co. and Bank of America Corp., are suspending repurchases of their own shares to save cash. For people outside the U.S., the cost of getting dollars through swap contracts soared despite the best efforts of the Federal Reserve and other central banks. "We underestimated how acute dollar funding pressures would become," George Saravelos, head of currency research at Deutsche Bank AG, wrote in a client note.

The phrase "flattening the curve" has taken on a whole new meaning in the pandemic. In finance it means changing the shape of a graph of interest rates by raising short-term rates or lowering long-term ones. In epidemiology it means slowing the ▶

PHOTO ILLUSTRATION BY 731; PHOTO: SHUTTERSTOCK

◀ exponential growth of Covid-19 cases so hospitals aren't overwhelmed by a spike in critically ill patients who need ventilators to breathe. A re-steepening of the yield curve that had flattened is often the last monetary paroxysm before a recession. That's what's happening now—largely in response to the fearsome steepness of the viral infection curve.

Governments worldwide are getting serious about fighting not only Covid-19 but also its economic effects. British Prime Minister Boris Johnson announced "wartime" funding to shore up the economy. Spain brought forth a stimulus package worth as much as a fifth of its gross domestic product.

In the U.S. the Fed has cut its benchmark federal funds rate by 1.5 percentage points, to just above zero, in two emergency meetings, and it's pledged to buy $700 billion in Treasuries and mortgage-backed securities. On March 17 it said it would buy commercial paper directly from issuers—in effect, lending money to big companies that have lost access to private financing. Also on March 18, the Trump administration was discussing a plan that could amount to as much as $1.3 trillion in spending—including direct payments of $500 billion, or more than $1,000 per person. Treasury Secretary Steven Mnuchin told Republican senators that in the absence of government action, in a worst-case scenario, the unemployment rate could rise to 20%.

Any other year, a decline in stocks like that of March 16, when the S&P 500 fell 12%, would earn banner headlines around the world. It got only one paragraph on the front page of the next day's *New York Times*—pushed aside by news about the pandemic itself. But stocks do matter. The decline will further sap consumer spending and business investment, deepening the recession. And the stock market is incorporating, however imperfectly, the best information the world has about the likely course of this pandemic and its economic impact. What the market is telling us is that things look pretty bad.
—Peter Coy, with Vildana Hajric and John Ainger

● Credit Is the Scariest Market

While drops in the Dow and S&P dominate the headlines, the market that has many traders and policymakers most on edge right now is debt—that is, bonds and loans. The free-flowing credit conditions that defined the last decade are no more.

Weeks of virus-induced volatility have almost shut down the markets for newly issued company debt, and even short-term IOUs, known as commercial paper, showed enough signs of stress to prompt the Fed to step in. With the usual corporate fundraising outlets closed, companies including Hilton Worldwide, Kraft Heinz, and Caesars Entertainment are tapping credit lines to get fast backup cash.

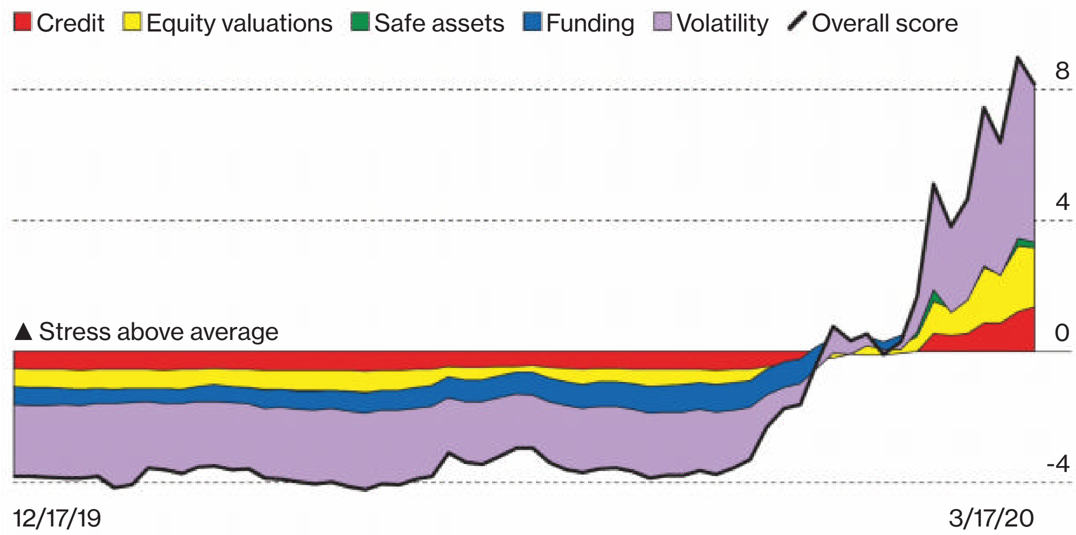
It's a stunning, and sudden, seize-up in a corner of high finance known for funding megadeals while shrugging off concerns about companies' ever-growing debt loads. Now there's no way to know just how bad the coming credit crunch will be. "There's a real concern for something that was seen as almost impossible in the last few years," says Scott Macklin, director of leveraged loans at AllianceBernstein. "We could face another credit crisis. Companies need cash more than ever, but the sources are slimmer."

As the U.S. came out of the last financial crisis, companies took advantage of rock-bottom interest rates and loaded up on debt, helping total business borrowings reach $16.1 trillion, up from $10.2 trillion a decade ago. Investors lined up to lend, in part because U.S. rates, though low, were still much higher than those in Europe and Japan. The ready supply of lenders allowed borrowers to strip investor protections, known as covenants, from risky loan contracts. Even as higher-quality borrowers' credit ratings slid toward the bottom rungs of investment-grade, the money kept flowing.

Now the companies that borrowed big face a reckoning. Strategists at UBS Group AG estimate as much as $140 billion of investment-grade debt may fall to junk this year, driven by energy companies hit by a global demand slump and the Saudi-Russian oil price war. The strategists expect high-yield bond defaults to soar. "This feels like a very acute, very sharp shock," says Jim Caron, head of global macro strategies for fixed income at Morgan Stanley Investment Management. He's

An Outbreak of Financial Stress

The U.S. Office of Financial Research has a measure of daily stress in global markets based on 33 variables including yields, valuations, and rates. Here it is by component:



DATA: OFFICE OF FINANCIAL RESEARCH

not expecting every company that's increased its debt load to run into trouble, but those with weaker balance sheets will suffer. "Leverage always adds insult to injury," he says.

In recent days some of the largest, most creditworthy companies, including PepsiCo Inc. and Exxon Mobil Corp., have been able to sell new bonds. But the door remains closed for riskier businesses that might rely on the junk bond or leveraged-loan markets for financing, says Elaine Stokes, a portfolio manager at Loomis Sayles & Co. A prolonged debt market shutdown is a particularly dire threat to the financial system, because the consequences can spread well beyond corporate treasurers' offices. As borrowing costs for the biggest companies rise, so too can loan interest for smaller businesses and consumers. And failure to get new financing can push a struggling company into bankruptcy, forcing it to cut jobs.

With bigger social costs at stake, many corporate credit investors are expecting more stimulus that could help companies in trouble and grease the debt machine. "We have to get the markets to function normally so that all these companies that we need to be up and running and paying their employees can borrow," Stokes says. —*Claire Boston*

● Stock Traders Have No Map

Welcome to the fastest-ever bear market. It broke out smack at a market top, something that almost never happens. As shocking as the 2008 financial crisis and crash of 1987 obviously were, both followed months of downward drift—though that was only visible in retrospect.

In just four weeks, U.S. stocks have already completed the 30% plunge that matches the median loss of the last 10 bear markets. The median time it took the earlier episodes to lumber to the bottom? One and a half years. Now that ▶

▼ Heading home after a dark day on the Street

NELSON ALMEIDA/AFP/GETTY IMAGES

◀ they've woken up, investors are preparing for the worst. Recession fears are running high, and traders are slamming the sell button. "It's bad," says Jeffrey Kleintop, chief global investment strategist for Charles Schwab & Co., "but too early to tell the size."

At its worst point during the sell-off, more than $10 trillion of equity value was erased, wiping out three years of gains. Price swings exploded. The Cboe Volatility Index, a measure of the cost of S&P 500 options that's used as a gauge of market anxiety, jumped to a record high, exceeding levels seen during the dark days of the financial crisis.

Traders have precious little data to go on. Many companies have warned about weaker profits, but few have offered specifics. With the first-quarter reporting season weeks away, investors will have to wait until April for a tally of the damage. The lack of clarity begets more selling. According to Bank of America Corp.'s latest monthly survey, money managers are cutting equity exposure at the fastest pace since at least 2001.

There have been glimmers of hope: In two recent sessions, vows of fiscal stimulus from the U.S. government gave stocks a bounce. But Tony Dwyer, who's paid to handicap equities as chief market strategist at Canaccord Genuity LLC, says for now he's stopped making market forecasts. He suspended his yearend target for the S&P 500, saying the virus and the government's response to it have made things too unpredictable. "This unknown element is something people just aren't used to," says JJ Kinahan, chief market strategist at TD Ameritrade in Chicago. "Unless somebody has a crystal ball that I'm unaware of, and they're like, 'OK, I know exactly when this is going to turn and what it means for earnings,' how can you model it out?" —*Lu Wang and Vildana Hajric*

● The Great Liquidation

The Wall Street worry list is a long one right now. One item is creeping up that list fast: Unreliable safe-haven investments.

As stocks tumbled, some of the most shocking moves came in the bond market. On March 18, European government obligations including German bonds were losing value at the same time as stocks in the region. U.S. Treasuries also fell, extending their decline a day after the biggest yield jump for 10-year U.S. bonds since 1982. (Yields rise when bond prices fall.) A similar dynamic took hold earlier in Asia.

Such a synchronized drop is not supposed to happen—investors often flee to government bonds when stocks decline—and it's a threat to classic diversification strategies. Even gold was dropping. "The worst outcome at the moment is there's nowhere to hide—your gold is falling, your equities are falling, your bonds are falling," says Klaudius Sobczyk, a fund manager at PEH Wertpapier AG in Frankfurt.

The trigger for the unusual stock-and-bond drop was government announcements of stimulus measures to blunt the economic impact of the outbreak, which will almost certainly lead a flood of new government bonds hitting the market. All major asset markets are experiencing disruptions as investors sell their holdings in a scramble for safety. "Our best guess is that these [moves] have been exacerbated by margin calls, by the oil sell-off," and by hedge funds racing to get out of losing trades, Citigroup strategist Matt King wrote in a note to clients. "Basically investors have been liquidating positions everywhere, whatever their rationale."

What many investors seem to want now is the same thing companies are hungry for: cash. At the same time risky assets were falling, the huge but more obscure markets that companies and institutional investors use to tap needed cash were showing signs of stress not seen since 2008. This pressure has triggered the Fed to unleash some of its biggest weapons to keep banks flush and markets functioning smoothly. The central bank offered trillions of dollars in liquidity through repurchase agreements. In essence, it said it would provide a vast amount of short-term loans in exchange for securities as collateral, giving them cash and curtailing the need to potentially sell assets. It also said it would buy as much as $700 billion in debt assets and make it cheaper for foreign central banks to get dollars. At the same time, the Fed slashed its benchmark rate to zero to combat the mounting threat of a recession.

When that didn't quell the fire and signs emerged that the part of the market that provides corporate America with short-term credit was seizing, the Fed did even more. It restarted crisis-era programs, including one to help U.S. companies borrow using short-term debt known as commercial paper. "The Fed is saying they will backstop the markets with liquidity," says Joshua Younger, head of U.S. interest rate derivatives strategy at JPMorgan Chase & Co. They are doing so because "these markets serve as a transmission mechanism"—causing the stress from the virus to turn into stress for companies and ultimately banks. —*Sam Potter, Liz Capo McCormick, and Alexandra Harris*

▲ The São Paulo Stock Exchange on March 16

JOHN TAGGART/BLOOMBERG

● Emerging Markets in Free Fall

Emerging markets are having the worst start to a year since the asset class came into being in 1988. The brutal losses have erased almost $5 trillion from equity values since mid-January, with stocks in Colombia, Greece, and elsewhere down more than 40%. Emergency rate cuts from South Korea to Turkey did little to calm investors, who pulled a record $4 billion from emerging markets exchange-traded funds over the five days ended March 13. Latin American currencies keep hitting lows against the dollar. Mexico and Colombia, countries that rely on oil revenue, saw their currencies fall more than 20%.

The crisis has been especially dramatic in Brazil. Six times in eight days, stock markets fell sharply enough to trigger the circuit breakers that kick in to halt trading when losses are too steep. The real sank 2% on March 9, when oil crashed, then 3.7% two days later and another 3.2% on March 16. The rapid drop in the real will raise the price of imports, adding pressure to inflation and forcing companies and people to revise their budgets. “It was six months in one day,” says Marco Antonio Mecchi, a 25-year market veteran who founded MZK Investimentos. Mecchi and two other Brazilian investors described an exhausting few days—hundreds of unread messages, long hours watching screens flash red, and sleepless nights watching Asian markets.

But the crash wasn’t hitting just the professional traders of São Paulo. Low interest rates—a novelty in a country scarred by years of hyperinflation—helped to pull many small investors into the stock market in recent years. Retail investors accounted for 18% of local stock trading last year, the highest share since at least 2013. Some of these new players are now enduring their first stock market crisis. Niwton Braz, who sells construction materials, saw his income plunge by about half over the past two weeks because of the uncertainty caused by the virus. And more than half of his investments were in stocks. “It does leave you in sort of a panic,” he says. “I had plans for that money, but now that will have to wait.”

Brazilian policymakers are in a tough spot. A large stimulus package would harm efforts to reduce the deficit that cost the country its investment-grade rating in 2015. That leaves monetary policy as the main tool to keep growth from stalling. But cutting rates will put more downward pressure on the real, says Anders Faergemann, a London-based portfolio manager at PineBridge, and further erode Brazilians’ purchasing power. —*Julia Leite and Aline Oyamada, with Felipe Marques*

What If Whatever It Takes Is Not Enough?

● Countries must overcome nationalist impulses and mistrust to coordinate a global response to the virus

After a halting start, governments and central banks have finally been coming to grips with the economic consequences of the coronavirus outbreak. The Covid-19 disease is more than a health crisis. What seemed like an alarmist scenario a month ago—a global recession—now appears a certainty. And the extreme measures needed to limit infections may intensify the slump.

Maurice Obstfeld, the International Monetary Fund's former chief economist, says you'd have to be optimistic to believe we're experiencing something akin to the recession caused by the financial crisis, when global output in 2009 shrank 0.1%, according to IMF data. As governments restrict travel and close restaurants while manufacturers prepare for temporary shutdowns, major economies are now experiencing a "hard stop," which could inflict a toll that may be closer to the 9% contraction Greece endured at the height of its sovereign debt crisis, he says. "We are seeing a collapse of economic activity as countries try to get a handle on this disease," Obstfeld says, pointing to the plunge in industrial production and

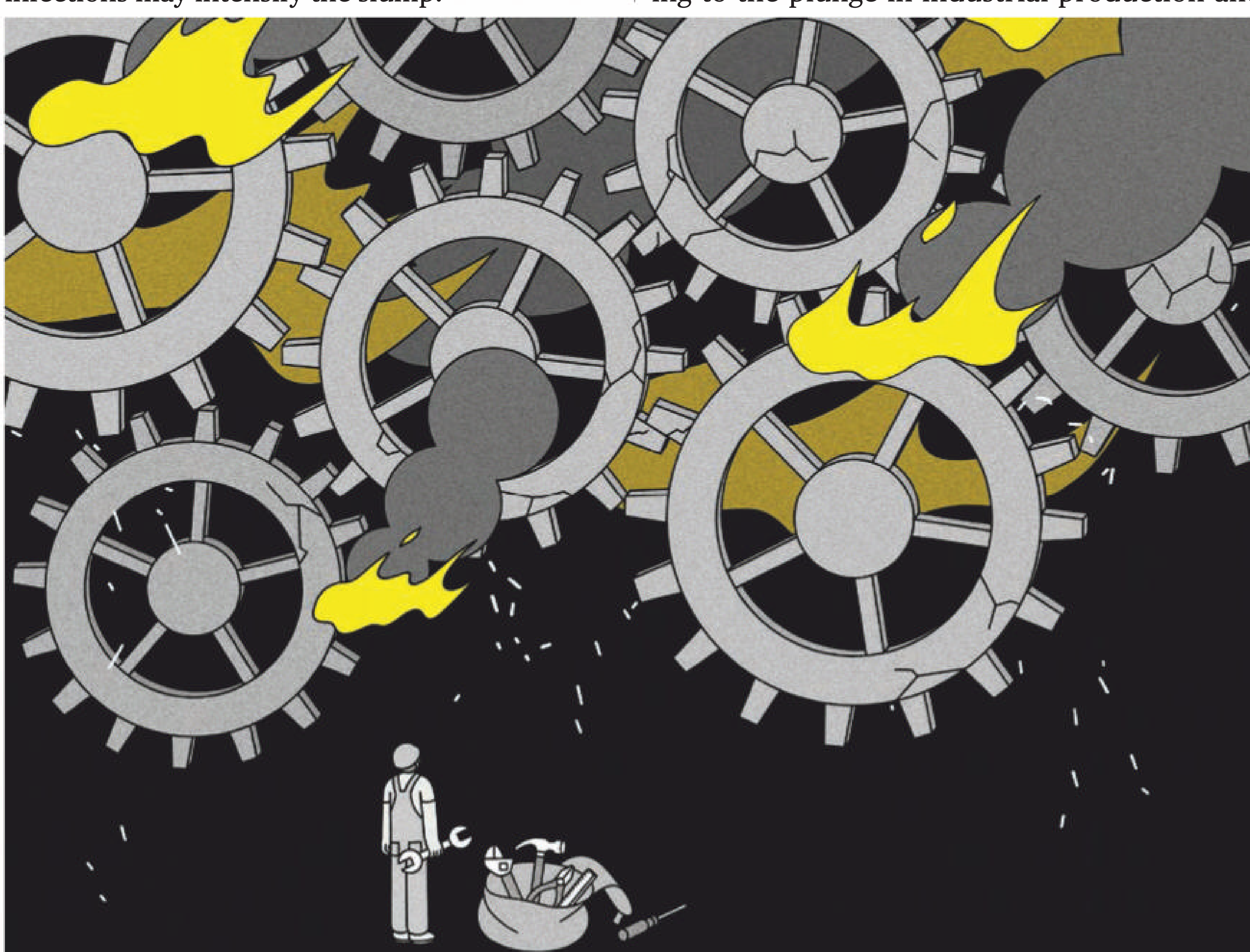


ILLUSTRATION BY WOSHIBAI. DATA: COMPILED BY BLOOMBERG

Edited by Cristina Lindblad

consumption in China as evidence of what lies ahead for Europe and the U.S.

The extent of the damage, he says, will depend in large part on the scope and duration of the outbreak. But a lot relies on governments acting in unison to roll out aggressive measures that ease the pain for big businesses (think airlines) as well as the little guy (your neighborhood bartender). At the same time, central banks need to do everything in their power to prevent what began as a health crisis from morphing into a financial meltdown.

After some foot-dragging, policymakers in Europe and the U.S. are swinging into action. Central banks have cut rates and enacted measures to ensure stressed markets continue to function. Following a March 16 videoconference call, the leaders of the Group of Seven nations vowed to do “whatever is necessary” to protect lives as well as livelihoods.

The statement echoed former European Central Bank President Mario Draghi’s 2012 vow, in the throes of the European debt crisis, to do “whatever it takes” to preserve the euro. But the G-7 declaration, which was replete with grand promises rather than tangible actions, didn’t spark a relief rally the way Draghi’s pledge did. The Dow Jones Industrial Average closed down 13% on March 16, as U.S. markets recorded their biggest single-day fall since the 1987 crash.

That the G-7 statement came just hours after the U.S. Federal Reserve announced its second emergency rate cut in 12 days raises an ominous question: What if this time whatever it takes is not enough?

During the global financial crisis, much of the credit for preventing a slip from recession into depression went to the decisive actions of groupings such as the G-7 and G-20, which repeatedly signaled their resolve to eschew protectionism and beggar-thy-neighbor policies like currency devaluations. More than a decade later, it’s plain to see that the bonds among historical allies have been frayed by the trade wars and heightened mistrust—which risks taking the response to the present crisis down a dangerous nationalist path.

By calling SARS-CoV-2 a “Chinese virus” and abruptly imposing travel restrictions on visitors from China and Europe, President Trump has further strained those relationships. Chinese officials have complained of unfair discrimination and ordered the expulsion of American journalists. The Europeans, who were irritated that Washington hadn’t consulted with them on the travel ban, introduced their own restrictions a few days later, and a raft of other countries including Canada have followed suit.

Another factor working against a concerted effort is that the U.S.—and Trump, a self-proclaimed anti-globalist—presently holds the rotating presidency of the G-7. It doesn’t help either that Saudi Arabia, which is at the helm of the G-20, has decided to wage a destabilizing price war against U.S. shale oil producers. “Right now I don’t think—given the Trump presidency—anyone imagines the G-7 or the G-20 as an effective coordinating device for a response to this crisis,” says Adam Tooze, a Columbia University economic historian and the author of *Crashed*, an account of the 2008 crisis. “The only way to put this is it’s quite disillusioning.”

It’s not just the Americans and the Saudis who could undermine attempts at collective action. In what Obstfeld calls a “Europe First” moment, the European Union recently banned exports of face masks and other protective gear to countries outside the bloc. Although the move was meant to ease the flow of precious supplies within the EU, it was also evidence of something potentially more corrosive. “It’s not surprising that after three years of President Trump tearing down international cooperation the Europeans would not have a lot of trust in any sort of U.S. leadership role or be willing to put their interests at the mercy of international cooperation,” says Obstfeld, who’s now at the University of California at Berkeley. “But it’s really sad, and it doesn’t bode well for the future and trust between countries once we as individual nations get through this panic.”

There are signs that such tussling may be only just beginning. *Die Welt am Sonntag* and other German media reported on May 15 that the Trump administration had sought to acquire a German company developing a coronavirus treatment to secure its sole use for the U.S., prompting an intervention by Berlin. Tooze and others see in that a portent of a bigger fight to come, one that will likely take the trade restrictions from the realm of safety equipment into the far more challenging arena of intellectual property and medicines that pharmaceutical companies are racing to develop.

“The major players are acting as if their interests are not aligned,” says Daniel Drezner, a Tufts University political scientist. That is one of the major ways in which this crisis is different from 2008, says Drezner, author of *The System Worked: How the World Stopped Another Great Depression*.

Then, national interests were both interlinked by globalization and aligned in stopping a meltdown of the financial system. The economic ▶

▼ Change in benchmark interest rate since Jan. 1

◀ model being tested—free-market liberalism—was also not facing the same assault from populist alternatives such as Trump's "America First" brand of capitalism.

Although many expect the current economic shock to be short and sharp, there are also concerns that it may have other, longer-lasting consequences. At the Institute of International Finance, chief economist Robin Brooks and his team have been tracking huge outflows of money from emerging markets that could trigger old-fashioned balance-of-payments crises similar to the ones that engulfed Mexico and most of Asia in the 1990s.

Brooks also frets that governments in developed economies are moving too tentatively and on parallel tracks, which will dilute the potency of measures to offset the downturn. "We need with greater urgency globally a fiscal response, and it needs to be coordinated," he says. "There's no reasons for delay now. We know this thing is coming, and it is coming hard."

In December 2008 the IMF's managing director, Dominique Strauss-Kahn, pushed for a coordinated global effort by governments to spend an additional 2% of global gross domestic product, or $1.2 trillion, and economists increasingly say something of the same order is needed now.

As of March 17 governments had announced stimulus measures adding up to just under $3 trillion, or 3% of global GDP. Included in that total is a $1.3 trillion package proposed by the Trump administration that will still have to get through a divided Congress in an election year.

While financial markets have been underwhelmed by the response so far, it's worth remembering that the U.S. had been in recession for almost a year by the time the G-20 nations convened in Washington in November 2008 to coordinate policies in the aftermath of the global financial crisis. "If we had that amount of time with the coronavirus, we'd feel pretty lucky," says Tooze. Today, "the sheer pace is staggering."

Obstfeld says the sudden stop in economic activity hitting Europe and the U.S. now looks a lot like an accelerated version of what happens in a classic emerging-market crisis when countries abruptly lose access to capital markets. Which is why he worries the world's biggest economies may be about to experience a Greece-like shock, with all its consequences, from sharply rising inequality to a realignment of the political order. An inadequate policy response—with less fiscal stimulus than needed and the erection of more barriers to trade—would mean a contraction that could be deeper and longer than the one the U.S. suffered in the Great Recession. An adequate one may mean a rapid recovery and avoiding the economic doldrums that followed the last crisis. "That," Obstfeld says, "would require a lot more coordination between countries." —*Shawn Donnan*

THE BOTTOM LINE Governments have announced trillions in stimulus measures to blunt the economic hit from the coronavirus. The medicine might be more potent if their actions were coordinated.

Texas Blues

● The state may see its growth rate halved this year by the combination of plunging oil prices and the coronavirus pandemic

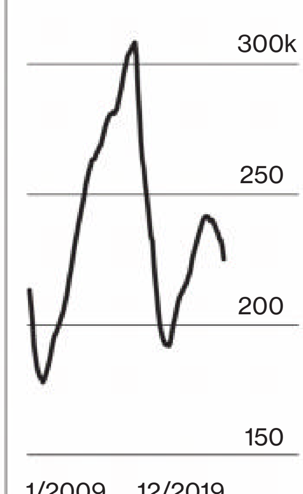
When crude oil prices fell to $46 a barrel during the first week of March, Patrick Payton, the mayor of Midland, Texas, seemed oddly calm, almost relieved. The de facto capital of the Permian Basin, the biggest shale patch in the world, could use something of a slowdown, he figured, after breakneck growth had stretched services so thin that the police force could barely keep enough officers on the beat.

Then a couple of days passed, and the sign downtown that flashes the current oil price read—suddenly—$30. Payton could hardly take it in. "Crisis is an overused word, but it's a crisis of shock," he says. "We have to adjust to our new reality."

So does all of Texas. Despite a decades-long effort at diversifying its economy, the state is still highly dependent on oil and gas. In good times, that's helped Texas grow faster than most of the U.S., while in bad times it's weighed on growth. The price war between Russia and Saudi Arabia that sent crude tumbling is a threat. So, too, is the new coronavirus: Besides throttling global demand for oil, the outbreak could strain the state's health-care system to the breaking point. Texas had the nation's highest share of residents without health insurance in 2018, at 17.7%. People without coverage may think twice before going to the doctor for testing, which could contribute to the spread of the virus. Covid-19 could also have a lasting impact on the fast-growing leisure and hospitality industry.

Dallas bank Comerica Inc. may further downgrade its 2020 economic growth forecast for Texas to 2%, after projecting in February it would slow to 3.1%, from last year's 4.4%. Although 2% isn't exactly bad, and better than what's expected for

▼ Oil jobs in Texas



JULIE DERMANSKY. DATA: DALLAS FED, BUREAU OF LABOR STATISTICS

the U.S. as a whole, it would be a comedown for the Lone Star State. "Right now, there are bumps in the road," says Jason Schenker, president of Prestige Economics LLC in Austin. "We could see more than bumps—potholes."

Texas boasts more energy-company headquarters than anywhere else on the planet. From 1997 to 2017, the business of oil and gas extraction contributed as little as 3% to as much as 12% of the state's gross domestic product each year. But there's also been a consistent uptick in jobs in a range of other fields, including health care and finance. "The non-energy part of the Texas economy has been growing so strongly," says Robert Dye, Comerica's chief economist. "That's a major stabilizing force."

Will it be enough to absorb the blow from the oil price plunge?

It's a political question, too, because a strong economy in Texas would benefit President Trump, whereas weakness could help his Democratic opponent in November. Changing demographics—notably an influx of young professionals—make the state competitive after a generation of GOP dominance. Trump won Texas by 9 percentage points in 2016 but now leads former Vice President Joe Biden, the likely Democratic nominee, by less than 3 percentage points, according to a RealClearPolitics average of recent polls.

In the Permian Basin in West Texas, where half of all U.S. oilfield work occurs, spending by producers is expected to drop 40% by yearend, according to Coras Research LLC. Across the U.S., 1,500 to 3,000 oilfield service jobs could be affected in the next two months, says Matt Johnson, chief executive officer of Primary Vision, which tracks industry data.

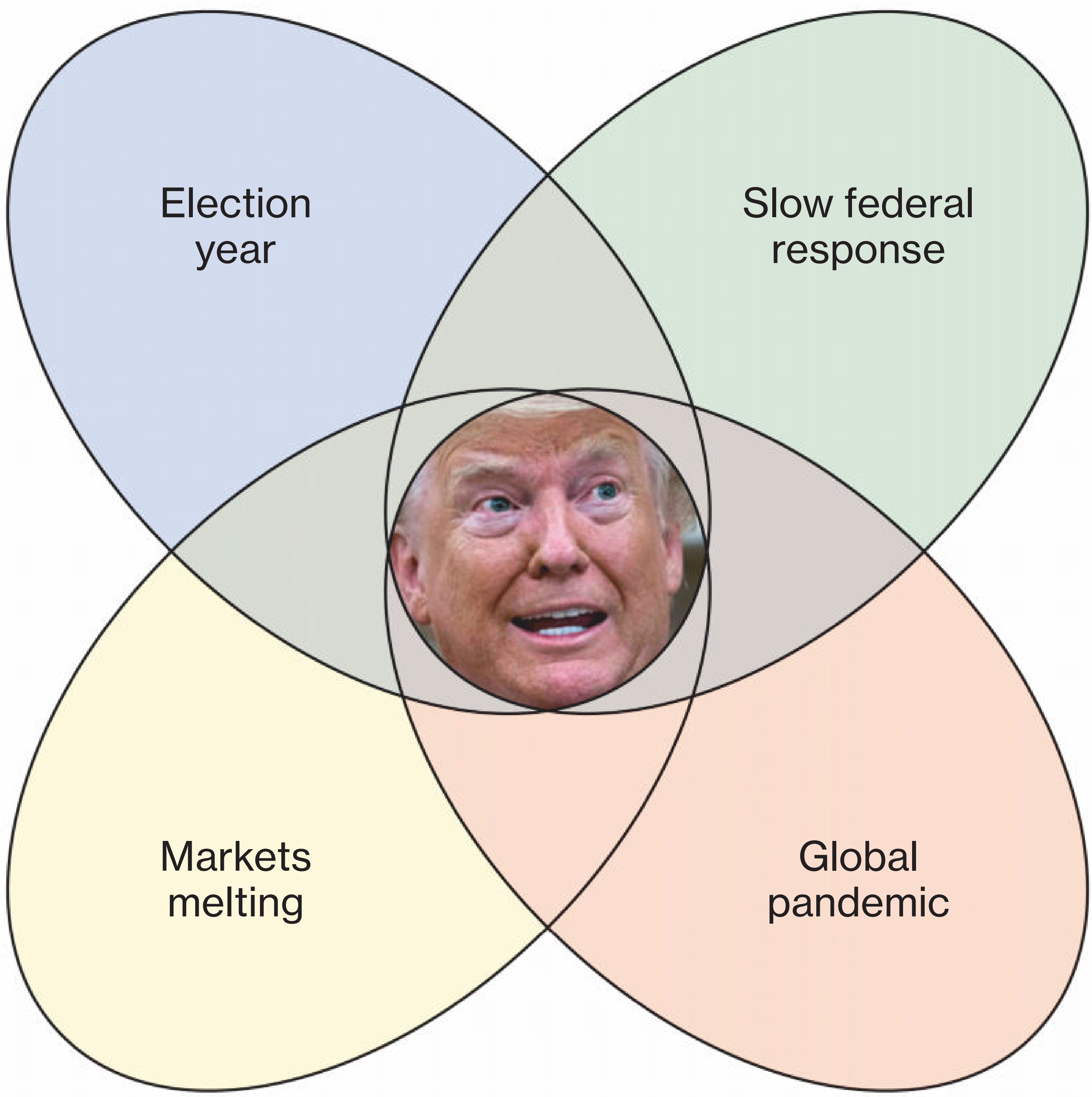
Explorers in the Permian need oil above $47 a barrel to break even, according to analysis from BloombergNEF, Bloomberg LP's primary research service on energy transition. Energy companies operating in the basin had already started to rein in activity last year, driven by Wall Street demands to cut debt and deliver more profits to shareholders. Several have instituted hiring freezes, says Sam Cross, a senior vice president for Airswift, a recruiter. Halliburton Co., the world's biggest provider of fracking services, announced on March 17 it will furlough about 3,500 workers at its Houston headquarters. "Among staff and candidates, there's a lot of fear," says Cross.

Worries about how the industry will ride out the latest oil price bust are rippling across Texas. "It's scary, but I'm trying to stay positive," says César Lozano, who opened Papa Tacho's in Midland after the last downturn in 2016. He's opening a second location of the Mexican restaurant, which is packed with workers sporting steel-toed boots and oilfield logos during lunchtime. "You can't have your ups without your downs," he says. "People here are resilient. We'll find a way." *—Rachel Adams-Heard, David Wethe, Steve Matthews, and Reade Pickert*

THE BOTTOM LINE A price war among the world's top oil producers and the spread of the coronavirus threaten to hit Texas hard and could upend politics in the traditionally Republican state.

▲ Pecos, Texas, grew rapidly as the shale boom attracted workers

Trump's Moment Of Truth



DOUG MILLS/NYT/REDUX

The coronavirus disaster couldn't come at a worse time for a president seeking reelection

Edited by Amanda Hurley

As last year drew to a close, President Trump's reelection prospects had never looked brighter: Impeachment was behind him, unemployment was at historic lows, the stock market seemed to hit a new high every day, and Americans who generally agree on little else felt pretty great about the state of the U.S. economy. Gallup found that 62% rated economic conditions "excellent" or "good," the most in a decade. Nothing on the horizon indicated cause for worry.

Coronavirus changed that within a matter of weeks. Economic repercussions have traced the path of the virus with astonishing speed, first ravaging financial markets in China, then Europe, and finally the U.S. On Feb. 12 the S&P 500 hit a record high; 30 days later the index had plunged almost 30%, capped off by what was at the time the worst single-day decline since the 1987 "Black Monday" crash.

The timing couldn't be worse for Trump's political hopes. Academic research has consistently found that voters judge incumbent presidents based on the state of the economy in an election year—and that their impressions of economic performance solidify over the spring, which means now.

"In my model and most other forecasting models, the election year economy is critical," says Alan Abramowitz, a political science professor at Emory University whose election model has been among the most accurate. "And the second quarter seems to be what really matters in terms of shaping the outlook of voters heading into the election."

That bodes ill for Trump. The force and scale of the crisis, exacerbated by the president's initial denial and slow federal response, paint an ugly picture of the economic effects soon to come. Forecasters are sharply downgrading growth estimates and expect the brunt of the economic damage to land in the second quarter. Goldman Sachs forecasts that U.S. gross domestic product will fall 5% in the second quarter; Pantheon Macroeconomics predicts a 10% drop; and JPMorgan sees a 14% drop.

During a press briefing on March 16, President Trump and his coronavirus task force announced that the Covid-19 pandemic could last for months, and gatherings should be limited to 10 people.

While many also anticipate a bounce back late in the year, a recession now looks unavoidable. A survey of prominent academic economists by the University of Chicago Booth School of Business found that a majority expect a "major recession" as a result of the virus. On March 17, Morgan Stanley and Goldman Sachs declared that a global recession is already under way. "The middle two quarters of this year are going to be very challenging, even if we get the spread of the coronavirus under control quickly," says Carl Tannenbaum, chief economist at Northern Trust Corp. and a former Federal Reserve staffer.

Although Trump may be a victim of bad timing in having to confront an election year pandemic, his decision to treat coronavirus as a public-relations emergency, rather than a public health emergency, has expanded the scale of the crisis that's engulfed his presidency. His early attempts to talk up the stock market by playing down the threat delayed the government's response. "We have it totally under control," Trump insisted on Jan. 22. "It's going to be just fine."

That delay, coupled with the failure to mass-produce a reliable test, allowed the virus to spread and compound the damage to the economy. "The length and depth of the global economic contraction depends most importantly on whether health officials can materially slow the spread of the virus via a ramp-up in testing, restrictions on mass gatherings, and quarantines of infected people as well as their contacts," Jan Hatzius, chief economist at Goldman Sachs, told clients on March 9. In the U.S., those restrictions began to be imposed only in the past week, when state and local officials lost patience with the Trump administration and began taking action on their own.

On March 16, seeing that his PR offensive wasn't slowing the virus, Trump struck a much direr tone. "This is a bad one," he said. "It's bad. We're going to hopefully be a best case and not a worst case."

Now he faces an even tougher task than he did back in January: Limiting the spread of the virus will entail advocating measures that worsen the near-term hits to the economy. These include shutting schools, restaurants, and bars and limiting foreign and domestic travel. In an economy that depends overwhelmingly on consumer spending, that will not only hurt economic growth but will also cause mass job losses and reduced earnings. Forecasting firm IHS Markit says the unemployment rate could almost double, to 6%, by the middle of next year. In discussing the need for significant stimulus, Treasury Secretary Steven Mnuchin told Republican senators that without government intervention the jobless rate could soar to 20%, Bloomberg reported.

More than 18 million Americans work in industries that will suffer from efforts to curtail the virus, according to JPMorgan Chase economist Michael Feroli. Major League Baseball, the National Basketball Association, and Major League Soccer have all suspended their seasons. Broadway and ▶

● Share of U.S. GDP contributed by "virus-vulnerable leisure" industries

10%

◀ Disneyland have shuttered. The major U.S. airlines have announced they'll aggressively cut flights, and hotel reservations are being canceled nationwide. Collectively, this segment of the economy—what might be called "virus-vulnerable leisure"—accounts for up to 10% of U.S. GDP, or about $2 trillion, according to Feroli. And that doesn't count changes in behavior that hit other parts of the economy—from canceled doctor's appointments and elective surgery, to delayed home repairs, to putting off simple things like getting a haircut.

A blow to personal income appears unavoidable and could be especially damaging to Trump's prospects. Larry Bartels, a Vanderbilt University political scientist, says changes in personal income, even more than GDP, shape voters' impression of an incumbent. He and Princeton University professor Christopher Achen "found a strong relationship between changes in real disposable income per capita in the second and third quarters of presidential election years and the incumbent party's electoral fortunes," says Bartels. While it's impossible to draw precise conclusions from the limited number of modern presidential elections, "short-term changes definitely seem to be more important than long-term changes, and real incomes seem to be more relevant than GDP," he says. "Insofar as the coronavirus produces an economic slump over the next six months, I would certainly expect that slump to adversely affect President Trump's reelection chances."

One irony of Trump's electoral predicament is that U.S. economic fundamentals appeared strong on the eve of the crisis. That's one reason many economists still anticipate a healthy rebound once the contagion has safely passed. But that turnaround may arrive too late to help Trump. And studies suggest voters are unlikely to credit him for the three years of steady growth and low unemployment that preceded the virus outbreak. The reelection campaigns of Jimmy Carter and Bill Clinton offer an illustration of why Trump has cause to be nervous.

In a 2013 paper, "Substituting the End for the Whole: Why Voters Respond Primarily to the Election-Year Economy," Andrew Healy of Loyola Marymount University and Gabriel S. Lenz of the University of California at Berkeley examined annual personal income growth across presidential terms. Across Clinton's first term, personal income growth was moderate overall, but it was strongest in the critical fourth year. Carter had the opposite experience, with the worst year arriving at the end: Personal income growth actually declined in his final year in office. Even though Carter oversaw higher cumulative income growth during his full term (6.9%, vs. 6.2% for Clinton), he lost his bid for a second term, while Clinton won easily.

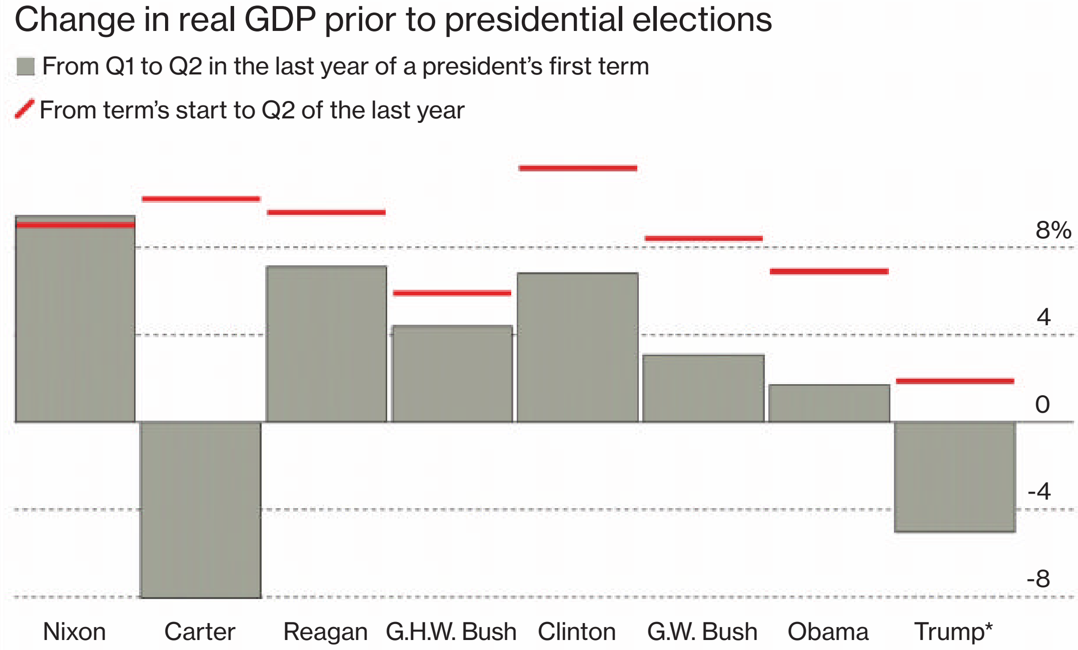
That outcome is consistent with how voters have judged incumbent presidents in other elections. "Voters are myopic," Bartels and Achen write in their book, *Democracy for Realists*. "The performance of the economy over the course of a president's entire term—which provides a better measure of changes in voters' welfare, and presumably provides a more reliable benchmark of the incumbent's competence as well—is almost entirely discounted by voters when they go to the polls."

The question now is how bad the economic fallout will be and what Trump and other officials can do to curb its effects. The Federal Reserve has made two rounds of emergency rate cuts in March, slashing interest rates to near zero and announcing a $700 billion bond-buying program. That did more to spook investors than reassure them, as U.S. stocks plunged 12% the next day. "The aggressive actions align with the worst expectations about the spiraling impact of the Coronavirus," Bloomberg Economics wrote in an analysis. Going forward, monetary policy will be of limited use, with interest rates having reached the zero lower bound and consumer and business spending frozen by fear of the virus and its related disruptions.

That leaves fiscal policy as the last hope. In early March, Congress passed an $8.3 billion bill for vaccine research and prevention. On March 16 the Democrat-led House passed a second, $100 billion bill to increase testing and provide paid sick leave. Both parties believe an additional major stimulus is necessary, though they don't yet agree on its focus. Trump initially advocated a payroll tax holiday but got pushback from both parties,

"I would certainly expect that slump to adversely affect President Trump's reelection chances"

Change in real GDP prior to presidential elections



*GOLDMAN SACHS ESTIMATES
REAL GDP, SEASONALLY ADJUSTED AT ANNUAL RATES. DATA: BUREAU OF ECONOMIC ANALYSIS

▲ At a March 16 briefing, Trump urged that gatherings be limited to 10 people

JABIN BOTSFORD/WASHINGTON POST/GETTY IMAGES

because it wouldn't act fast enough or help people who get laid off or can't work.

That idea has been eclipsed by proposals to send Americans cash payments to help them cope with the crisis and boost spending power—a much faster alternative. Trump has embraced a proposal first floated by Utah Senator Mitt Romney to disburse $1,000 checks. The president would like them cut within two weeks. Democrats have talked about more generous measures along the same lines. Democratic Representatives Ro Khanna of California and Tim Ryan of Ohio would send checks of $1,000 to $6,000 to every American who earned less than $65,000 last year, a group that encompasses three-quarters of American workers. But while few people will complain about receiving a check during an economic downturn, it's not at all clear that this would do much to improve Americans' overall view of the economy—or the man presiding over it.

On March 17 the administration began seeking support for a stimulus bill of up to $1.3 trillion, while Senate Minority Leader Chuck Schumer prepared his own broad stimulus, said to cost at least $750 billion. But the 2008 financial crisis showed that passing a large stimulus bill, even in a time of extraordinary need, is an arduous undertaking. Hurdles this time include philosophical objections from Republicans in Congress to the size of the U.S. budget deficit, already on track to exceed $1 trillion in the current fiscal year.

Even a successful stimulus bill and aggressive monetary policy carries no guarantee of shielding the economy. "It really is depending heavily on the spread of the virus, and the measures taken to affect it and how long that goes on," Federal Reserve Chairman Jerome Powell said on March 15. "And that's just not something that's knowable."

While Trump faces a daunting obstacle to winning a second term, he could win despite a recession. Increased political polarization has brought approval ratings that are more fixed than in the past—especially his. So far, that polarization seems to extend to attitudes about coronavirus: Polls show Republicans consider it far less of a threat than Democrats and independents do.

But polarization cuts both ways. Historically, incumbency has been a strong advantage and a reason why most presidents win a second term. That may no longer be the case. "We see it in congressional elections," says Emory's Abramowitz. "The advantage of incumbency is much smaller, because voters just won't cross party lines."

If the financial crisis and recession are large enough to overwhelm the partisan instinct, Abramowitz suspects that the end result won't benefit Trump. "A recession is one thing that could really penetrate people's consciousness," he says, "because it shows up in real life—and not in a good way." *—Joshua Green, with Christopher Condon and Jeff Kearns*

THE BOTTOM LINE The coronavirus is crippling the economy just at the time voters traditionally make up their minds about the performance of an incumbent president.

+

SOLUTIONS

Business Schools

Recruiting's ESG Disconnect

Hiring priorities don't reflect the focus on sustainability by students, schools, and firms

March 23, 2020

Edited by Rebecca Penty and Caleb Solomon

Visit any major business school these days, and you'll find students like Juan Adorno. The 31-year-old former product development and strategy worker was drawn to the University of Vermont's Grossman School of Business for the one-year sustainable innovation MBA it offers and the edge he felt it would give him

ILLUSTRATIONS BY CHARLOTTE POLLET

in the workplace. "As environmental, social, and governance investing has increased in popularity and become so important for asset managers, it became a growing part of my world," Adorno says. "I'm looking for an organization that is corporately socially responsible, that holds true to its mission, and has a sense of more than profit."

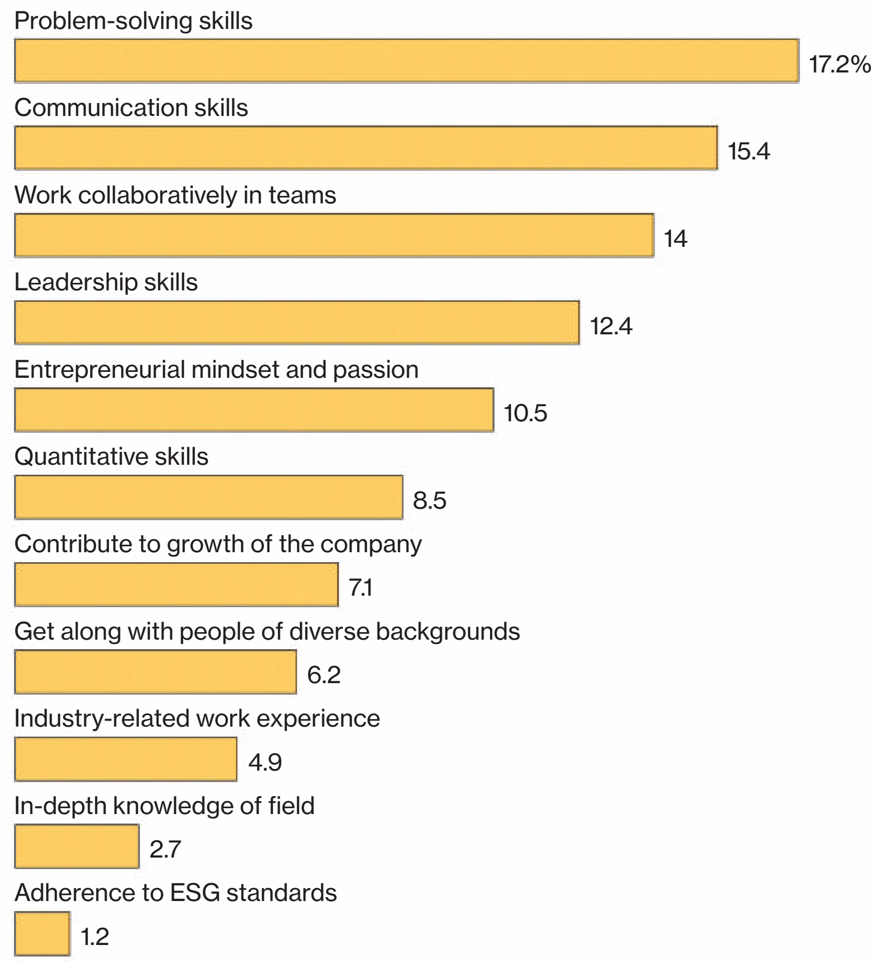
Responding to the demand from students like Adorno and commitments from companies and investors around diversity and sustainability, Harvard Business School, NYU Stern, Copenhagen Business School, and a clutch of other top universities now offer ESG-focused MBAs or individual classes on topics such as corporate social responsibility (CSR). But even as such coursework is being offered more widely, the people tapping the pool of graduates have yet to give adherence to ESG standards the same priority. In a survey of MBA recruiters conducted by *Bloomberg Businessweek* last year, 1 in 4 said they valued a candidate's problem-solving skills most. Following ESG standards was ranked last, with only 1 in every 500 recruiters saying it was the most important skill. It was ranked in the top five by recruiters 1.2% of the time.

That means a new graduate hoping for a career in sustainable accounting or to land a CSR position in private industry is probably still going to need to emphasize more traditional expertise. For now, ESG seems to be just a nice-to-have skill for job candidates. "If I'm recruiting for my team, I want them to do the job I want them to do," says Jean-Philippe Verdier of Verdier & Co. Corporate Advisory, which has recruited from Imperial College London and London Business School. "ESG is just one matter for me."

Business schools may also be turning to ESG because it's an effective way to lure applicants. According to a Bloomberg Intelligence survey, 77% of millennials are interested in social-impact investing and ownership, more than double the proportion of baby boomers. "Business schools have to pay attention to their customers," says Lee Mergy, co-founder of Galt & Co., a management consulting firm that works with Fortune 250 companies. "Their customers are as much, if not more, the candidates applying to those schools, as they are the businesses trying to pull candidates from them."

Certainly students at HEC Paris feel strongly about ESG. When a manifesto was started 18 months ago, about 400 out of the school's 1,000 *grande école* graduates signed it to declare that they would not work for a company that wasn't engaged in reducing its ecological footprint. The number of signatories has since grown to more than 35,000 to include those outside HEC, which has a sustainability and disruptive innovation track on its MBA, as well as a number of electives. Other schools have acted on similar demands: Harvard Business School developed an impact investing course in 2017, while

Qualities of graduates considered critical by recruiters, according to percentage of times ranked in the top five*



*PERCENTAGES SHOW THE NUMBER OF TIMES A QUALITY IS PRIORITIZED 1-5 IN A SURVEY.
DATA: BLOOMBERG BUSINESSWEEK B-SCHOOLS 2019 SURVEY OF RECRUITERS

New York University's Stern School of Business in 2016 started the Center for Sustainable Business, run by Tensie Whelan, formerly of the Rainforest Alliance.

As a master's in sustainability grows more common, businesses may be able to better discern the exact skills, in the same way they do with a finance master's. At the moment, companies are struggling to evaluate them, says Rodolphe Durand, professor of strategy and business policy at HEC Paris. "These new competencies, these new themes, are not in their dashboard," he says. "They don't know how to assess or quantify candidates." Durand recently met with a CAC 40-listed company in France, which said bonuses of executives and managers are tied to their ESG impact. Those companies are having their human resources professionals develop ways to measure ESG capabilities, he says.

Recruiters may have a role to play, too, in spurring companies to give a higher priority to ESG expertise, says Mary Francia, a recruiter with Odgers Berndtson who works with European business school Insead. "It's my job to make sure a client realizes it should be on their checklist," she says. —*Chris Stokel-Walker*

THE BOTTOM LINE Students are flocking to sustainability-focused MBAs. Until recruiters rank ESG standards higher, graduates will need to emphasize more traditional expertise.

Rankings Lesser-Known B-Schools at the Top

When you want to know the quality of a school's MBA and its grads, ask the people who hire them. We did. The answers aren't all the usual suspects. Yes, Stanford, Yale, and Insead score well, but so do lesser-known schools such as IMD, University of Washington's Foster School of Business, and Georgia Tech. These results come from a deep data dive into our 2019-20 Best B-Schools Ranking, for which *Bloomberg Businessweek* last year surveyed 985 employers around the world who recruit MBAs (survey details below). We highlighted four questions for a Quarterly Recruiters Update. —*Caleb Solomon, Mathieu Benhamou, and Alexander McIntyre*

The value of this school's brand is high and gives graduates a big advantage in their careers

If you want doors to open wide because of the sheen of your MBA, head to Lausanne, Switzerland; Cambridge, Mass.; Palo Alto; Seattle; or Philadelphia. They're home to, respectively, IMD, Harvard, Stanford, Foster, and Wharton, tops in the minds of recruiters for schools with the best brands.

Rank	School	Score
1	IMD	6.00
2	Harvard	5.83
3	Stanford	5.75
3	Washington (Foster)	5.75
5	Pennsylvania (Wharton)	5.74
6	Dartmouth (Tuck)	5.69
7	London Business School	5.67
8	Insead	5.66
9	Northwestern (Kellogg)	5.63
9	Virginia (Darden)	5.63

Students from this school show exceptional entrepreneurial skills and drive

If the skills of entrepreneurship are what you value most, look to the U.S. West Coast, where Foster and Stanford come in Nos. 1 and 2, respectively. Then head east, to Maryland's Smith School of Business, Georgia Tech, and Georgetown.

1	Washington (Foster)	5.56
2	Stanford	5.50
3	Maryland (Smith)	5.38
4	Georgia Tech (Scheller)	5.33
5	Georgetown (McDonough)	5.30
6	Yale	5.29
7	Virginia (Darden)	5.27
8	Insead	5.19
9	UC Berkeley (Haas)	5.17
10	Brigham Young (Marriott)	5.15

Graduates from this school are innovative and creative

If creativity and innovation are a priority, Georgetown's McDonough School of Business comes first on recruiters' list in our survey. Foster, Brigham Young's Marriott School of Business, Georgia Tech's Scheller College of Business, and Virginia's Darden School of Business round out the top five.

1	Georgetown (McDonough)	5.79
2	Washington (Foster)	5.78
3	Brigham Young (Marriott)	5.64
3	Georgia Tech (Scheller)	5.64
5	Virginia (Darden)	5.61
6	Yale	5.60
7	Stanford	5.58
8	Carnegie Mellon (Tepper)	5.55
9	Maryland (Smith)	5.50
9	UC Berkeley (Haas)	5.50

The school provides a diverse pool of quality candidates

If you seek a pool of quality, diverse grads, look first to Insead, with its long-standing large campuses in Fontainebleau, France, and Singapore, and its recently opened San Francisco innovation hub. The rest of the top five are IMD, London Business School, Georgetown, and Foster.

1	Insead	5.74
2	IMD	5.71
3	London Business School	5.59
4	Georgetown (McDonough)	5.56
5	Washington (Foster)	5.50
6	Yale	5.47
7	UC Berkeley (Haas)	5.44
8	Northwestern (Kellogg)	5.43
9	Georgia Tech (Scheller)	5.42
10	Texas at Austin (McCombs)	5.36

Broader survey results can be viewed at:
bloomberg.com/business-schools/

The One-Year MBA

Accelerated programs target candidates who've previously studied business

In a hurry to get your MBA? Some business schools allow students to earn a degree in a year or less—about half the time of a traditional U.S. program. (One-year programs are already popular in Europe.) People who've raced through the accelerated programs say they require intense focus and don't allow time for extras such as internships, but they can be ideal if speed is your thing.

Eman Warraich-Gibson, a 33-year-old social worker in New Jersey, started her online MBA studies through Fitchburg State University in Massachusetts in March 2019 and finished her last course that December, less than nine months later. She managed to pull a 4.0 grade-point average and won the graduate student leadership award, all while working full time as the chief clinical officer of Integrity House, a network of substance abuse treatment centers based in Newark, N.J. She's also raising two young children and thanks her husband for doing most of the parenting while she studied.

"Some of my papers were definitely submitted two seconds before midnight, when they were due," Warraich-Gibson says. But the accelerated program suited her. "I just didn't want to spend forever" getting the degree, she says. She already had a master's degree in social work from Columbia, which she also earned while working full time. "I like to just crunch through things."

An obvious question about accelerated MBAs is whether you can become a true master of business administration in a year or less. Administrators of the schools that offer them say the answer is yes—and point to external validation. AACSB International accredits many of the one-year MBA programs, along with traditional programs at most of the top-ranked business schools. Fitchburg State's MBA is accredited by the International Accreditation Council for Business Education, which is still demanding though considered less prestigious. "For any type of adult learning, it's what you put into it. The quality is definitely there," says Becky Copper-Glenz, dean of graduate and continuing education at Fitchburg.

One reason accelerated programs manage to go so fast is that they generally admit only students who've studied business as undergraduates and are thus able to skip the entry-level courses. Some also dispense with a concentration—a specialization such as health-care management or business analytics—though in some programs a student can choose a concentration and still finish in 12 months.

Employers will often cover some or all of the cost of an accelerated MBA, which is about the same as a traditional, two-year program, because they have holes to fill in management and no time to waste. Amber Lee, who works in New Jersey for a defense contractor she prefers not to name, got part of her tuition reimbursed for an online MBA through Texas A&M. She finished it in December, never having set foot on the Corpus Christi campus. "I heard it's beautiful," she says.

There are campus-based accelerated programs as well, including that of the University of Florida. Sandra Rayo Orozco, scheduled to graduate from its Warrington College of Business in May, says the time management she's had to learn is "honestly the best training for my next job." She's slated to enter a program to become a general manager of waste management company Republic Services Inc. in

● Warraich-Gibson

Kansas City, Kan., after graduation. "Even though my days are quite busy, they're by no means undoable," she says.

Zooming through an MBA is easier if others are doing it with you. "When you're going through your ninth Red Bull and you're beating your head against a whiteboard, you get delusional and you start being funny with the other students," says George Fernandez, a recent graduate of Warrington's on-campus program. "Those are lifelong bonds." —*Peter Coy*

THE BOTTOM LINE Business schools are increasingly offering MBAs in a year or less. The degrees are popular with those eager to spend less time in school and more getting on with their career.

PHOTOGRAPH BY JUSTIN WEE FOR BLOOMBERG BUSINESSWEEK

Is the Class of 2020 Doomed?

Warnings about a global recession have MBA students fretting about their job prospects

Rob Melick, an MBA student at Indiana University's Kelley School of Business, had lined up half a dozen meetings for a mid-March venture capital conference in California co-sponsored by his school, hoping to make connections that would help him land a position in the technology or financial-services industry. When the event was canceled because of the Covid-19 pandemic, those meetings were moved to phone calls or online.

How the virus changes recruitment—and the overall labor market—is weighing on Melick and his fellow students, though he says he feels reassured that companies haven't delayed any conversations with him. "There is a lot of stress and concern among classmates," says the 32-year-old, who's at home in Bloomington, Ind., preparing for lectures and coursework set to resume remotely at the end of the month.

The class of 2020 is gearing up to enter the workforce amid a daily barrage of warnings about a global recession—or even a depression—from economists and politicians, as well as talk of corporate bailouts and the nationalization of companies. If hiring stalls, new grads could end up unemployed or having to settle for lesser roles, putting them on a weaker footing at the outset of their career.

The outlook isn't good, but it's too soon to tell how bad things will get, says Elise Gould, a senior economist at the Economic Policy Institute, an independent nonprofit research group in Washington. "The best-case scenario is there's a delay in the system and then it picks up again, and people may not get jobs as early as they'd hoped," says Gould, who publishes an annual report about the labor market for each year's graduating class. "The worst-case scenario is we're headed for a recession, and that could hit all sectors of the economy."

The 2008 financial crisis may offer a guide for what to expect: For college grads age 21–24, unemployment was at 6.4% in March 2009, compared with 5.1% in March 2019, according to EPI extracts from Bureau of Labor Statistics data. The experiences of the MBA classes of 2010, 2011, and 2012 may provide some comfort: Despite entering the job market during a global restructuring and deep layoffs on Wall Street, most found work after graduating—even if it took longer and their roles weren't always where they wanted to be, according to a *Bloomberg Businessweek* survey of 15,050 MBA alumni in 2018.

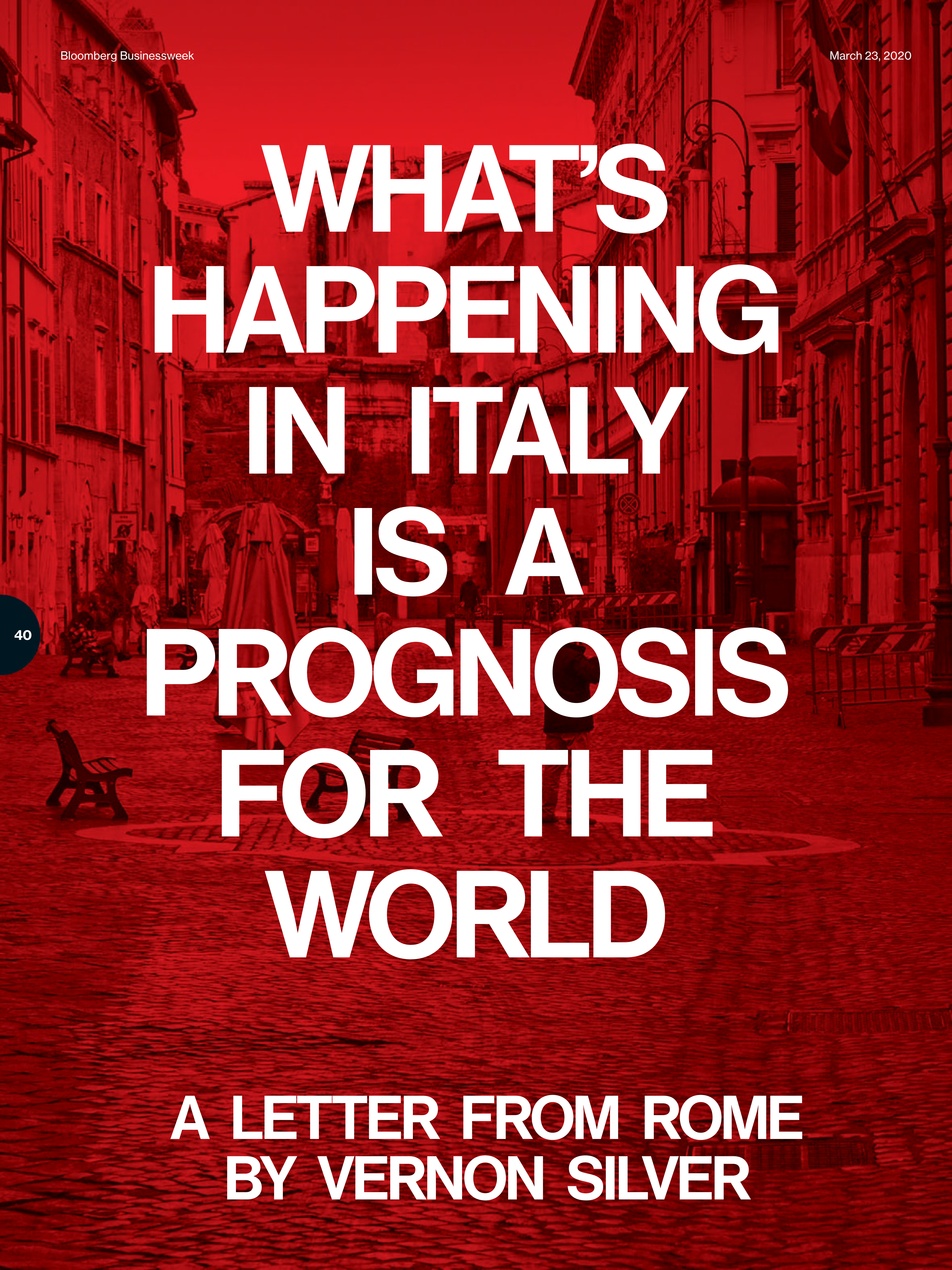
Recruiting for some industries generally starts early in an MBA's second year. By February about 60% of students will normally have offers, says Philip Heavilin, executive director of career development at Rice University's Jones Graduate School of Business in Houston. By graduation in May, 80% will have a job. The experience of the class of 2020 could show a sharp contrast between those who secured positions before the virus-triggered market crash and those hunting for work afterward, he says.

Career-services offices including Heavilin's are finding that job offers for MBAs haven't evaporated yet. "So far there are no plans to pull back," he says. Indiana's Kelley School is receiving new postings, including from a large consumer-goods company, says Eric Johnson, executive director of graduate career services.

Management consulting firm Bain & Co. has no plans to scale back on the offers it's made to more than 600 MBA-level hires worldwide, says Keith Bevans, a Chicago-based partner who heads global consultant recruiting. "You have to hire through the difficult times," he says.

There's one option that could be safer for a graduate than entering the workforce: staying in school. College seniors might consider a graduate degree, and MBAs who don't land jobs could pursue an industry-based certification, says Anthony Carnevale, an economist at Georgetown University who directs the school's Center on Education and the Workforce. "A bad start will affect you deep into your career—your first job, your second job," he says. "This is going to be a tough summer, and if you get a recession, it'll be another 10 months of slower hiring." —*Janet Lorin*

THE BOTTOM LINE Labor economists say new graduates should brace for a weaker job market amid the Covid-19 pandemic, though it's too early to say how bad things could get.



WHAT'S HAPPENING IN ITALY IS A PROGNOSIS FOR THE WORLD

A LETTER FROM ROME BY VERNON SILVER

WHEN THE MOVIE ABOUT ITALY'S NOVEL CORONAVIRUS outbreak is made, the hero will be a bespectacled doctor on the cusp of retirement, whose last rodeo is saving his city, his country, and possibly the world. In the fictional version, he'll probably perish in an act of noble self-sacrifice. But for now, Massimo Galli of Milan's Sacco hospital is not only well, but on a mission to make people who minimize the contagion's severity understand that they're quite simply wrong.

Throughout history, denial has yielded to reality in stages—and usually too late, according to Galli, who helps oversee the fight against infectious diseases in Lombardy, the region around Italy's financial capital, Milan. "There's a first phase, in which you elbow it away, saying, 'Our neighbor has it, ah, scary, but he's got it.' Then there's the phase in which you realize it's arrived in your house and you deny it, 'No it's impossible!' " Galli said on Italy's La7 television network on March 5. Next comes a tug of war in which inhabitants debate harsh preventive measures that are, tragically, reduced or taken too late.

"Finally, there's the phase of total ruin, in which the sickness runs rampant," he said—emphasizing that parts of Italy have reached that point. "If people think I'm exaggerating, tell them to come and see what's happening in our wards."

What happened next on that TV program helped catapult me from the land of "maybe it's just a flu" to "how dare anyone leave home without good reason." The network accepted Galli's challenge and dispatched a crew to an intensive care unit in Cremona, an hour's drive southeast of Milan.

The footage shows rows of naked men, unconscious, facedown, hands at their sides palms up, connected to tubes, with only small, white blankets covering their backsides. They aren't wrinkled and ancient as you might have pictured (or callously written off), but robust-looking and pink-fleshed—alive only because they're hooked up to those machines. What registers is the motionless bodies—and that they could just as well be in a morgue. By now, some of them probably are.

On March 10, Italy became the first democratic country since World War II to impose a nationwide lockdown. In just days, the outbreak spread from a northern crisis to a national one, now with more than 31,000 known infections and more than 2,500 deaths, second only to China. France and Spain were the next to clamp down, and in the U.S., dozens of cities including New York, Los Angeles, and San Francisco are rolling out restrictions that look an awful lot like Italy's just a few days ago. I hope they hurry up.

I'm writing at my dining room table in Rome (I've been instructed not to go to the office) and taking breaks to join my neighbors in singing out the window. (Last night it was an Italian version of *A Spoonful of Sugar* from *Mary Poppins*.) As we descend deeper into the lockdown, it's become clear that a lot of people back home in the U.S., and even elsewhere in Europe, remain in Galli's denial stages. "If you are old, sick or in poor health you should stay home, but my kids are none of the above," a friend-of-a-friend in the U.S. wrote on Facebook, complaining he was paying tuition for internet schooling. "This is just a joke. It's the flu."

When the first coronavirus case hit Rome, my wife and I mused that our kids should maybe find a new way to school; their standard route involved a shortcut through the grounds of a hospital that treats infectious diseases. Like me, you probably didn't read a lot of the early coverage of the outbreak in China. Initially swept under the rug by the communist government, it seemed far removed from what we might experience in Europe or the U.S. Sadly, Italy provides an example closer to home. "It's a precursor of what will happen in the U.S. and in Europe because of the speed at which the virus spread," says Nathalie Tocci, director of the Italian Institute of International Affairs in Rome.

For me, fully acknowledging where we are required facts, images, and anecdotes. So here's what things look like on the ground:

- About half of those known to be infected in Italy have no symptoms. But when symptoms appear, they do so quickly. About 9% of known positive cases in Italy require intensive care, and the death rate hovers around 6.5%. For those in their 80s, it's 19%. Even for those of us in our 50s, it's 1%—odds that sound pretty lousy to me.
- Those intensive care beds can run out. Lombardy reports that the region started with about 900 slots and has ramped up to 1,200 by adding equipment and canceling scheduled surgeries. And dozens of nonvirus patients—people with strokes or other ailments—were moved elsewhere in the country. Those measures have helped Lombardy barely stay ahead of the curve. By March 17 it had 879 coronavirus patients in intensive care.
- A more macabre reason Lombardy was able to free up ICU beds: death. The province notched an additional 220 deaths from March 16 to 17, bringing the total to 1,420. The city of Bergamo, northeast of Milan, has run out of space at the hospital morgue, and the crematorium at the local cemetery is burning nonstop.
- On March 6, Italy's national society of anesthesiology and intensive care published recommendations for dealing with "exceptional conditions of imbalance between needs and available resources" in admissions. In other words, triage. If you're elderly or deemed to have little chance of survival, you'll be the first to be bumped off the respirator. The state of New York has had similar guidelines since 2015.
- Even when it's not fatal, the virus can steal life's irreplaceable moments. Sara Herskovits Barrias, a 34-year-old expectant mother in Milan, had a low fever. When she tested positive for Covid-19, the disease caused by the virus, doctors delivered her daughter by Caesarean. For a brief time, Herskovits Barrias was allowed to nurse after scrubbing with sanitizer and donning a mask and rubber gloves. But when her fever spiked, doctors took the baby away, likely until the mother is fully recovered. "In the meantime," she told *La Repubblica* newspaper, "I listen to the sounds of the other babies." ▶

◀ **SOMETIMES, LITERATURE CAN HELP FRAME A TRAGIC,** historic moment and put it into perspective. One reference that's popping up on Facebook is *The Decameron*, Giovanni Boccaccio's 1350s book in which a group of young people flee Florence for a country house where they ride out the plague by telling stories. It's a perfect fit for the current lockdown, but it doesn't capture the phenomenon I'm most concerned about: the ability of people to remain blind to a changing world until it's too late.

For that, we'll need Giorgio Bassani's *The Garden of the Finzi-Continis*. A couple of weeks back, I watched my son hit tennis balls on orange clay courts surrounded by umbrella pines while I scanned headlines about the first infections. I feared we were living a version of the novel, which was turned into a movie that won the 1972 Academy Award for best foreign-language film. The Finzi-Continis are an Italian Jewish family, and during the rise of fascism they feel unjustifiably safe as they play tennis and live out their lives within the walls of their villa. While their fate—Nazi death camps—in no way compares to our current situation, I got the first, unnerving sense that we were living in cloistered denial.

Two weeks ago it had seemed like a big deal when cases topped 1,000. Now that number seems naively small. The outbreak has infected more than 180,000 people in at least 138 countries and territories, shuttering cities, disrupting trade, and battering financial markets. As Europe braces for a recession, Italy is at the center of it all. And we barely saw it coming.

The evening I had my Finzi-Contini moment, I should have known we were beyond normal. The government had already closed schools, and soccer practices were banned because contact would be too close. But tennis continued. Kids made small adjustments—instead of high-fiving, they tapped the ends of their rackets.

By March 6, a Friday, the tourists had largely cleared out of the city, but for Romans life went on with barely a hiccup. We wanted to support local businesses and planned a dinner at a popular restaurant on our cobblestoned street. We couldn't get a table before 10 p.m., and then only because the owner (kiss-kiss to customers' cheeks) added an extra chair. By Saturday afternoon, life had started to shift in small ways that portended further change. Schools had announced what was supposed to be a one-week shutdown, and one of our kids followed a workout video sent by the gym teacher. Our local cinema was still open, but only alternating seats in every second row were supposed to be occupied.

That evening, we had friends over for dinner (those were the days). As we tucked into the liver pâté appetizer, we were all surreptitiously checking our phones. By the time we served the gelato, the checking was no longer furtive: News leaks indicated the government was about to extend the "red zone," which had closed a dozen towns in the north, to the entirety of the Milan region and a few other provinces, shutting in a third of the populace. The leak sparked confusion, even panic, prompting thousands to abandon what had been a warm evening of Aperol Spritzes in piazzas and rush onto packed night trains to escape.

If they could shut Milan, Rome might not be far behind. On the sofa after dinner, finishing the last of the bottle of wine, we contemplated returning to New York before getting caught in a clampdown. After our friends taxied home, at around 2:30 a.m. on Sunday, Prime Minister Giuseppe Conte took to the airwaves to make the rumored northern restrictions official. Milan, Venice, Padua, and points in between were sealed off for all but essential travel for work or health reasons.

Less than two days later, those measures were extended to Rome and the rest of Italy. Conte decreed that the world's eighth-biggest economy would be frozen in place. Pubs, discos, and gambling halls—anyplace people might be in tight quarters—were closed. Coffee bars and restaurants had to shut by 6 p.m., and when they were open, they, along with supermarkets and any other shops, had to keep customers at a one-meter distance from one another. The prime minister drove home his point with a Twitter hashtag, #iorestoacasa: "I stay at home."

Italians reacted with a mix of fear and relief: This was serious, but now there were rules they could cite in telling others to mind their personal space. At a butcher shop, I saw patrons in a line that extended into the street, with everyone spaced a meter or two apart. At supermarkets, bicycle deliverymen suddenly appeared, waiting to pick up online orders. To comply with the rules against nightspots, the Abbey Theatre Irish Pub, a popular spot for watching soccer, became a restaurant only, turning off its TVs, pasting signs over the storefront to obscure the word "Pub," and restricting drinks and food service to tables. As the curfew descended, the police showed they were serious, patrolling the streets with lists of bars and restaurants to check that they were empty and locked.

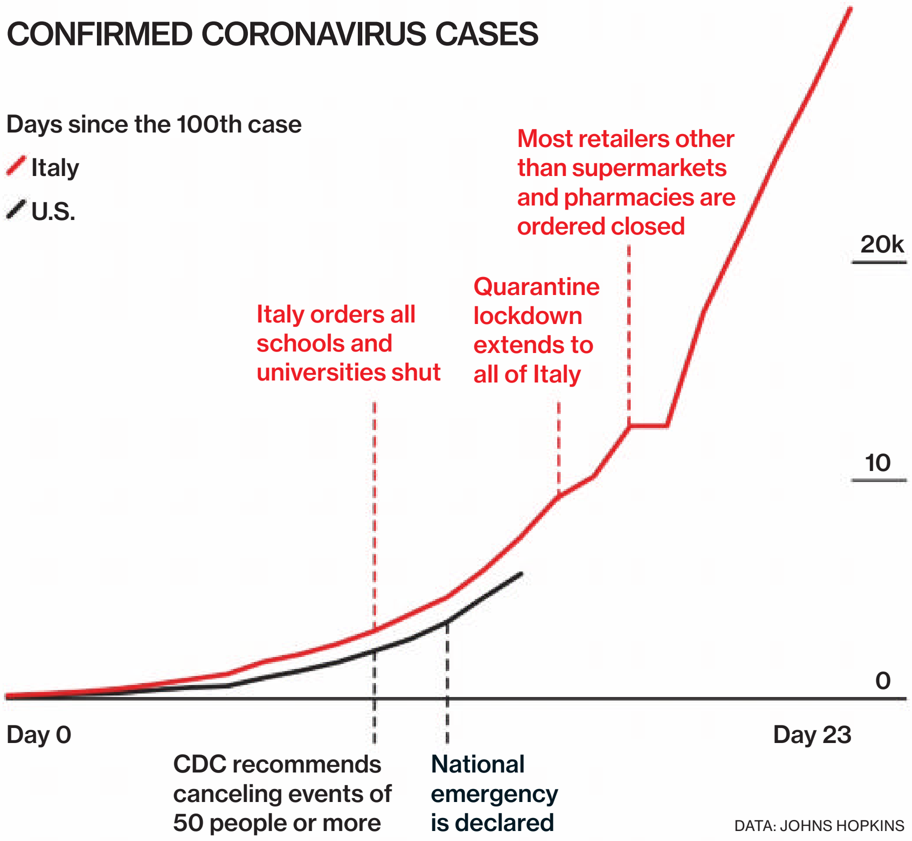
IN THE DAYS THAT FOLLOWED, HEALTH OFFICIALS, especially in the north where infection numbers were soaring, protested that the measures weren't enough. Conte listened, and on March 11 he tightened things further, ordering virtually all retailers other than grocery stores, pharmacies, and gas stations to close. Factories, public transit, banks, and the postal service can operate, but restaurants, cafes, and bars were ordered to shut down.

Across Italy, the traditions of a gregarious, social people were upended. The piazzas, the heart of any Italian city or town, where kids roughhouse and their parents and grandparents meet for morning coffee or afternoon cocktails, were abandoned. Professional soccer matches were called off. Churches were closed. Local news reports say police in Sicily issued citations to an entire funeral cortege for violating a ban on group activities.

What's happening in the hospital wards—first in China, now in Italy and the rest of the world—threatens a chain reaction of unpaid bills, defaulted loans, and perhaps even a banking crisis with echoes of 2008. The economic impact is expected to be so great that the Italian government has earmarked €25 billion ($28 billion) for emergency aid to companies and workers

18+

WHAT IS AVAXHOME?



and is implementing measures such as suspending or reducing payments for a range of bills, from taxes and utilities to mortgages. "We're at war," the owner of a vintage furniture shop said with a shrug as he rolled down the shutters, leaving a note with his mobile phone number on the metal gate.

Near Rome's historic Jewish Ghetto, a clothing boutique called Empresa posted a long notice in its windows that paid tribute to "the medical and paramedic personnel struggling on the front lines" of the battle against the coronavirus. "The good sense of all will save our beloved Italy," the note concluded. A store selling tickets and merchandise from the AS Roma soccer team told would-be customers that "the disruption of today will allow us to restart as soon as possible ALL TOGETHER. #iorestoacasa."

The meaning of being in it together also began to change. The open borders that have been at the heart of the European project have started creaking closed. Austria and Slovenia are allowing entry only to those who've tested negative for the coronavirus, and Switzerland sealed off some smaller crossings—the first in a slew of border controls that have since spread across the continent. On March 12, Italians awoke to the news of President Donald Trump's ban on most travel from Europe to the U.S. That was the day Rome became a ghost town. Wandering out for a run and a shopping trip (both allowed under the restrictions), we found just a handful of fruit and vegetable stands open at the normally bustling Campo de' Fiori market.

The merchants were desperate—for caffeine and a bathroom. The closing of the coffee bars, a de facto provider of food and sanitation to outdoor workers, had disrupted the natural order. One neighbor said she'd bring a thermos of coffee for a pair of vendors. We offered to make banana bread and were gifted an overripe bunch of fruit to turn into a quick batch that one of our kids would deliver, piping hot, an hour later. Just in time, as it turns out: By Monday afternoon, the entire market had been shuttered.

We also promised a neighbor a slice of the banana bread, but when it came time to deliver, she was a no-show. She texted that she was helping her father, who had just been notified that his urgent surgery scheduled for later in the month had been canceled because of the outbreak. These are the ripple effects. The statistics certainly will miss many who perish from other causes as health systems struggle.

The south represents the next challenge. All those people who fled southward after partying may have contributed to what are now snowballing infection numbers in regions such as Puglia, in the heel of the Italian boot, and Calabria in the toe. "There have been scenes of people at the beach or skiing or at mega-aperitivos," the head of Italy's National Institute of Health, Silvio Brusaferro, told reporters on March 13 at what's become a daily news conference at which the national figures are rolled out. "Those are places where the virus can circulate, and some of the people could end up positive."

FROM THE HUMAN TRAGEDY TO THE ECONOMIC IMPACT, the closest thing to the outbreak is a hurricane. As residents of Florida, Louisiana, or Texas will tell you, when the first reports of a tropical storm begin circulating, there's not much you can do other than lay in extra food and water, make sure you've got a good book and a battery-powered lamp to read it by, and wait. If you're unlucky enough to be in its path, you don't go outside for fear of falling victim to flying debris. That's what Italy feels like. And that's why I'm hopeful.

As a reporter covering Hurricane Andrew in 1992, I saw the destruction on the morning after landfall. From Florida City to Homestead and beyond, houses were flattened for miles. It seemed impossible that anyone had lived, but the death toll in the area was 44—terrible, but far less than I'd expected. Warnings from government scientists saved countless lives. People had taken precautions. More than 1 million had evacuated. And the recovery was marked with song. Gloria Estefan's *Always Tomorrow*, with royalties going to the victims, became a local anthem of resilience.

As you may have seen on TV, Italians have been singing anthems, too, from their windows and balconies. It's real, beautiful, and heartbreaking. The sacrifice right now isn't fun and borders on tragic: Weddings and funerals are banned, birthday parties postponed, educations derailed, businesses pushed to failure. But the harmonic flash mobs have been a voice for a people who are kept apart. One day at noon, there was a nationwide round of applause for the health-care workers on the front lines, who are getting infected and dying.

Whether by coincidence or design, the daily singing appointment is at 6 p.m., the exact time of the nightly reading of the death toll. The racket echoing off the walls and courtyards doesn't quite drown out the sadness of what's happening, but it's a reminder that by collectively deciding to stay apart, Italians might emerge from the storm with a lower toll than is expected today. Ⓑ —*With Alessandra Migliaccio and John Follain*

Meet Resista

► Yaoxing Huang, David Ho, and Sho Iketani

Renowned researcher David Ho is leading a team of aggressive young scientists racing to beat the coronavirus

By Robert Langreth and Susan Berfield
Photographs by Samantha Casolari

the

nce

It seems obvious now that David Ho, arguably the world's most famous AIDS researcher, would get involved in seeking a treatment for Covid-19, the disease caused by the new coronavirus. It seems obvious that he would redirect the work of his several dozen scientists at the Aaron Diamond AIDS Research Center. That he would, as he says, "rob Peter to pay Paul" to get started with funds meant for the lab's HIV studies. That he would receive $2.1 million from the Jack Ma Foundation in Hangzhou, China, without even asking and an additional $6 million from other private donors, among them a few very concerned businesspeople.

But in late December, when Ho was tracking reports of a few cases of unexplained pneumonia in Wuhan, it wasn't obvious he'd be needed. "We were paying attention but didn't think we would get involved. It seemed rare—and over there," he says. In early January, as his lab changed its affiliation from Rockefeller University to Columbia University and moved to Upper Manhattan, the situation in Wuhan had become worse. Ho still wasn't sure if he should get involved. "The scientists in China were already doing so much," he says. Many of those scientists, in Beijing, Hong Kong, and Shanghai, are former students of his. "They could very well do the job."

He'd also seen funders lose interest in emerging diseases after the immediate panic about an outbreak subsided. Severe acute respiratory syndrome, or SARS, for example, had been contained relatively quickly in 2002, and as soon as it was, money for research became scarce. Ho's lab had developed antibodies that could have been used to pursue treatments for SARS, another coronavirus, but it was too late—he couldn't raise the $20 million or so he needed to continue pressing forward on his own. "No one seemed to care," he says. "That's frustrating." If he'd found the money, it's possible he'd be closer to a treatment for the new coronavirus.

By mid-January the magnitude of this epidemic was becoming clear. The Chinese government was making plans to quarantine the city of Wuhan, and four other countries reported cases. Scientists had identified the virus and shared its gene sequence. Ho also believed that this time the Chinese government, for one, would provide funding for sustained research. "They've learned their lesson," he says. He decided to get involved.

Eight weeks later, the virus has taken hold around the world. Counting the ill and calculating the rates of infection and death are daily, hourly exercises in caution and dread. The 1918 flu pandemic killed at least 50 million people. The HIV pandemic has so far infected 75 million and killed 32 million. The death rate for Covid-19 appears to be much lower—it remains uncertain—but the illness spreads easily. If it reaches only 1% of the global population, that would mean 75 million people would be infected, and at the current mortality rates, 1 million would die.

Scientists at Ho's lab, and at Johnson & Johnson, Pfizer, Regeneron, and at least 10 other drug and biotech companies, are working as quickly as they can to identify treatments. This virus is part of a family they've come to know. They're rushing to test old compounds even as they devise programs to create new ones. Among the furthest along is Gilead Sciences Inc., which is testing remdesivir, an antiviral drug tried on Ebola ▶

◀ patients, on coronavirus patients around the world. Gilead expects to report initial results in April.

Scientists say they can tame this coronavirus, but for a while it will move faster than they'll be able to. It may be a year or more before any specific treatment for Covid-19 is available. Until then we'll have to contain it with distance and soap and the drugs we already have.

Even once there's a treatment, it's probable that Covid-19 will remain with us for longer than we'd like. Completely wiping out something this widespread is exceedingly difficult, Ho is quick to say. Only one such virus has been eradicated: smallpox. That took about 20 years.

On an early March morning, before New York City began closing down, Ho took some time to talk about the work under way at his lab. He wore a suit, and though he seemed perfectly comfortable, he'd normally be in jeans. He'd be busy, but his phone wouldn't be constantly ringing. He wouldn't be meeting with university trustees, or advising the NBA, or conferring with the head of China's center for disease control and prevention, or appearing on the *Rachel Maddow Show*. He'd be expecting his staff to have unpacked their moving boxes.

But this isn't a normal time for anyone, and especially not for a scientist such as Ho. He was among the first to champion a powerful combination of drugs to attack HIV and to push for them to be administered early instead of after a patient developed symptoms. It was an unconventional approach that became the standard of care and helps explain why HIV is a chronic disease but not necessarily a deadly one. It also explains why Ho was the first doctor to be named *Time* magazine's Man of the Year, in 1996, and five years later was awarded the Presidential Citizens Medal. The plaque hangs on the wall behind his desk.

Ho is 67 years old, measured and focused, and central to a network of former colleagues and students who've known that a moment like this was coming: a pandemic that could be the biggest viral threat to humanity since HIV emerged in the 1980s.

Ho has developed an ambitious and expedited effort to come up with coronavirus drugs. The early stages of drug development typically take from five to 10 years, but he thinks it's possible to have the most promising compounds ready for animal testing in only one. His hope is to create a single pill that could treat this coronavirus and the ones that will come after. "Surely there will be another one," he says. "This is the third outbreak in two decades." SARS started in China and eventually killed almost 800 people; Middle East respiratory syndrome emerged in 2012 and has killed more than 850 in sporadic outbreaks since then.

"We're reading strange literature about bat research," Ho says. "Bats account for one-fifth of the mammals on this planet. That's trivia we didn't know. There are so many viruses that reside in bats—SARS and Ebola and perhaps this coronavirus." Covid-19 isn't the first, and it won't be the last. Ho wants to prepare for the next one now.

Hearing that was good enough for Jack Ma, the richest man in Asia. And it was sufficient for Zhi Hong, chief executive officer of Brii Biosciences, to also put in $2 million. Hong had been an infectious disease expert at GlaxoSmithKline Plc and has known Ho for years. "David has put together a quick but very reasonable program," Hong says. If Ho's lab comes up with a drug, a big pharmaceutical company would have to come in to test and produce it. There's no formal agreement yet about how that would happen. There was no time for lawyers. "Right now we're just investing in faith and trust in the relationship and David's reputation," Hong says. "We just said, 'Take the money.' "

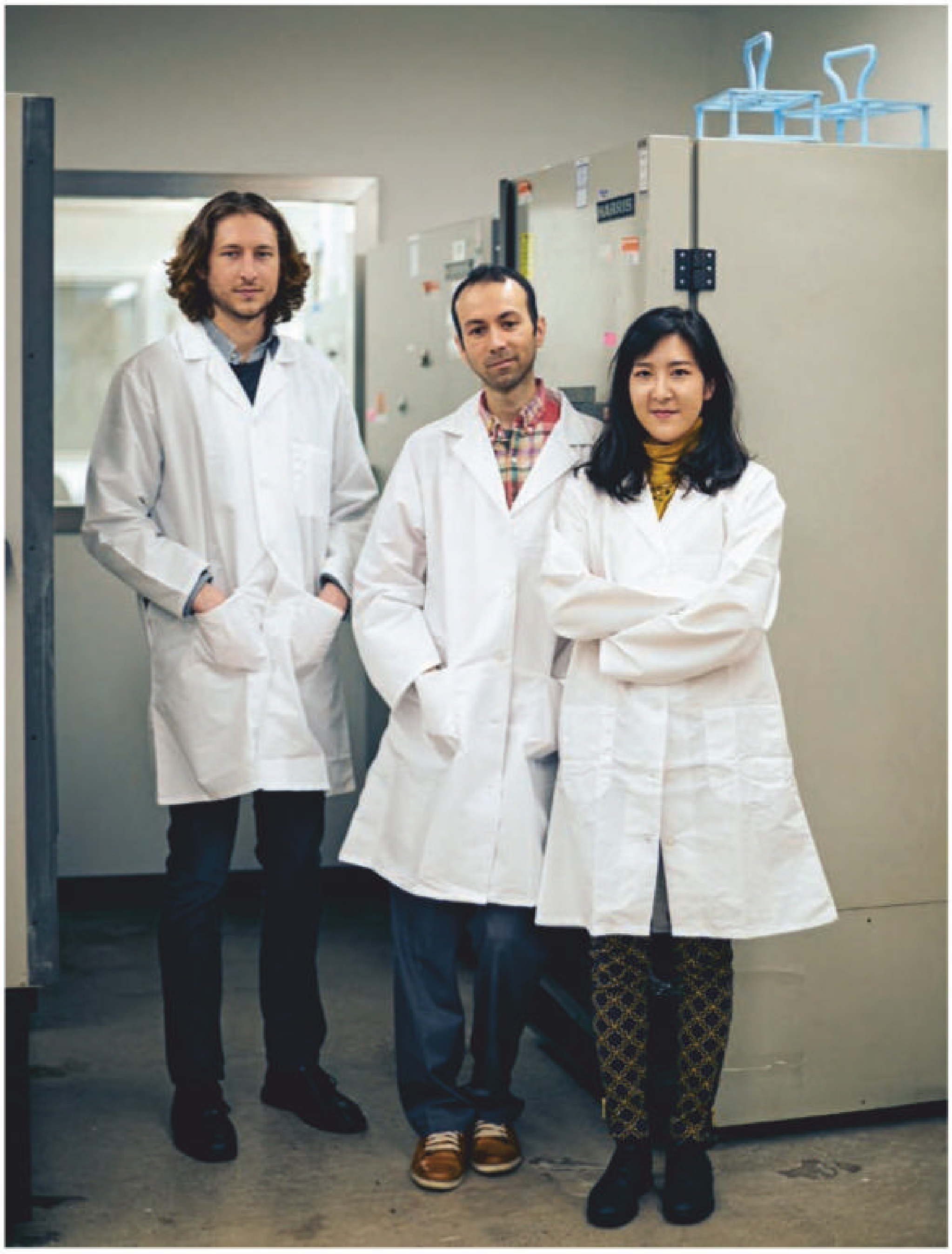
The most straightforward of the lab's projects aims to find an antibody to block the virus from entering cells, either to prevent infection or to treat it. The first step was getting hold of specific white blood cells, called memory B cells, from patients who have recovered from Covid-19. These cells, named because they can remember a virus for decades, contain markers on their surfaces that allow the body to rapidly generate many antibodies to that virus. These antibodies help protect against Covid-19 infection. In late January, Ho called on his connections in Hong Kong to take blood samples from two convalescent patients. His New York staff spent days getting permission from the governments and arranging the shipping. The cells were purified, placed in tiny vials, frozen in liquid nitrogen at -150C, and sent to Ho's lab by a specialized courier service. They arrived intact in late February.

As soon as they received the cells, Ho's lab went to work sorting out the B cells, extracting RNA, making DNA for numerous anti-coronavirus antibodies, and expressing those antibodies on the surface of yeast cells. "Then we go fishing," Ho says. "And we come with bait." The bait is the spike proteins that protrude from the surface of the virus—or, in this instance, the lab-created pseudo virus. The tighter an antibody binds to the protein, the better. "We pull out many, compare activity, and select the best," he says. "We could then change parts of the antibody to make it fit even tighter."

The chances that this research, or similar research elsewhere, will yield a treatment are relatively high. The strategy worked for Ebola. Regeneron Pharmaceuticals Inc., which developed a successful Ebola antibody treatment, is also working on a coronavirus antibody "cocktail" and says human trials could begin by early summer. But any such drug would have to be injected, which would likely require it to be refrigerated and administered by doctors—all of which would limit its use. It's not the ideal. But it's what might be good enough as a start.

Ho's early HIV research focused on a crucial enzyme called protease, which acts as a kind of molecular scissors, cutting up viral proteins to help them replicate. One key set of drugs he tested on HIV patients in the 1990s were protease inhibitors: They interrupted that stage of the viral life cycle in an infected patient. He's hoping to identify potential coronavirus protease inhibitors, which would act in much the same way. "Even if the protease is different, there are enough similarities to apply our knowledge and the chemistry," he says.

▼Alejandro Chavez, center, with doctoral students Samuel Resnick and Debbie Hong



Alejandro Chavez, an assistant professor of pathology and biology at Columbia, is helping Ho in this part of the research. Traditional labs at pharmaceutical companies test potential drug compounds on one viral strain at a time. Chavez has devised a radically different screening system that allows him to simultaneously test compounds on dozens–and if successful, find the ones that will work not only on Covid-19 but on other coronaviruses as well.

Chavez, 37, runs his own lab at Columbia, located across the street from Ho's. He packs bundles of information into every sentence without pause. He's animated and energized by the moment. His office is small, his desk crowded with papers and a huge jar of cheap candy. Perched on a ledge behind his desk is an award from his fellow residents at Massachusetts General Hospital: The "'Yo dude I have this crazy idea let me explain it to you in one long stream-of-consciousness email' award for exuberant scientific creativity."

In January, Chavez and Debbie Hong, one of the doctoral students working in his lab, were reading about the coronavirus like everyone else. When its genome was posted on a public-health website, they downloaded the sequence, found the protease gene, and paid a bioscience company about $80 to synthesize it.

Soon after, they got a call from Ho. "Ho nucleated a team," Chavez says. Nucleated? "Yeah, he nucleated a team." He means one of Hong's thesis advisers at Columbia, Stephen Goff, decided to combine his research efforts with Ho's. Then, because he knew Ho was still looking for university scientists to join his effort, Goff told him, "There's these crazy people–maybe we should bring them in." That was Chavez, Hong, and a few others in the lab. Ho was impressed by how rapidly they could screen the molecules that might inhibit all kinds of coronavirus protease enzymes; his search could be accelerated beyond what he could do on his own. "He wants to push it forward at warp speed," Chavez says.

Chavez starts to explain his method. Then stops. Then starts. He's applied for a patent and isn't sure how much he wants to reveal. "I've never tried to explain this to a layperson and obfuscate at the same time," he says. "I've only ever presented this once. I've been trying to stay stealth. OK, I'll just disclose it." One of the problems with screening drugs against more than one viral protease at a time is that it's hard to tell which drugs are blocking which proteases. Chavez solved this problem by putting proteases from each virus into different cells, then creating what he calls nametags for each of the cells. He adds possible drug compounds to the cells and uses genome sequencing to read the tags, which allows him to see whether any of the viral proteases are blocked by each drug. "I look at how abundant each of the nametags are–'How are you doing, Bob, John?'–and I see if the protease is on or off. If it's off, then that compound inhibited it. If the protease is on, then that compound didn't do anything."

Chavez is speaking hypothetically. He's still working out the controls. "We're not insane. We're going to be very methodical," he says. "So if I put in a compound that I know its activity, do I see that activity? Do I see that activity over four days? Does every single day give me the right answer? Does the answer ever change? Do I see things I know shouldn't happen?"

Chavez expects to begin testing the actual compounds in early April. In the meantime, "we've been busy collecting those compounds from chemical libraries," Ho says. He was able to obtain a curated selection of potential protease-inhibiting molecules from a research company in Shanghai called WuXi AppTec Co. The founder is a friend of Ho's who received his doctorate in chemistry from Columbia. It's likely that if someone other than Ho had asked, the compounds, as crucial as they may turn out to be, would have remained in China.

It might take three to six months for Chavez to detect a few lead compounds that efficiently block coronavirus proteases. If–when–he does, Ho will connect him to chemists who will, over a matter of a few more months, increase the potency of the compounds by 100%, maybe 1,000%. "We know that kind of gain is doable," Ho says. It would be an important but still early step in creating a drug that would stop not only one viral protease but proteases from many coronaviruses. Because now we all know they're out there. Ⓑ

Nayib Bukele's reforms have impressed the U.S. and international investors.

Opponents say El Salvador's president is a dictator in the making

Soldiers and President Bukele (center) at the National Palace on Feb. 18.

ONE MAN'S COUP ATTEMPT IS ANOTHER'S YOUTHFUL INDISCRETION

By Ethan Bronner and Michael McDonald

Photographs by Fred Ramos

In early February, soldiers and police in riot gear barged into the legislature in San Salvador. Lawmakers sat in shock, and the new president, who brought the troops in, warned them, "I think it's clear who has control of the situation." Even veteran observers of Central America were confused. What was happening?

Until then, El Salvador's President Nayib Bukele had been hailed by the Trump administration and U.S. investors as one of the most promising young leaders in the developing world. He is 38 and, until now anyway, seemed savvy, gutsy, and impatient for reform. Bukele said Salvadorans were fleeing to the U.S. because previous governments had failed them. Don't send more aid, he implored America. Invest in our country so we can create jobs and bring our people home.

Bukele seemed to know just what to do to make American officials sit up. He named a youthful cabinet, half of them women. He got China to promise to build sewers and roads to the country's undeveloped black-sand Pacific coast for a tourist destination he's already designated Surf City. Before his debut speech at the United Nations in September, delivered tieless, he posted a selfie to Twitter from the podium. And he was getting quick results. Homicides, a toxic challenge in the gang-infested country, were down 60% from when he took office in June; emigration had dropped by half. The U.S. State Department reduced its risk assessment, putting El Salvador on a par with Mexico.

Then came Sunday, Feb. 9. While much of the country was watching the Oscars, El Salvador's legislative assembly was surrounded by tens of thousands of Bukele supporters and security forces, including snipers on the roof. The president said that lawmakers had been slow-walking approval of a $109 million loan to beef up security services. (Bukele's security budget, the largest in the country's history, had already been passed; this was a supplemental request.) It had been more than three months, and, by his calculation, every day meant more deaths on the streets. He demanded a legislative session for that Sunday; the lawmakers said they'd meet on their schedule, not his. He mobilized the military and police, sending troops to knock on legislators' doors. After entering the assembly and praying for three minutes, he left and took the troops with him. God, he said, had urged him to be patient.

Human rights groups, opposition leaders, major newspapers, and governments, some of whom had welcomed Bukele's election, condemned his move as an assault on democratic norms. U.S. Ambassador Ronald Johnson, who'd thrown his weight behind the new president, posting photos of their families vacationing together, tweeted disapproval.

After the military intrusion, two lawmakers went to the Supreme Court, which told Bukele to back off while it examines the case. He agreed, but he's kept up a steady stream of speeches, op-eds, and tweets justifying his move against the "corrupt" and "crooked" congress he hopes to replace in elections in February 2021. (The party he founded, Nuevas Ideas, has no representation in the 84-member legislature, though it has a handful of sympathizers.) Earlier this month, in keeping with his penchant for big gestures, Bukele imposed the western hemisphere's first ban of foreigners entering the country and ordered a 30-day quarantine on locals returning from abroad to curb the spread of coronavirus despite there being no confirmed cases.

Bukele is the first president in three decades from neither of the two sides that fought in the vicious civil war of the 1980s, Arena on the right and FMLN on the left. His arrival seemed to augur an important new era of cooperation with Washington and the start of economic policies relying far less on remittances from those who've left and more on jobs and infrastructure built at home, as Bukele said he wanted.

The military action in the legislature embarrassed some of Bukele's supporters, who argue that the president isn't a would-be dictator but a young man who lost his cool. "We need to see this in the right context as a mistake and turn the page," says Francis Zablah, who was in the legislature that day and still has high hopes for his country under Bukele.

Carlos Dada, who founded the Salvadoran investigative journalism site *El Faro* a quarter century ago, is far more worried. "When Bukele came to power, he ended the old political system. We hoped he'd unify the country. Instead, we now have a state centered around one man."

Bukele, who declined an interview request, has cast himself as a Trumpian outsider vowing to drain the swamp in the Massachusetts-size country, where a dozen or so old families still control most of the wealth. He comes from the large Palestinian Christian community that settled here a century ago. Bukele's father, Armando, was an iconoclastic intellectual and businessman who converted in adulthood to Islam and then set up an ecumenical council of religious leaders. Nayib, said by family friends to have been his father's favorite of 10 children, showed an early interest in politics but had little patience for academics. After two semesters of university, he dropped out, investing with a friend in a discotheque.

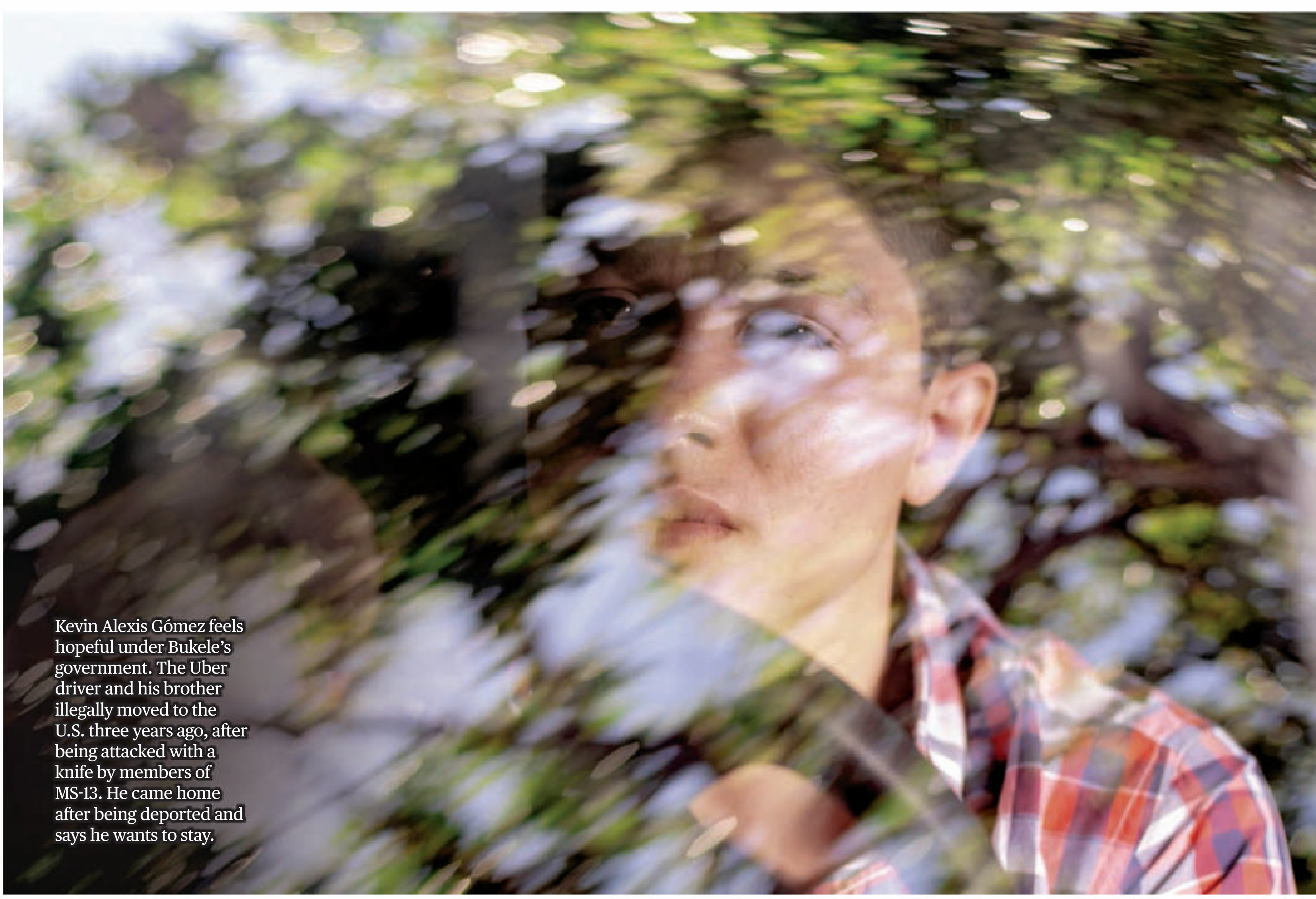
Bukele started his political career in 2012 as mayor of a small town outside San Salvador and was later the capital's elected mayor. In addition to rebuilding a central park, he focused on youth rehabilitation and job training. He began in the leftist FMLN, which then held the presidency of the country of 6 million. He started moving to the center, and when the party didn't trust him to be its candidate, he ran on his own. Many dismissed the candidacy as chimerical, but he won in a landslide. ▶

"We hoped he'd unify the country. Instead, we now have a state centered around one man"

Bukele at a Feb. 28 press conference at the Presidential House.

Police officers patrol Las Jacarandas, a neighborhood just outside the capital.

Bukele supporters hold up black crosses to protest against his legislative foes.



Kevin Alexis Gómez feels hopeful under Bukele's government. The Uber driver and his brother illegally moved to the U.S. three years ago, after being attacked with a knife by members of MS-13. He came home after being deported and says he wants to stay.

◀ Polls show his support remains at 90%. He is dismissive of the media, the legislature, and the moneyed establishment, relying on popular support and the military. His most fervent followers appear at rallies holding aloft black crosses, often labeled with the word "legislators." Some add a poop emoji.

Bukele and his wife, Gabriela, are now the nation's dominant figures. Large color portraits of them hang in every government building. A police commander in northern San Salvador, pointing to the portraits, says this is the first government that's required him to hang such pictures in his office.

Behind Bukele's appeal is a dire economic situation. Every year, 60,000 Salvadorans enter the workforce, while 5,000 jobs at most become available, according to the Fundación Salvadoreña para el Desarrollo Económico y Social, a conservative think tank. The 55,000 who don't get work have three options: enter the informal sector, meaning street sales and off-the-books labor (almost three quarters of economic activity); join the 2 million Salvadorans in the U.S.; or join one of the gangs, which together have up to 70,000 members. Most of the gangs were formed in Los Angeles. When members were deported from the U.S. in the 1990s, they took over swaths of territory, overwhelming security services.

Many of the country's killings are gang-related and linked to extensive extortion rackets. Huge numbers of businesses pay gangs daily or monthly fees to be left alone. Homicide in El Salvador has been dropping steadily for the past few years, especially in recent months. During 2015 and 2016, there were 17 or 18 murders a day; in February 2020, the least violent month in decades, there were fewer than four, on average. But how much credit Bukele deserves is a matter of debate.

His chief of police, Mauricio Arriaza Chicas, said in an interview that the last time there was a decline in killings was in 2012 when the government cut a truce with the gangs. The deal included privileges for leaders in prison (strippers, food delivery, Wi-Fi). When the truce collapsed a couple of years later, the country saw its worst homicide rate ever in 2016—more than 100 per 100,000, the equivalent of a war zone.

Under Bukele's crackdown, gang members in prison have been cut off from members on the street to reduce their power. Police have been provided with new protective gear and boots, equipment has been improved, and saturation policing, in which security forces focus on trouble spots, has become widespread. It seems to be working, but some people say the problem has shifted, and the police aren't adjusting rapidly enough.

"As others have said, if you want to stop emigration to the U.S., don't build a wall. Make jobs"

Paul Consoli, a U.S. military and law enforcement intelligence specialist who works as a consultant in El Salvador, says he's seen data suggesting the gangs have grown more sophisticated in their extortion schemes. They're buying up private security firms and using them to collect money, reducing their need to kill while preserving the outlaw nature of the society. The homicide decline, he worries, hides the truth.

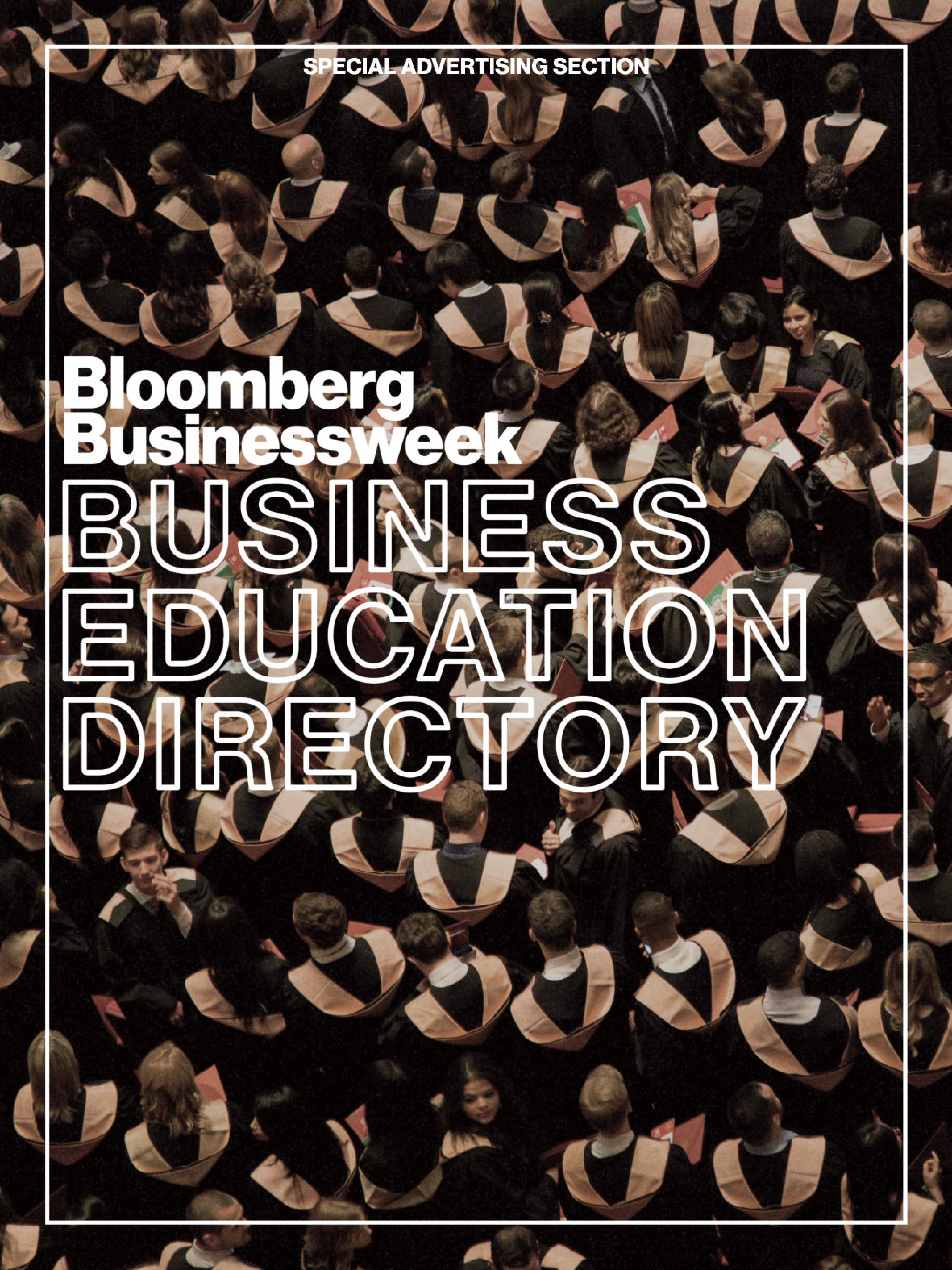
A year ago, President Trump cut off about $500 million in aid to all of Central America, complaining that governments weren't doing enough to stop migration into the U.S. Aid has started to flow back, but the stoppage has complicated Bukele's efforts. In some fashion, all of the country's problems—emigration, violence, drug trafficking, underdevelopment, and corruption—have U.S. ties, and American investment is therefore seen as central to its success. As Foreign Minister Alexandra Hill says, "El Salvador is now open for business, and the U.S. is priority Nos. 1, 2, and 3." After he was elected, Bukele cut ties with Nicolás Maduro's government in Venezuela and promised to be careful about Chinese investments, actions that seemed designed to please the U.S.

The American Embassy has reciprocated, encouraging investment in textiles and services. It's also helped build up the country's tourism industry by sending delegations to and from Hawaii and California. Orlando Menendez, co-owner of Puro Surf, a boutique hotel in the beach town of El Zonte, says Bukele is the first president to understand the value of the sport to the country: "As others have said, if you want to stop emigration to the U.S., don't build a wall. Make jobs." On March 12, Moody's Investors Service raise the country's rating from stable to positive, saying conditions had improved and government liquidity risks had declined.

One significant resource for El Salvador is Howard Buffett, son of Warren. A farmer and former Archer Daniels Midland Co. executive who got involved in helping with water and crops in Central America, Buffett became friendly with a Salvadoran farming family. When he was visiting several years ago, they told him they couldn't bring crops to market without paying protection money. "They had a line of trucks outside, and the gangs came up and said they have to pay $100 a month or they'll kill their drivers," Buffett recalls. "We realized we were missing an important aspect. Rule of law has become the most critical piece to success."

Buffett shifted his focus in El Salvador to law enforcement, buying equipment for the police and pledging $25 million for a top-of-the-line forensics lab and database that's already being built. He met Bukele when he was mayor of the capital and liked him immediately. The American played a key role in rebuilding Cuscatlán, San Salvador's central park. Once filled with trash and frequented by drug dealers, it reopened in September after a $22 million makeover. Now it's an exceptionally welcoming space for mothers and children, with art displays and free courses in music, English, and yoga.

Bukele's decision to bring the military into the legislature on Feb. 9, Buffett hopes, was a bad call by Bukele and not part of a pattern. Ⓑ



SPECIAL ADVERTISING SECTION

Bloomberg Businessweek

BUSINESS EDUCATION DIRECTORY


WONDER
MAKES US
TOP TEN
in MIS and online MBA nationwide
THE UNIVERSITY OF ARIZONA
Eller College
of Management
ELLER.ARIZONA.EDU

HEAD FOR THE HILLS

THE RV GETS AN EXTREME MAKEOVER
BY MATTHEW KRONSBERG

PHOTOGRAPH BY MATT NAGER

March 23, 2020

Edited by Chris Rovzar

Businessweek.com

WHEN

Nicole Lawhon and her husband, Justin Christofferson, prepare to bunk down in their RV at the end of a long drive, they follow a similar routine. Whether they’re boondocking in the Sawtooth National Forest in Idaho, New Mexico’s Jemez Mountains, or the Florida Everglades, they’ll pull a bottle of Grande Cuvée from their wine rack, push a button to open the awning for shade, fire up the outdoor grill, and prepare dinner using knives from their custom-made drawer.

Home for them and their 9-year-old son is a gleaming white, 29-foot-long hell on wheels that rides 12 feet tall on 41-inch tires on military-grade rims and is emblazoned with skulls across its side. Called an EarthRoamer, it’s a sort of Winnebago-on-steroids—something you’d expect Thanos to emerge from before the final battle of *Avengers: Family Vacation*.

These extreme RVs have long been popular in Europe as part of “overlanding” vacations—off-the-grid, pavement-agnostic excursions that can last weeks or months. Pass through the Bavarian spa town of Bad Kissingen when it’s hosting Abenteuer & Allrad, an annual confab for overlanding enthusiasts, and you’ll find everything from kitted-out Land Rovers to U-Haul-size Unicat expedition vehicles with full laundry facilities and bunk beds.

Inside an EarthRoamer LTi with oak storage, a granite countertop, and a wall-mounted Keurig coffee maker

Adventures such as this are a relatively new fad in the U.S. But for those with the means to afford a six-figure rig, getting as far away from civilization as possible while still riding in the lap of luxury is becoming a more enticing proposition. “Justin is 41, and I am 46,” says Lawhon, “which is too old for sleeping on the ground in a tent.”

Lawhon, an artist and former librarian, and Christofferson, a retired oil and gas geologist, chose the Colorado-based EarthRoamer because of its hand-built, highly customized interiors that take their cues from luxury yachts. Closets lined in cedar, heated bathrooms, and a 20,000-Btu air conditioner with thermostat are standard, as are biometric safes and an app-controlled air-ride suspension for leveling out on uneven campsites. The RVs can also come with granite countertops and 4K entertainment systems with Bose surround sound.

This month, EarthRoamer starts deliveries of its newest design, the LTi. Built on a Ford F-550 platform and powered by a 6.7-liter turbo diesel V-8 motor, it has 750 pound-feet of torque and can hold 95 gallons of fuel and 100 gallons of fresh water. On the roof are four 330-watt solar panels, feeding into an 11,000-watt-hour lithium-ion battery bank.

The LTi starts at $590,000, though once you start piling on such options as Llumar PPF paint protection ($15,000), a FLIR infrared camera system ($6,869), and an extra winch capable of towing 16,500 pounds ($4,000), it’s not difficult to reach a maxed-out price topping $730,000.

The vehicle’s real innovation, however, is an industry-first carbon-fiber cabin. The material gives the cabin better rigidity, while also making it 1,500 pounds lighter than the fiberglass-bodied LTS model that preceded it. Even with the EarthRoamer’s buttery suspension, rigidity matters because driving off-road—whether bounding across the Sonoran Desert or rumbling up Alaska’s trans-Arctic Dalton Highway—subjects the cabin to “earthquake-type forces,” says company founder Bill Swails. Also, the lighter the cabin, the lower its center of gravity, which improves stability and performance.

EarthRoamer’s 80-plus workforce can build about one vehicle every two weeks. Each is constructed to order, and the final quality-control checklist runs to more than 4,000 items. The company’s order book is full until late summer, and repeat customers are common: Of the 13 vehicles it’s building, six are going to existing EarthRoamer owners.

Although the overlanding industry doesn’t have a dedicated consumer group like camping or RV travel, anecdotal evidence points to rising growth and a more mature audience than for many other rugged pursuits. Scott Brady, publisher of the magazine *Overland Journal* and chief executive officer of the Expedition Portal website, says the site draws about 1.4 million visitors per month and has a median user age of 42.

Income tells a more interesting story, though. The median for his subscribers is $158,000, but there’s a group making above $1 million. “Typically a demographic for an industry will follow a natural bell curve,” Brady says. “But we actually have more people that are at a million-plus than we have at $250,000 to $500,000,” he says.

The category’s biggest trade show in the U.S., Overland Expo, is also welcoming new fans. The event’s organizers

PHOTOGRAPH BY MATT NAGER FOR BLOOMBERG BUSINESSWEEK

BLISS MOBIL

The Dutch company has become a regular at U.S. overlanding gatherings. It specializes in smartly appointed steel-framed cabins ranging from 8 to 23 feet long, designed to be easily attached to—and removed from—multiple truck platforms. For try-before-you-buy types, this 13-foot cabin is mounted to a Mercedes Atego chassis, the kind of vehicle available to rent through Dutch operator Overland Travel. *From €220,000 ($249,000); blissmobil.com*

EARTH-CRUISER EXP

While the ability to cross land is a given for an expedition vehicle, EarthCruisers are also designed to fit into shipping containers so they can be used overseas. They're also built exclusively on Mitsubishi Fuso platforms—one of the most widely available truck types in the world—so spare parts and local service are available whether you're in Moab or Mongolia. The interiors are more utilitarian (no TVs), but a pop-up roof makes the need for air conditioning optional. *From $399,000; earthcruiser.com*

SLRV COMMANDER

It's not hyperbole to call the SLRV Commander twice the expedition vehicle of the competition. Forget four-wheel drive: This has eight, as well as four locking differentials. And if there's not enough living room in this nearly 40-foot-long Australian giant, another available option is a pop-up second story with room to sleep six. *From A$900,000 ($597,000); slrvexpedition.com.au*

GLOBAL EXPEDITION VEHICLES

For those who want the capabilities and comfort of a luxury expedition vehicle but with a footprint suitable for urban environments, there's the Adventure Truck from Global Expedition Vehicles. Available in two configurations—one with a bed over the cab, the other with a roof rack—it's small enough to be a weekender, but it also has a 100-gallon diesel tank and can store up to an equal amount of fresh water to stay off-grid for long stretches. *From $198,000; adventuretrucks.com*

added a third location this year, in the Colorado Rockies, after its Overland Expo West, to be held in Flagstaff, Ariz., in May, drew more than 22,000 attendees and 405 exhibitors last year—a 30% increase from 2018. They expect a similar bump in 2020.

Among those on display will be vehicles from European expedition suppliers, including the German-made BoXmanufaktur, which grabbed attention last year with a six-wheeled behemoth that looks like a cross between a moving truck and an armored personnel carrier. Its vehicles can come with a queen-size bed as well as flush-mounted LED light strips for the kitchen, a macerator toilet, and fresh-water storage of up to 700 liters (185 gallons).

Others, such as EarthCruiser USA, based in Bend, Ore., have in-house logistics support to get parts or service overseas. Starting at $400,000, EarthCruiser's EXP model comes with a Vortec 6-liter gasoline engine and is outfitted with ultra-comfortable Scheel-Mann Vairo captain's chairs.

Springfield, Mo.-based Global Expedition Vehicles also operates in the spare-no-expense market with the likes of the Pangea, which starts at $650,000. It's lately turned its attention to lower-priced options with an offshoot called Adventure Trucks. These start at about $200,000 while still offering high-tech perks such as electronically dimming skylights similar to the windows on a Boeing 787.

While these kinds of turnkey options abound, the bulk of overlanders have a DIY mentality, seeing as much adventure in creating a vehicle as they do in exploring in it. Devon Turnbull, a New York designer of bespoke sound systems for the likes of fashion designer and artist Virgil Abloh, spent several months in Berlin converting a 1990s-era Mercedes-Benz G-Class Professional into a rolling home. "I'm driving this just barely there track west through the desert for maybe 40 minutes," he says of a six-week road trip through Morocco. "I keep hitting these loose sand dunes. And I'm like, 'I got this.'"

For his next project, Turnbull has become the first taker of a new offering from Global Expedition Vehicles called DIY Kits. They start at $13,000 for an empty cabin that's delivered flat-packed, like a piece of Ikea furniture—doors and windows are optional. He'll take that 13½-foot body preassembled on a Mitsubishi Fuso chassis and build out the interior himself. Among the amenities he's including are a wood-burning stove and a mind-blowing stereo system, naturally.

Finding that balance between performance and luxury is an individual decision. Barry Andrews, a co-founder of QSC Audio in California, has assembled a team of specialists to build an all-terrain camper that he hopes to drive from his home on Mexico's Baja peninsula up to northern Alaska.

"The focus isn't on luxury in the traditional sense," he says. "The luxury we are pursuing is to be able to travel down rugged, remote, and technical trails the big rigs can't fit on, stay a long time, and come back out safely." He concedes that some of the amenities might actually qualify as luxurious. There will be an espresso machine, a barbecue grill, and "other goodies," he says, including a "freezer full of ice and a martini shaker." His motto? "Remote, never primitive." B

PHOTOGRAPHS CLOCKWISE FROM TOP LEFT: COURTESY EARTHCRUISER; COURTESY GLOBAL EXPEDITION VEHICLES ADVENTURE TRUCK; COURTESY SLR EXPEDITION VEHICLES; COURTESY BLISS MOBIL

Old Barns, New Life

Rustic American farm buildings find fresh homes—and uses—in distant corners of the world. *By Lynn Freehill-Maye*

Last winter, Ken Zinssar and his brother were working on a car in a wing of the old barn they'd turned into a weekend auto shop. Suddenly, they heard a loud bang, and the structure was beginning to shake.

A main corner post of the barn, which was built around 1780 in New York's upstate Schoharie County, had snapped. Zinssar and his wife, Doreen, realized they couldn't keep the place up, so they called Heritage Restorations and said they were ready to sell. "There's a little pang, but it's going to collapse otherwise," Ken says. Doreen adds: "We're excited to see it go have a new life."

Since 1997, Heritage Restorations has moved and redesigned about 400 barns, for as much as $5 million apiece. Often it's just the interiors of the barn that can be reused, as the exteriors are too weathered or incomplete. Many come from New York's Catskill Mountains region, where porches sag from grand old homes not far from scrap yards with names like Hubcap Heaven. In the 18th and into the 19th century, the Schoharie Valley boasted some of the richest dairy- and farmland in the colonies. Then the Erie Canal opened, shifting American agriculture farther west. Instead of crops, the old infrastructure was left to grow moss.

These days the valley, and a surrounding swath of upstate New York and New Jersey, is producing treasure again: Its derelict old barns are finding second lives as star getaways, ranch houses, or wedding venues. Hundreds of these centuries-old outbuildings are being dismantled and set up again, entirely reimagined in places as far away as New Zealand and Japan.

Rustic is in. Old wood is hot. A DIY Network show, *Barnwood Builders*, has run for eight seasons. But it's Heritage founder Kevin Durkin who's responsible for many American barns' highest-profile moves. "We live in such a tumultuous world–socially, economically, politically," he says. "When you wake up in the morning and there are 300-year-old


A Colorado ski home converted from a New York Dutch barn built in about 1770

beams overhead, it gives you a sense of stability."

Durkin, a trim 66-year-old, has the long face and patrician manner of John Kerry. But one of his clients–and a cycling buddy–is Kerry's onetime opponent, George W. Bush. In 2009, Heritage took a chestnut English barn frame built in 1750 from Middletown, N.Y., and topped it with a corrugated metal roof and siding for its future as a guesthouse on the Bushes' Crawford ranch.

Durkin grew up Catholic in an old New Jersey family. He loved skiing at his parents' vacation home in the Catskills and digging for arrowheads and old coins in the woods. By early adulthood he was born again as a nondenominational Christian and quit graduate school, where he had been doing research at a pathology lab.

He eventually moved to Texas and opened a workshop for antique wooden furniture reproductions. At one point in the late '90s, when it needed a showroom, Durkin thought to build it from wood salvaged from an historic barn. One shopper was enchanted by the space and inquired about how to get a house with a similar open-beamed feel. A barn business was born.

Today, Durkin runs the company with millennial-age business partners Matt Brandstadt and Caleb Tittley. It grosses $2.5 million annually and is profitable–but not a fortune maker. Heritage pays barn owners in the low five figures for their structures, purchasing many on spec with the hopes of finding a future client. The dismantling itself costs about $20,000, Durkin says. Beyond shipping, labor, and design, expenses include hiring the Cornell Tree Ring Lab to precisely date a barn based on a wood sample.

Once moved, the structures are frequently modified creatively, like when Heritage built a glassy, luxurious pool house from the bones of a simple toolshed in Sharon, Conn. Another project, outside St. Louis, combined six outbuildings to create a 14,000-square-foot home, with a single bedroom. Occasionally the barns are used on actual farms, as for the supermarket-wine Gallo family, who commissioned a restoration in California for their horses.

Late-night host Jimmy Fallon had a relatively modern barn on his getaway estate in the Hamptons but wanted something more impressive. The existing structure was supported by 6-by-6-inch beams, so Durkin's team found a heavy Canadian barn of the same size but with 12-by-12-inch elm beams to undertake a tricky barn-within-a-barn rebuild–tearing down the old frame at the same time they erected the new one. They also left room to place a tree indoors, in the middle of the barn, winding a spiral staircase around it with spindles and rails made from the branches.

Most barns get cleaned out, taken apart, and shipped to the company's workshop in Big Timber, Mont., where a team of eight craftsmen fumigates and reconditions every beam. They ship every labeled piece together to their destination, where they're reassembled into something new. The exterior wood is often sold for other projects–most clients are looking for a rustic interior, not a leaky old shell. Insulation is hidden in the new structures, and roofs are added of copper, metal, slate, tile, or thatch. Even with shipping, which Durkin figures would happen for new construction, too, he considers the work sustainable, calling it "the ultimate recycling."

Like Durkin, buyers gravitate toward the grand 18th century Dutch barns that tend to come from New York and New Jersey. From the outside, they're tall and peak-roofed, with bends in the roofline on each side where livestock stalls were placed. Step into one, with its impressive 30-foot-high central nave and side aisles, and you might have the feeling of entering a church. It isn't coincidental: Many Dutch barns were built on a basilica-style plan.

Walking through the Zinssars' barn before the deconstruction begins, Durkin points out the design details. "You'd stack sheaves of grain up here," he says, signaling the rafters with a laser pointer. "But when this is emptied out, it's like a cathedral."

That day, local laborers Steve Swift, Brandi Swift, and Tyler Nark were cleaning piles of abandoned detritus that showed how time had lapsed: lawn mowers, tractor parts, bicycles, carriage harnesses. "I've got the world record for taking down the most Dutch barns," says Steve, who dismantled his first in 1981. "It'll never be broken, because there aren't that many left." An estimated 700 barns in this style remain. Durkin started out finding them by "literally beating the bush, getting chased by dogs," he says. These days he and Swift cruise Google Earth and post "We Buy Barns" signs at intersections.

Not everyone cheerleads the work. Preservationist Greg Huber of Eastern Barn Consultants avoids mentioning Durkin by name, referring instead to "a so-called person who moves barns to Texas." A Pennsylvania-based former biologist and tree lover turned historian and barn expert, Huber visited 610 barns before editing the latest edition of the book *The New World Dutch Barn: The Evolution, Forms, and Structure of a Disappearing Icon*.

"They have a soul and an aura," Huber says. "If you're going to take a barn out of its historic context, it would be good to [save records] so that information is not lost forever."

Durkin argues that moving barns beats leaving them to rot. "They belong in place, they belong local–but they don't belong in the landfill," he says. "We're the next best thing." Ⓑ

HOW TO TAKE DOWN AND REBUILD A BARN

1. Clean out building.
2. Document everything with photographs and measurements. Number the beams.
3. Starting at the peak, peel roof off.
4. Take down rafters.
5. Carefully strip off exterior siding.
6. Lift off the "plates"—or longest 40-to-50-foot beams that cap the wall posts—by unpegging them.
7. Take down the "bents"—wall beams—that frame the barn.
8. Pry up and save the floor, including the "sills"—the heavy beams underneath.
9. Ship all materials on a flatbed truck to a workshop.
10. Wash the wood.
11. Replace or repair any missing or damaged parts with matching period wood.
12. Recut any missing joints and test-assemble them.
13. Fumigate all materials against insects.
14. Ship the materials to be rebuilt in their new home.

COURTESY HERITAGE RESTORATIONS

The United States of Moonshine

They say it can cure what ails you—or make you go blind. Whatever its mischief, bartenders and distillers alike are fired up about firewater

By Mark Ellwood

Thank the Great Recession for the newfound boom in moonshine, that illicit liquor cooked up in backyard stills across America for centuries. Usually fermented from corn mash, it's like bourbon without a high school diploma.

A slew of Southern states loosened restrictions on distilleries by 2010, and some makers jumped right into the moonshine business. It was a smart move: High-proof, unfiltered firewater is bottled and sold straight from the still; dark liquors must be aged for months, or even years, before yielding a profit. It didn't take long for the hooch to become a mainstay of craft distilling across the country. (Some, of course, was likely already being made long before 2010.)

Josh Kopel, who stocks almost 100 different types of moonshine at his Deep South-tinged restaurant Preux & Proper in Los Angeles, is a passionate advocate. "It really speaks to people in a world where everything vintage is new again. It connects with American heritage and lineage in a pure and authentic way," he says. "And it's the devil." He suggests using it as a stand-in for vodka in any recipe, or subbing it for tequila in a margarita. Moonshine will add a musky kick, with a slightly sweet finish like boozy kettle corn.

We asked a panel of moonshine-chugging experts to weigh in with their recommendations, including Kopel; chef Kenny Gilbert of Cut & Gather in Raleigh, N.C., which focuses on moonshine behind the bar; and Otello Tiano, from Lazy Bear bar in San Francisco, a lifelong aficionado who grew up around moonshiners in his native Italy.

Fair warning: Hooch has come a long way, but it still tastes like it can strip paint. Consider sampling these in moderation–or storing them in case of an emergency, when another, more civilized liquor may not be enough. B

1. SONOMA SHINE
Prohibition Spirits, Sonoma, Calif.
At their distillery tucked into Northern California wine country, Amy Groth and her husband, Fred, first earned accolades for their limoncello. Now they've branched out and offer two small-batch moonshines: One is made from corn; the other repurposes leftover wine, a local spin on the tradition of relying on whatever's available as a base.

2. DEVIL'S SHARE MOONSHINE
Cutwater Spirits, San Diego
Try the 98.6-proof white dog or unaged whiskey at this surf coast liquor paradise owned by Yuseff Cherney, who left a career in law to start up his own still. Compare the unaged version—sweet, fiery, and floral—with the same whiskey after it's aged in heavily charred American oak barrels, adding cinnamon and caramel notes.

3. MILK CAN MOONSHINE
Backwards Distilling Co., Casper, Wyo.
In cowboy times, distillers here stashed bootleg booze in milk cans and transported it in dairy wagons—hence the name and quirky packaging. The Pollock family uses a recipe relying on local grains, sugar beets, and Rocky Mountain water; this gives their moonshine a slightly sweeter kick, with a hint of butterscotch.

4. ARCHER'S BLEND MOONSHINE
Moonshine Ridge Distillery, Johnson City, Texas
Tom and Jason Hicks are third-generation moonshiners who spent their childhood in Kentucky surrounded by an uncle who was a bootleg runner and a grandfather who had his own recipe. They use that as a basis for the 105-proof Archer's Blend, named in their granddad's honor. The pair tweaked it a bit, subbing Texas

wildflower honey for sugar and using locally grown corn. The warm, bready finish is due to the baker's yeast used in production.

5. OLE SMOKY MOONSHINE
Ole Smoky Distillery, Nashville, Gatlinburg, and Pigeon Forge, Tenn.
This is the biggest and arguably best-known moonshine maker today, with multiple sites across Tennessee. There's usually live music during pours to entertain the more than 4 million visitors who pass through each year. Try one of the kooky, limited-edition flavors like pumpkin pie when you visit. "They make one of the most balanced moonshines of all," Tiano says.

6. DEVIL JOHN MOONSHINE & DARK 'SHINE
Barrel House Distilling Co., Lexington, Ky.
For the main product in his line, founder Pete Wright took the recipe of his great-uncle, army vet "Devil" John Wright, who moonlighted as a moonshiner despite a career as a lawman. He also offers an unusual second version: His Dark 'Shine, aged for 10 months in small, once-used, charred oak bourbon barrels, is one step closer to Kentucky's classic brown liquor.

7. POPCORN SUTTON MOONSHINE
Popcorn Sutton Distilling, Newport, Tenn.
"They spike this with sweet tea to smooth out the flavor, so you could drink it straight from the bottle," says Kopel of this white spirit. It's named after a banjo-playing hooch merchant who committed suicide rather than go to prison after being busted with 850 gallons of firewater. As Sutton said in his self-published memoir, *Me and My Likker*: "Jesus turned the water into wine, I turned it into likker."

8. TROY & SONS
Asheville Distilling Co., Asheville, N.C.
Troy Ball cooked up her recipe after researching old moonshine cheat sheets. The key to the whiskey and moonshine made here is Crooked Creek corn, a forgotten heirloom variety that fell from favor in the 1960s. It has a high-fat content that confers layers of flavor. "The depth you'll find is amazing: hints of vanilla and a little oak, which is fascinating for something that hasn't lived in a barrel," Kopel raves.

9. JUNIOR JOHNSON'S MIDNIGHT MOON
Piedmont Distillers, Madison, N.C.
This legal operation relies on the family recipe of the late Nascar Hall of Famer, who spent time in jail for running moonshine for his famous bootlegger father. Triple-distilled in copper, it's extra smooth—try one of the fruity flavors, made simply by steeping strawberries or cherries in the bottle, then use the potent fruit as a cocktail garnish.

10. TIM SMITH'S CLIMAX MOONSHINE
Belmont Farm Distillery, Culpeper, Va.
Over the past decade, Smith has earned notoriety on the Discovery show *Moonshiners*, which charted his supposed illegal booze-running. But he's gone legit: This law-abiding launch uses corn, rye, and barley malt. "It's great for sipping, as it's so clean—to me, it drinks like Tito's vodka, with a slight kick," Gilbert says.

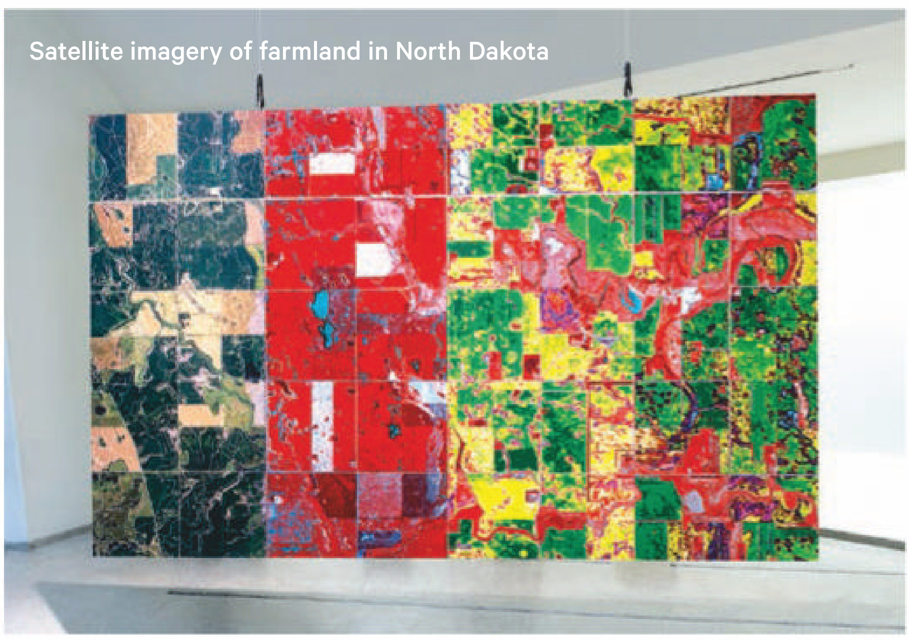
11. KINGS COUNTY MOONSHINE
Kings County Distillery, Brooklyn, N.Y.
Ten years ago, Colin Spoelman, a Kentuckian in New York, started this distillery focused on whiskey and bourbon in a 300-square-foot room in East Williamsburg with a friend. Although the operation has since expanded, production remains boutique. "This moonshine is hard to get your hands on," Kopel says, "But they use New York corn and Scottish barley, and it's a classic."

KINGSCOUNTY: PHOTOGRAPH BY BOBBY DOUGHERTY. ALL OTHER IMAGES: COURTESY DISTILLERIES. ILLUSTRATIONS BY 731

In Defense of The Country

A show at the Guggenheim discovers the joys of rural life

By James Tarmy


Satellite imagery of farmland in North Dakota

People have romanticized the countryside as long as there have been cities. From the ancient Roman poet Horace to German expressionists to the American communes of the 1970s, there's an ongoing perception that the countryside represents an innocent agrarian past, whereas cities, built on sophisticated commerce, represent the technocentric future.

It's not just a question of sentimentality. Metropolitan living does seem like the way forward, especially among proponents of environmental sustainability. The carbon footprint of a household in the center of a large, dense city is about half the national average, according to a 2014 study by the University of California at Berkeley, and households in suburbs are as much as twice the average.

But the theory that big cities are our manifest destiny is being challenged by the starchitect Rem Koolhaas in the exhibition "Countryside, the Future," at the Solomon R. Guggenheim Museum in New York through Aug. 14. "The inevitability of Total Urbanization must be questioned," Koolhaas writes in an accompanying catalog, "and the countryside must be rediscovered as a place to resettle, to stay alive." This notion will have particular resonance in the age of the new coronavirus, as urban crowds have become synonymous with contagion. The Guggenheim is closed until further notice for this very reason, making Koolhaas's message strikingly urgent.

The six levels of the rotunda are broken into sections, including one called "Political Redesign" that looks at case studies around the globe in which the countryside was modified through sociopolitical machinations. In it, there are anecdotes about Nazi Germany, plus a story about Moammar Qaddafi's successful project to create the largest irrigation system in the world by transporting water through 1,750 miles of pipeline.

Another section, "(Re-)Population," finds people who left the city for the country. One such narrative relates how Manheim, a town in Germany that abuts an open coal mine, was evacuated as the mine expanded. The village became a ghost town until Germany moved Syrian refugees into its ancient, empty houses. The refugees, the text tells us, "made the village look like an optimistic, heterogeneous, globalized version of the German countryside."

Most of the exhibition is text accompanied by props both illustrative and decorative. On a pillar dedicated to toys and books, Playmobil tractor sets are mounted on the wall. "The smallest toy farm or police squad or children's book reveals more about the fears and hopes of a society than many sociological studies," reads the text.

The show was curated by the Guggenheim's Troy Conrad Therrien and organized in collaboration with AMO, a research studio spun out of Koolhaas's firm, Office for Metropolitan Architecture (OMA). It's not prescriptive: Visitors aren't likely to find new ideas about sociology, let alone mass deforestation or species collapse. Instead, the show aims to capture the current state of life outside cities. "Given [the] countryside's enormity, this portrait can only be pointillist," Koolhaas writes.

There's a recurring theme of compare and contrast: A picture of women in traditional peasant clothes from 1909 is set against another image of a pink-lit mega-greenhouse from 2017. "THEN," reads text overset on the first image. "NOW," reads the next. We're supposed to be dazzled by the change, but mostly you'll be struck by how the labeling, font, and depth of insight conjures HSBC's decade-old "Different Values" advertising campaign.

Anyone looking for profundity, or anything they can't find on Wikipedia, will likely come away disappointed. The show often takes a bemused, wide-eyed approach to rural life that presupposes its audience is as ignorant as the urbane Koolhaas, whose interest in the countryside came about when he decided his Swiss vacation town had become too gentrified. "When I first went there 20 years ago, the village was small. Since then, the inhabitants left, but the village grew. It's now three times bigger," he says in a statement at the base of the Guggenheim ramp. "How can a village empty and grow at the same time?"

Sentiments like these make the show feel oddly dated, a jumble of insights that don't stand up to scrutiny (for example: "The sea is the new countryside"). The format might work in a management consultant's strategy deck, but a museum, particularly one with such global stature, should aim higher.

And yet it's notable that "Countryside, the Future" exists at the Guggenheim at all. It's a testament to the institution's commitment to nontraditional art and ideas but also a devastating internal contradiction: If the countryside is our future, what's it doing in a museum? B

Sticking Around

Can't get outdoors? Invite a natural, woodsy aroma inside with high-end incense

Photograph by Victor Prado

Scented candles may be all the rage, but the ritualistic nature of incense makes it a better tool for achieving a Zen-like state. At least that's the thought behind the sophisticated scents of Cinnamon Projects LLC, created by Andrew Cinnamon and his husband, Charlie Stackhouse. When they were asked by the interiors studio Apparatus to collaborate on a stick to coincide with a furniture release called Interlude, the duo doubled down on the musical theme and conjured the smell of a violin case. The fragrance is a mix of frankincense (to give it leathery notes), iris and tuberose (to reference the silk-velvet lining), and rosin and spruce wood (to mimic the instrument itself). A svelte package holds 25 sticks that have a burn time of 25 to 30 minutes each.

THE COMPETITION

• Design studio Commune has produced a $32 incense pack with Kyoto-based Keijirou Hayashi, whose family's craft goes back 180 years. The sandalwood sticks burn quickly without the sometimes overly sweet odor the wood is often chided for.

• Beckoning Spring ($52 for 35 sticks) from the 300-year-old Japanese brand Shoyeido is pressed directly into the shape of a stick instead of being formed around a piece of bamboo—giving its combo of clove, patchouli, and camphor more room to shine.

• Lisn, founded in 1989 as a Shoyeido offshoot, creates sticks ($54 for 10) that, at less than 3 inches long, are a microdose of bliss. The brand is also collaborating on a collection with the Mitsui hotel in Kyoto, which opens in summer.

THE CASE

That Nag Champa you burned in college left a persistent aroma for a reason: The sticks are made from bamboo wood. Interlude, on the other hand, is handmade in Japan with charcoal, which allows more of the actual ingredients to get their due. The earthy frankincense is leavened by the floral notes, particularly the tuberose, known for its clean, gardenia-like smell. Plus, because there's no wood core, the sticks produce considerably less smoke, so you can clear your headspace without choking like a tourist in a Buddhist monastery. *$40; cinnamon projects.com*

$1,000 Is Not a Magic Number

By Peter Coy

There's a rush of interest in handing out $1,000 to every adult American—or some variant of that gambit—to soften the economic harm of the Covid-19 pandemic. Advocates of showering money on the public include fiscal conservatives such as Senator Mitt Romney, the Utah Republican, and Gregory Mankiw, the Harvard economist who was a chief economic adviser to President George W. Bush. The Trump administration wants to send out checks soon, amounts to be determined, as part of a stimulus that could total $1.3 trillion.

Helicopter money, so called because it seems to fall from the sky, gets a lot of dollars out to a broad swath of the public. (The assumption is that the Federal Reserve won't counteract the stimulus by sucking the dollars back out of the economy.) In contrast, a payroll tax holiday, which President Trump has advocated, helps only employed people who incur payroll taxes.

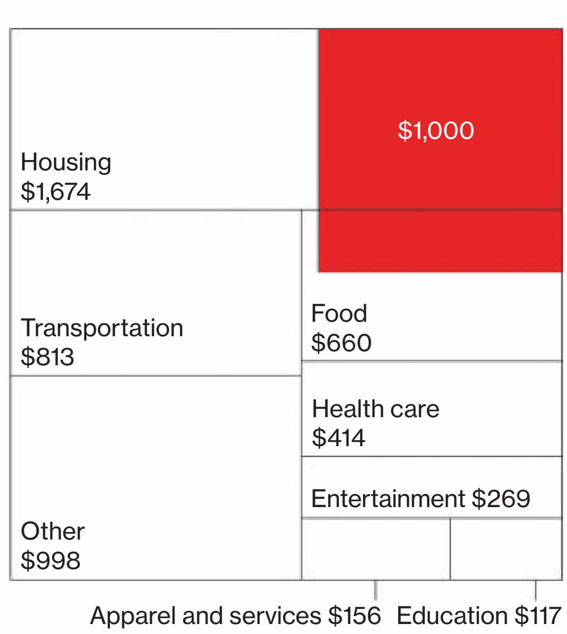
But a check from Washington doesn't work as quickly as a payroll tax cut, which could take effect as early as April 1. Helicopter money is usually done via a tax credit that's "refundable," meaning you get it even if you don't owe income taxes because your income is too low. The credits take time to enact and carry out. "In 2008, legislation approving the stimulus passed in February, while most individuals received checks amounting to $600 (twice that for joint filers) between May and July. In the current environment, a similar timeline of three-to-five months would be far too slow," economists Carl Riccadonna and Andrew Husby of Bloomberg Economics wrote on March 13.

One problem with both kinds of tax cuts is that they're too small for people who are in a pickle and too big for those who don't need help. And the businesses in the most danger will benefit the least. No one's going to splurge on restaurants, airlines, or hotels just because the government cut them a check. Alan Auerbach, an economist at the University of California at Berkeley, says one solution is to beef up and extend unemployment insurance for people working in virus-stricken industries. While that helps the workers, it doesn't help the companies.

One out-of-the-box idea: The federal government could give money directly to companies to make up for lost revenue. In the airline industry, for example, "If demand drops by 80 percent, the government would compensate this missing demand, in effect buying 80 percent of plane tickets and maintaining sales constant," Berkeley economists Emmanuel Saez and Gabriel Zucman proposed on March 16 in an article on Pro-Market, a University of Chicago Booth School of Business blog. "Business activity is on hold today," they write, "but with intravenous cash flow, it can be kept alive until the health crisis is over." B

—*With Josh Wingrove, Laura Davison, and Saleha Mohsin*

●BUDGET BAND-AID
Average monthly consumer expenditures in the U.S. in 2018



DATA: BUREAU OF LABOR STATISTICS

Bloomberg Businessweek (USPS 080 900) March 23, 2020 (ISSN 0007-7135) H Issue no. 4650 Published weekly, except one week in January, February, March, May, July, August, September, October, November and December by Bloomberg L.P. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Executive, Editorial, Circulation, and Advertising Offices: Bloomberg Businessweek, 731 Lexington Avenue, New York, NY 10022. POSTMASTER: Send address changes to Bloomberg Businessweek, P.O. Box 37528, Boone, IA 50037-0528. Canada Post Publication Mail Agreement Number 41989020. Return undeliverable Canadian addresses to DHL Global Mail, 355 Admiral Blvd., Unit 4, Mississauga, ON L5T 2N1. Email: bwkcustserv@cdsfulfillment.com. QST#1008327064. Registered for GST as Bloomberg L.P. GST #12829 9898 RT0001.