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Bloomberg Businessweek

February 10, 2020

MAN VS. MICROBE

THE CORONAVIRUS IS JUST THE BEGINNING. WE ARE SO NOT READY FOR THIS 8

Bloomberg Businessweek

February 10, 2020

◀ Syndikat, the smoky living room of Berlin's Schillerkiez neighborhood, faces eviction by a mysterious foreign landlord

FEATURES

PHOTOGRAPH BY JOHANNA-MARIA FRITZ FOR BLOOMBERG BUSINESSWEEK

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■ COVER TRAIL

How the cover gets made

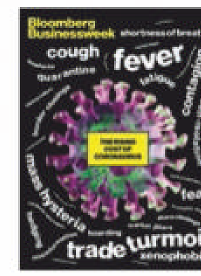
❶

"So this week's cover story is about the new coronavirus. We've got some time, so let's get a head start on this one."

"I'm on it!"

❷

[7 days to deadline]



"Wow! Nailed it!"

"See ya next week! I'm going to Miami."

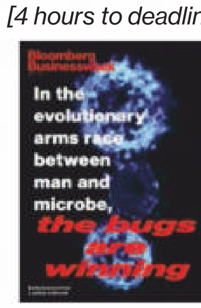
[12 hours to deadline]

"I have another idea!"

"Getting tight, but let's try."

❸

[4 hours to deadline]



"I actually quite like it."

"Me, too!"

[3 hours to deadline]

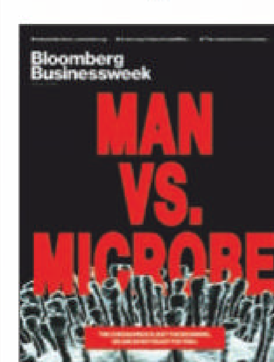
"We probably don't want to say 'winning.'"

"Fine, we can go back to the other one."

[2 hours to deadline]

"Wait! I have an even BETTER idea."

"Remind me why I bother to start early."



Cover: Pasieka/Science Source

ASTRA: PHOTOGRAPH BY JASON HENRY FOR BLOOMBERG BUSINESSWEEK. VIRUS, TOP: NEKO/ALAMY. VIRUS, BOTTOM: COURTESY NIH

By Benedikt Kammel

● With the new coronavirus outbreak gripping China, investors are pulling out.

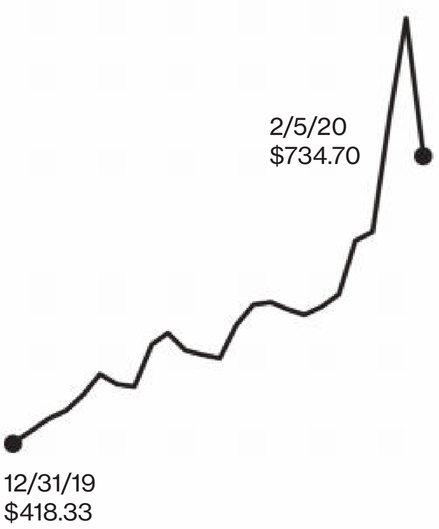
The country's $7.5 trillion stock market had its worst rout in years; thousands of shares fell by their daily limit at the start of the trading week. ▷ 11

● Pete Buttigieg emerged with a narrow lead from the Iowa caucus that was marred by a faulty voting app. ▷ 32

● Argentina is renegotiating its debt to avoid another sovereign default. The country's largest province offered better terms to bondholders who agree to accept a delayed payment. President Alberto Fernández, who took office in December, must dig his country out of a debt hole of

$311b

● Tesla is having a blowout 2020, its stock more than doubling since the start of the year before dropping sharply on Feb. 5.



● Worldline, the French payment company, agreed to buy local rival Ingenico.

The €7.8 billion ($8.6 billion) deal will form one of the world's largest payment-services providers. Europe's biggest transaction so far this year, it follows a spate of other major purchases in the consolidating electronic-payments market.

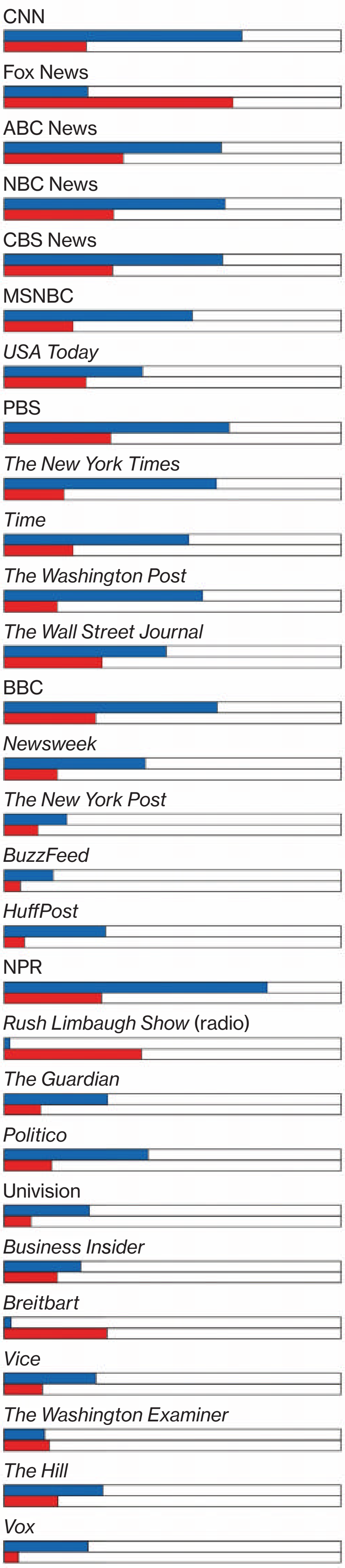
● Germany's Reimanns, the family behind the sprawling coffee empire that includes Caribou, Peet's, and other brands, is considering an IPO of the business, according to people familiar with the plans. A sale, which could raise about €3 billion in Amsterdam, would be one of the biggest IPOs in Europe in more than a year.

● "A man without character or ethical compass will never find his way. You are decent. He is not who you are."

Democratic Representative Adam Schiff, who led his party's impeachment managers, made a final plea to senators to convict and remove President Trump on charges that he tried to rig the 2020 elections in his favor.

● The U.S. is divided—between those who lean Democrat and Republican—on the news sources they know and trust, says a Pew Research Center study.

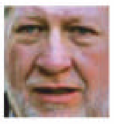
Share of respondents who've heard of each outlet who say they trust its political and election coverage*



BUTTIGIEG: JEREMY HOGAN/GETTY IMAGES. PEET'S: MICHAEL BEZJIAN/GETTY IMAGES. SCHIFF: ALEX WONG/GETTY IMAGES. *NEWS SOURCES ORDERED BY SHARE OF TOTAL RESPONDENTS WHO HAD HEARD OF THEM. THE DAILY CALLER AND SEAN HANNITY'S RADIO SHOW HAVE BEEN OMITTED, AS THE SHARE OF DEMOCRATS AND LEANERS WHO SAID THEY TRUST THOSE SOURCES WAS LESS THAN 1%; THE SHARE WHO'D HEARD OF THEM AND TRUST THEM COULDN'T BE PRECISELY CALCULATED. DATA: PEW RESEARCH CENTER

IN BRIEF

● Bernard Ebbers,



former CEO of WorldCom, died at 78, a little more than a month after being released from prison. Ebbers had spent 13 years behind bars for securities fraud, which surfaced in 2002 when WorldCom disclosed it had misreported $3.9 billion in expenses, forcing the company into bankruptcy.

● Swiss private bank Julius Baer said it will cut 300 jobs.

In a reversal for an institution that had expanded rapidly over the past decade, new CEO Philipp Rickenbacher aims to slash 200 million Swiss francs ($208 million) in costs over the next three years.

● The physical cash holdings of German banks rose to a record

€43.4b

in December, according to data from the Bundesbank.

● Prime Minister Boris Johnson signaled a tough negotiating stance with Brussels over the next few months.

Now that the U.K. has left the European Union, he says he won't agree to the bloc's rules to get a favorable trading deal.

● India's government unveiled infrastructure spending of almost

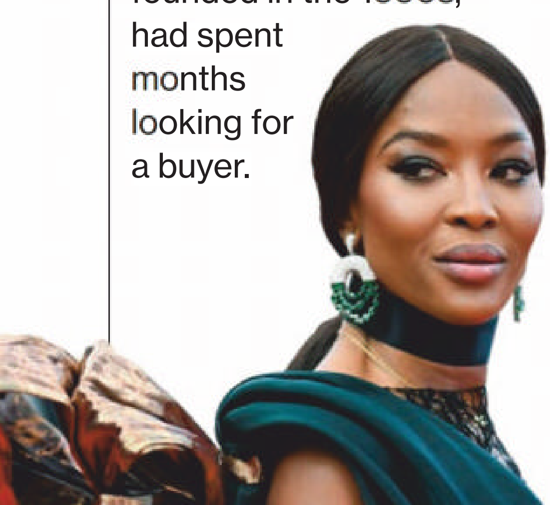
$24b

The budget aims to boost the economy, whose growth is slower than it has been in more than a decade.

● Tony Fernandes stepped

down as CEO of AirAsia, the Malaysia-based discount carrier he built over almost two decades. He departed days after Airbus, which admitted to illegally lubricating aircraft sales for years with bribes, agreed to a record $4 billion settlement with authorities in France, the U.K., and the U.S. Fernandes denied allegations of wrongdoing, saying he resigned to assist the investigation.

● De Grisogono, a jewelry brand favored by Naomi Campbell, Salma Hayek, and other celebrities for red carpet outings worldwide, filed for bankruptcy in Switzerland. The company, which was founded in the 1990s, had spent months looking for a buyer.



● The YouTube video platform has more than

20m

paying subscribers, according to parent company Alphabet, which broke out detailed numbers for the unit for the first time. YouTube made $15.1 billion in 2019, less than some analysts had estimated.

AGENDA

► A Storm Brews on Lake Zurich

Credit Suisse reports quarterly earnings on Feb. 13, but investor focus will be less on the numbers and more on the power struggle building between CEO Tidjane Thiam and Chairman Urs Rohner.

► Alibaba releases third-quarter earnings on Feb. 13. Chinese retail is taking a hit, with shoppers reluctant to spend as the coronavirus outbreak spreads. ▷ 11

► NATO Defense Ministers meet in Brussels on Feb. 12-13. The U.S. has pushed for the organization to broaden its scope in the Middle East and help tackle terrorist threats.

► The New Hampshire primary on Feb. 11 could shake up the field of Democratic presidential hopefuls. Senator Bernie Sanders, of neighboring Vermont, won the contest in 2016. ▷ 32

► Samsung unveils new Galaxy mobile products in San Francisco on Feb. 11. It's set to showcase its S20 family of phones, which have improved cameras, and the foldable Z Flip.

► Hedge funds and other rich investors in the U.S. stock market disclose their multimillion-dollar moves on Feb. 14, when they file so-called 13F forms with the SEC.

► Sweden's Riksbank sets interest rates on Feb. 12. The world's oldest central bank has lifted borrowing costs out of negative territory, but they're likely to stay at zero in the near future.

ILLUSTRATION BY MINET KIM. EBBERS: CHRIS HONDROS/GETTY IMAGES. FERNANDES: PAUL MILLER/BLOOMBERG. CAMPBELL: LOIC VENANCE/GETTY IMAGES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10
CAUTION
ECONOMIC
QUARANTINE

We're Not Ready for This

● As epidemics spread with unprecedented speed, public policy is not keeping pace

● By Brian Bremner, Robert Langreth, and James Paton

In the evolutionary arms race between humanity and the microbes, the bugs are making a comeback. Yes, we've conquered diseases such as smallpox and polio, and deaths from communicable diseases have been falling worldwide. But since 1970, more than 1,500 new pathogens have been discovered, according to the World Health Organization, and "epidemics in the 21st century are spreading faster and farther than ever. Outbreaks that were previously localized can now become global very rapidly."

In late 2002 an airborne illness, dubbed severe acute respiratory syndrome, emerged in China's southern Guangdong province, then quickly spread across the border and killed 774 people from Asia to Canada. In 2009 a novel influenza virus, H1N1, advanced worldwide in nine weeks and may have resulted in as many as 575,000 fatalities. The new virus from central China that's sparked global alarm, a coronavirus known as 2019-nCoV and a close cousin to SARS, reached four continents in about five weeks.

As newer threats surface, such as Middle East respiratory syndrome (MERS) in 2012, older scourges like cholera, plague, and yellow fever flare up with disturbing regularity. Even worse, the antibiotics that revolutionized health care in the last century are losing their punch as new strains of infectious diseases, especially tuberculosis, become more resistant to multidrug treatments. "We've created an interconnected, dynamically changing world that provides innumerable opportunities to microbes," says Richard Hatchett, a former U.S. adviser on public health emergencies and head of the Coalition for Epidemic Preparedness Innovations in Oslo. "If there's weakness anywhere, there's weakness everywhere."

The rich world has the scientific smarts to improve global biosecurity. And, in fact, there's been real progress, with better information sharing and the introduction of improved gene-sequencing technologies. What's missing is a long-term focus. With each new outbreak comes global panic and momentary resolve, only to give way to studied inaction once the crisis subsides. We're nowhere near being prepared for a true pandemic, such as would occur if deadly bird flu mutated to become more transmissible between humans.

Microsoft Corp. co-founder Bill Gates, whose foundation has spent vast sums developing vaccines and drugs against emerging strains and promised up to $100 million to respond to the epidemic, warned in a 2018 speech that the "world needs to prepare for pandemics in the same serious way it prepares for war." We certainly weren't on war footing for the viral outbreak in China.

One obvious lesson is the need to shut down or heavily regulate food markets where live animals and freshly slaughtered, unwrapped meat commingle amid throngs of shoppers. These so-called wet markets, common in China and Southeast Asia, are unsanitary and teem with germs, making them the perfect breeding ground for deadly pathogens.

About 70% of all pathogens identified in the past 50 years are of animal origin, and the novel coronavirus causing havoc in China is closely related to strains known for infecting primarily bats, pigs, and other species. It has the ability to migrate from animals to humans—and from one human to another.

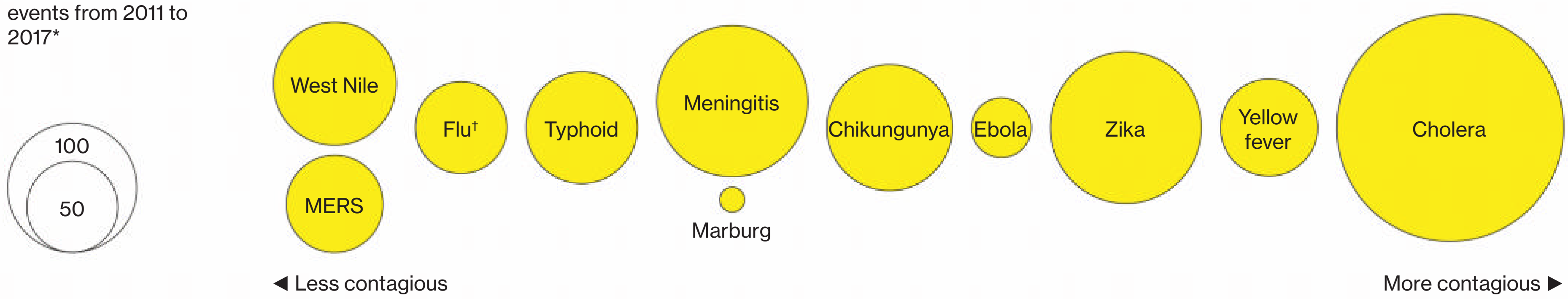
Many early cases have been linked to a market in Wuhan that sold wild animals for food. "I think they should close them all," says Marie-Paule Kieny, director of research at Inserm, France's national health research organization. "There's no risk-proof world, but as much as possible, reducing the threat is the way to go."

Another target is better livestock management in less developed parts of the world, especially India, where overuse of antibiotics by poultry producers has given rise to antibiotic-resistant bacteria, a 2016 Bloomberg News investigation showed. Some 2 billion people don't have access to toilets; inadequate sanitation results in 432,000 ▶

PHOTO ILLUSTRATION BY 731; PHOTO: GETTY IMAGES

Recent Outbreaks

Selected global epidemic events from 2011 to 2017*



*FIGURES AS OF JANUARY 2018; 2017 DATA ARE NOT COMPLETE. IF A DISEASE CAUSED MORE THAN ONE EPIDEMIC EVENT IN ONE YEAR IN A COUNTRY, IT'S COUNTED ONLY ONCE FOR THE YEAR IT OCCURRED THERE. †EVENT OCCURRENCES SHOWN FOR INFLUENZA A. DATA: WORLD HEALTH ORGANIZATION, INFORMATIONISBEAUTIFUL.NET

deaths annually from diarrhea and is a major factor in tropical diseases.

China is a one-party state whose leader, Xi Jinping, is president for life. Yet that power means little if deployed too late in a contest against a mutating virus. In December a mysterious pneumonia started to surface among patients in Wuhan, and municipal and provincial health-care regulators were notified before the end of the month, according to people familiar with the early phase of the epidemic.

Yet a complete travel lockdown of Wuhan, a flourishing megacity of 11 million, didn't take place until Jan. 23. By that time, cases had already surfaced in other parts of China just ahead of the Lunar New Year holidays, an epic travel period and the largest annual human migration in the world. "The coronavirus had been spreading in the city and surrounding areas for more than a month before effective measures were taken," says Yang Gonghuan, former deputy director of the Chinese Center for Disease Control and Prevention. As a result, "the base of infection growth has been enormous."

It takes political will to get out in front of an epidemic. Robust vaccine development matters, too, and therein lies another problem. When it comes to pandemic shots, as with treatments aimed at preventing malaria and tuberculosis, "there are essentially no incentives for big multinationals," says Thomas Breuer, chief medical officer for the GlaxoSmithKline Plc vaccines unit. Glaxo remains focused on higher-margin products, such as cancer drugs. While the company is sharing its know-how with groups racing to develop a coronavirus vaccine, it licensed its promising TB vaccine to the Bill & Melinda Gates Medical Research Institute. "The long-term financing around this cannot rest entirely on the shoulders of companies like GSK," Breuer says.

Since the outbreaks of SARS and the often fatal Ebola virus, U.S. federal money for developing drugs and vaccines for emerging diseases has increased, and drugs that may combat coronaviruses are ready for trials. One is remdesivir, a treatment from Gilead Sciences Inc. that failed tests in people with Ebola. The first U.S. coronavirus patient, in Washington state, received the drug after his condition worsened. He improved the day after he was infused, according to results reported in the *New England Journal of Medicine*.

Gilead says it's shipped enough of the drug to China to treat 500 patients and is working to produce more if the trials starting imminently in China are promising. "We have an army of people working 24/7 now opening up manufacturing lines and doing whatever we can to get as much available as quickly as possible," says Chief Medical Officer Merdad Parsey. Yet the drug may already be the focus of an intellectual-property dispute: China's Wuhan Institute of Virology has applied for a patent on its use against the coronavirus.

Smaller companies might be more likely to enter the field, but that would require government financial incentives, not unlike the kind the U.S. Department of Defense offers to arms makers for critical national security needs. "No one goes out and buys missiles in the free market," says Michael Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota. "There's no capitalism, it's all procurement. Creating a business model is one of the challenges."

More can also be done to identify pathogens before they unleash their furies. "We are reactive rather than proactive," says Amesh Adalja, senior scholar at the Johns Hopkins University Center for Health Security. Diagnostic tests able to identify the precise species that cause a patient's illness aren't used that widely. If more testing were done on patients with suspicious symptoms, we might have a better sense of the pathogens lurking out there, he says.

Encouragingly, information sharing has improved since SARS. Early in the current crisis, after Chinese scientists had isolated the new coronavirus, its genetic sequence was promptly submitted to several online data-sharing portals where public-health specialists swap information.

That helped researchers get a better read on the virus's behavior and gather information to work on medicines, according to Arnaud Fontanet, an epidemiologist and director of Institut Pasteur's center for global health research in Paris. He's confident there soon will be antibody tests that will allow doctors to know whether someone had the virus in the previous three months, even if they showed no symptoms. Disease chasers, Fontanet says, have also been able to model the spread by following airline connection data. In the Ebola crisis, mobile phone usage helped track transmissions.

British scientists are helping China track the spread of the new coronavirus from its origin in Wuhan to countries around the world. Viruses such as 2019-nCoV constantly incur small mutations in their genetic material. While the alterations make little difference to the organism's structure or function, they're almost like the rings of a tree in that they can tell scientists how long the virus has been around and how it got there, as well as how quickly it's spreading.

Spotting copies of the same version of the virus helps disease trackers identify chains of transmission that may have been hidden. "Often when you have a new flare-up of disease in an area that hasn't seen cases, you need to find out if it was transmitting all along and we didn't know about it, or is it an introduction from somewhere else," says Andrew Rambaut, a professor of molecular evolution at the University of Edinburgh. "If you can find the contacts, you can break those chains of transmission."

Rambaut and his colleague Nick Loman, a professor of microbial genomics and bioinformatics at the University of Birmingham, train health workers to use a low-cost, portable "lab in a suitcase" to decode genomes in places such as West Africa, where the Ebola virus killed more than 11,000 people in an outbreak that lasted from late 2013 to 2016. By tracking individual strains of the virus, identified by certain mutations, they were able to show that some transmission occurred from people crossing borders and establish that in some cases the disease was passed from mother to child.

The lab includes a sequencer, called MinION, made by Oxford Nanopore Technologies Ltd. in Oxford, England, that's about the size of a mobile phone and allows researchers to identify differences among viral strains. "You can sequence 12 to 24 samples in a day, and you get a good estimate of the whole genome," Rambaut says. Those sequences can be compared with other existing strands of DNA to track the virus's movement and evolution, he says.

Despite such gains, huge weaknesses remain in disease fighting worldwide. Although Ebola had been around for decades before the West Africa epidemic, the virus spread undetected for three months in Guinea, allowing it to gain a foothold in cities. The U.S. eventually spent $5.4 billion in emergency aid to try to get it under control.

Building a global health-care fortress against dangerous pathogens won't happen overnight—and will never be foolproof. Yet whatever the ultimate cost, it will be far less than the economic hit from a prolonged global pandemic that kills millions. "The foundation for better preparedness is investing in stronger primary health-care systems which provide surge capacities that can be mobilized for effective response to contain outbreaks," Muhammad Ali Pate, global director for health, nutrition, and population at the World Bank, wrote in an email.

At some point, the outbreak will subside, and the world will move on. And that's precisely the problem. "It's a battle you never win," says Peter Doherty, a researcher in Melbourne who won a Nobel Prize in 1996 for discovering how the immune system recognizes virus-infected cells. "Organisms mutate, apart from anything else, so it requires constant vigilance and constant research." —*With Jason Gale, Dandan Li, Thomas Mulier, John Lauerman, Marthe Fourcade, and Yinka Ibukun*

The Economic Pain Is Mild, So Far

● But no one knows how bad the outbreak will be, and the damage to globalization could linger

● By Peter Coy

For businesspeople around the world, the new coronavirus that sprang from China is producing a severe case of cognitive dissonance. Their eyes are telling them things are bad: rising fatalities, history's biggest quarantine, sealed international borders, broken supply chains, shuttered businesses. But economists are telling them the epidemic will lower China's 2020 economic growth by just a couple tenths of a percentage point and global growth essentially not at all.

So, which is it, a global crisis or a tempest in a Wuhan teapot? A lot hangs on the answer.

The oddly calm economic forecasts are based on the assumption that the draconian measures imposed around the world to isolate the sick and the potentially exposed will succeed in killing off the outbreak, at which point there will be a sharp economic recovery. That's what happened after the 2002-03 outbreak of a closely related coronavirus that caused severe acute respiratory syndrome (SARS).

The base case of the professional economists at Bloomberg Economics is that China's gross domestic product will expand 5.7% in 2020, vs. a pre-epidemic forecast of 5.9%. In their "prolonged outbreak" scenario, with containment not occurring until the second quarter, the economy grows just a tad less—5.6%. "Outside China and a few close neighbors, the impact would be difficult to see in the full-year growth data," the economists wrote on Jan. 31.

This quick-bounce-back scenario may well turn out to be

◀ correct. While the number of new infections continues to rise, the daily rate of increase in China seems to have shrunk a bit if the numbers can be trusted. "There's some reason for optimism, but it's not conclusive at this stage," said Michael Gapen, head of U.S. economics research for Barclays Investment Bank, on Feb. 3. "This week and next week are probably the most crucial."

There are a lot of ways things could sour. The virus might spread more than expected, flaring up in countries that are less capable or less willing than China to impose a stringent *cordon sanitaire*. Businesses built to survive brief disruptions will go bankrupt if the epidemic drags on. And in the long run, even after this epidemic ends, it could leave scars, particularly in China itself. Corporate executives will be less keen to do business with the world's workshop if it's also perceived as the world's incubator of deadly viruses.

Right now no one can be sure which way the story will go, as forecasters are the first to admit. "Rapid containment and escalating contagion are both possibilities, and would result in widely different growth forecasts," the Bloomberg Economics forecasters, Chang Shu, Jamie Rush, and Tom Orlik, wrote in their Jan. 31 report.

What's clear is that the viral epidemic is already hurting business. On Feb. 4, Hyundai Motor Co. said it was suspending production lines at its car factories in South Korea because of a shortage of parts made in China. Levi Strauss & Co. has had to shut a big store in Wuhan that opened just four months ago. Apple Inc., which earns about a quarter of its operating income in China, said on Feb. 1 it was temporarily closing all of its offices and stores there out of an "abundance of caution." Airlines have cut flights in and out of the country. With transportation demand drying up, the price of Brent crude oil plummeted to $55 a barrel on Feb. 4, from $69 on Jan. 6.

Even news about the virus that looks positive is less so on second thought. Consider that, as of Feb. 5, the Philippines had reported only three cases of the virus, Cambodia one, and Indonesia zero. Given the close ties all three countries have to China and their lack of sophisticated surveillance technology and procedures, it's likely that cases are simply being missed. What's more, some leaders in the developing world seem dangerously blasé. Cambodian Prime Minister Hun Sen said at a press conference on Jan. 30 that people shouldn't wear face masks because they create a climate of fear.

It's conceivable that the disease could eventually become more of a problem outside China than inside it. In Africa, "it is very possible that we have cases that are going on on the continent that have not been recognized. We have to admit that," John Nkengasong, director of the Africa Centres for Disease Control and Prevention, told reporters on Jan. 28.

The U.S. is better situated than Africa, but still vulnerable. Although President Trump bragged to Fox News in a pre-Super Bowl interview that "we've pretty much shut it down,"

A supermarket in Hong Kong on Feb. 5

KEITH TSUJI/ABACA/SIPA USA/AP PHOTO

his administration has gotten rid of much of the apparatus for fighting epidemics like this one. The *Washington Post* reported in May 2018 that the top White House official on pandemics, Rear Admiral Timothy Ziemer, had left the administration and was not being replaced, and the global health security team he oversaw had been disbanded.

Evidence is mounting that the new virus is less lethal than the one that caused SARS, but possibly more contagious. People can pass it along when they have only mild symptoms or, in some cases, no symptoms at all. SARS wasn't like that. So even though technically SARS is more transmissible in a wholly susceptible population—with a higher "basic reproduction number"—the new virus is more contagious under real-world conditions. Its lack of lethality will hold down the death toll, but the contagiousness will require continued isolation, quarantines, and social distancing.

At least that's the current thinking. Success in fighting the virus depends not only on what people do, but also on the characteristics of the virus itself, which are still not fully understood. "It's all about the bug," says Dr. Mark Denison, director of the division of pediatric infectious diseases at Vanderbilt University School of Medicine. "We're along for the ride and responding as best we can."

The number of people a virus will kill can't be predicted solely from its basic reproduction number and its lethality—i.e., the percentage of people who die after becoming infected. As the chart at right shows, the Spanish flu, which killed about 50 million people after World War I, was neither exceptionally contagious nor unusually lethal. It "happened to arrive in a setting when it could establish infections in a lot of people, in all parts of the world," C. Brandon Ogbunu, a professor of ecology and evolutionary biology at Brown University, wrote in an email. "And so, a 1-2% mortality rate ends up being a lot of people." Spanish flu is the nightmare scenario for an unconstrained spread of a virus through vulnerable populations.

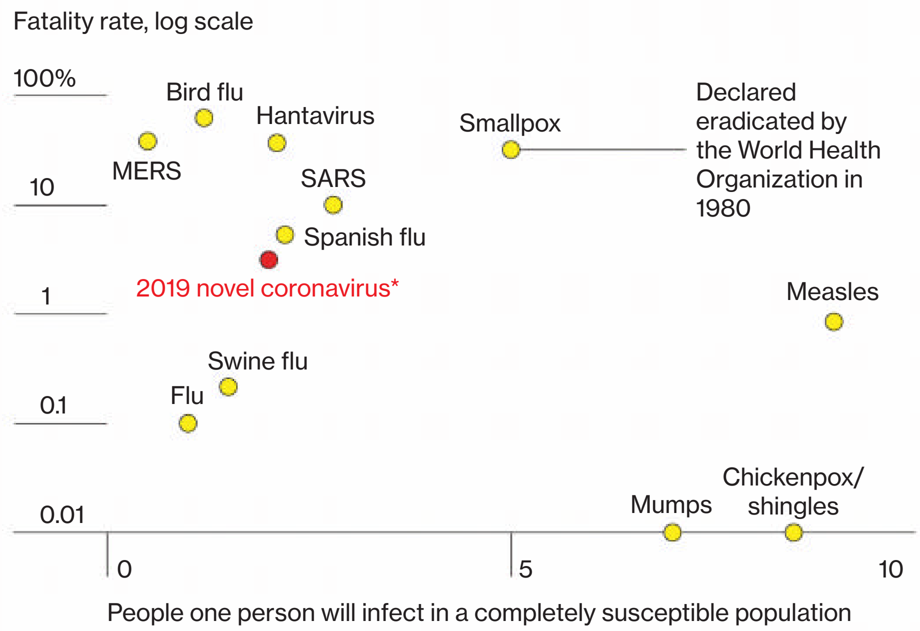
How to fight the new virus is a contentious issue that will become even more contentious if the measures adopted to date prove insufficient. The ethical question is the extent to which one group's civil liberties can be abridged for the sake of the greater good. In medicine, there's "a fundamental moral axiom that individual persons are valued as ends in themselves and should never be used merely as means to another's ends," says a 2007 essay by Dr. Martin Cetron of the Centers for Disease Control and Prevention and Dr. Julius Landwirth of the Yale School of Medicine. "Public health, on the other hand, emphasizes collective action for the good of the community."

China's measures are imposing a real cost, both human and economic. In Wuhan, the capital of Hubei province, test kits and medical supplies are scarce. The sense of being trapped in a zone of infection is feeding understandable resentment. That could eventually boil over. In the Ebola outbreak of 2014, residents of the West Point neighborhood of Monrovia, Liberia's capital city, rioted after they were put under a surprise quarantine.

President Xi Jinping is betting that tough containment

How Bad Is It?

Contagiousness and lethality of airborne viruses



*ESTIMATE BASED ON PRELIMINARY FIGURES.
DATA: PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY, WORLD HEALTH ORGANIZATION, INTERNATIONAL JOURNAL OF INFECTIOUS DISEASES, CENTERS FOR DISEASE CONTROL AND PREVENTION, CLINICAL MEDICINE & RESEARCH, PAEDIATRIC RESPIRATORY REVIEWS, EMERGING INFECTIOUS DISEASES IN ASIA, INSTITUTE FOR HEALTH METRICS AND EVALUATION, BMC MEDICINE, EPIDEMIOLOGY, INFORMATIONISBEAUTIFUL.NET

measures now, unpopular as they may be in places, will pay off by extinguishing the virus and allowing normal economic activity to resume. He's clearly unhappy that other countries are cutting their ties with China, which will delay the economy's recovery. The Trump administration on Jan. 31 said foreign nationals who'd been in China in the last two weeks will "generally" be denied entry into the U.S. China's Ministry of Foreign Affairs accused the White House of spreading fear and said other countries should not "take advantage of people's precarious position."

Trump's restrictions on travelers from China are considerably more popular in the U.S., which so far has managed to keep a handful of imported cases of the virus from flaring up into outbreaks. American authorities hope the country can stymie the virus completely, or at least stall its spread until a vaccine is available.

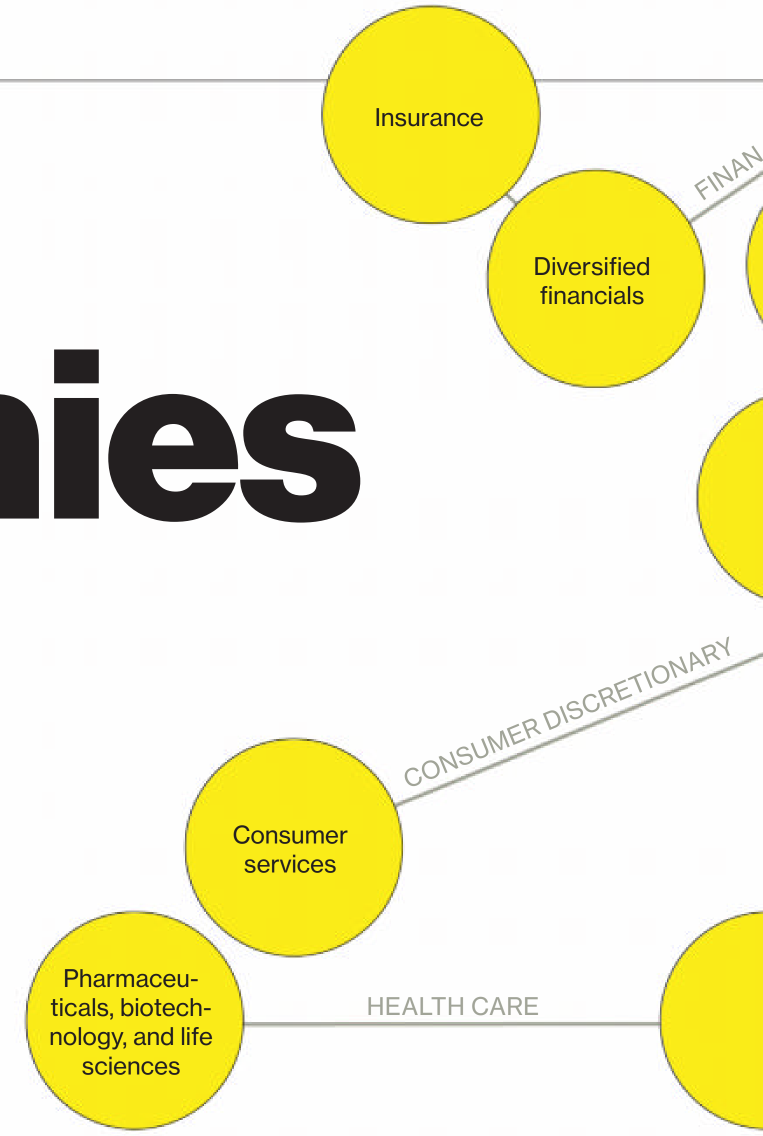
One Trump administration official spotted a silver lining in the outbreak. Commerce Secretary Wilbur Ross told Fox Business network on Jan. 30 that he thinks it will help to "accelerate the return of jobs" to the U.S. and Mexico. (He added that "every American's heart has to go out to the victims.")

Ross's timing may have been poor, and he ignored the harm that the coronavirus is doing to U.S. companies that sell to, buy from, or produce in China. But he's probably correct that the fear of pandemics will shorten supply chains, encouraging companies and countries to produce more close to home. The coronavirus may further fray the bonds between the U.S. and China that have been stretched by Trump's trade war and the mounting military rivalry between the two nations.

That, more than any fleeting effect on quarterly GDP, may be the longest-lasting business impact of the virus known provisionally as 2019-nCoV. Ⓑ

Two Economies

● The industrial downturn has barely registered on the still-roaring consumer spending spree



Change in fourth-quarter earnings from 2018 to 2019 by S&P 500 industry group

On Jan. 31, Caterpillar Inc. warned that sales of its heavy machinery would slump for a second straight year in 2020 amid "continued global economic uncertainty." On the same day, Amazon.com Inc. added $72 billion in market value—about the size of Caterpillar—after reporting robust holiday season sales. That contrast shows just how much the U.S. industrial and consumer economies have diverged.

The manufacturing sector went through a mild recession last year as President Trump's trade war with China added costs to supply chains and curtailed business investment. New data from the Institute for Supply Management show U.S. factory activity barely expanded in January after contracting in the last five months of 2019. Yet this industrial downturn was at most a blip for the still-roaring consumer spending spree.

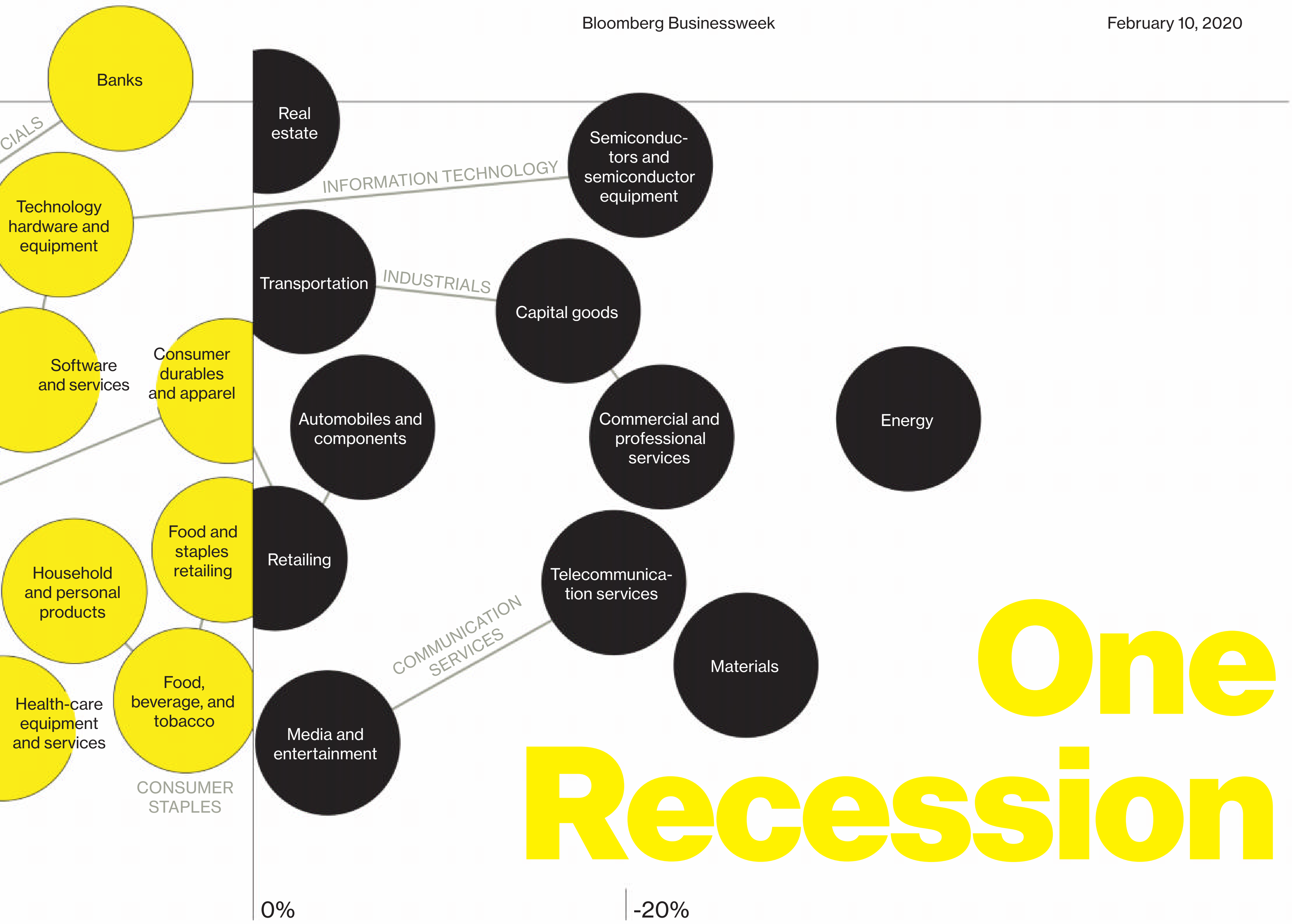
While CSX, 3M, and other industrials joined Caterpillar in making sluggish sales predictions, McDonald's and Starbucks reported healthy gains for the final three months of the year. Even Target Corp., which warned last month of weaker-than-expected demand for toys and electronics over the holiday season, still projected sales at stores open at least a year to be up more than 3% in 2019. U.S. consumer sentiment reached an eight-month high in January, according to University of Michigan data.

One reason there hasn't been a broader recession is that manufacturing's share of the economy continues to shrink. Factory output accounted for 11% of U.S. gross domestic product in the third quarter, which is tied with the second quarter for the lowest level since 1947, according to a Bloomberg News analysis of data from the U.S. Department of Commerce. Another is that this wasn't a typical slump. What happened in 2019 was a "policy-driven slowdown," says Gina Martin Adams, chief equity strategist at Bloomberg Intelligence—that is, the trade war.

While U.S. whiskey, motorcycles, and myriad other products are subject to European Union tariffs, the consumer sector emerged largely unscathed from the spat with China. Trump's threat on Aug. 1 to apply a 10% tariff on $300 billion of Chinese products including toys and iPhones was watered down and then partially rescinded. The industrial sector, by contrast, bore the brunt of the back-and-forth in 2018 and 2019 as it dealt with broad U.S. taxes on aluminum and steel imports and tariffs on $250 billion of mostly manufacturing-related products. Those Chinese imports remain subject to 25% tariffs.

Edited by Bret Begun

DATA: COMPILED BY BLOOMBERG



One Recession

The tariffs stalled an industrial recovery that was gaining traction following a mini-recession in 2015-16 amid plunging oil prices. Already, companies were dealing with rising labor, raw material, and logistics expenses. But the will-he-or-won't-he debate around Trump's tariff push created an impossible environment in which to make major purchases of expensive machinery. Industrial companies' sales suffered.

A belief that things would recover quickly if the U.S. and China reached a trade deal changed how companies responded to the slowdown. Executives didn't want to be caught flat-footed by a swift recovery or left without workers in a tight labor market.

Thus far, people have largely stayed employed and been active consumers. Even with all the volatility in 2019—which also included a six-week General Motors Co. labor strike and the global grounding of Boeing Co.'s 737 Max jet—the manufacturing industry ended 2019 with a net gain of 46,000 jobs, based on preliminary data from the Bureau of Labor Statistics. Asked on a Jan. 28 earnings call if aerospace supplier United Technologies Corp. would lay off employees to help it cope with the Boeing production halt, Chief Executive Officer Greg Hayes said "that would be the easiest thing to do, but quite frankly, given the scarcity of talented aerospace workers out there, we're not going to."

Most industrial CEOs say they expect a challenging economic environment to linger at least through the first half of the year. Emerson Electric Co. and 3M Co. announced fresh restructuring plans in their earnings releases that will almost certainly include job cuts. But a continued slow bleed in manufacturing combined with moderate cost-cutting probably won't be enough to tip the overall employment picture negative, Adams says. With the Federal Reserve signaling that it's unlikely to raise interest rates soon, things would have to change materially in the next six months for that manufacturing weakness to leak into the consumer sector, she adds.

One wild card is the coronavirus and the impact it could have on consumer sentiment, particularly in China. Unlike the trade war, the outbreak threatens to hit consumer-facing companies equally as hard if not harder than industrial ones, with Apple, McDonald's, and Starbucks shuttering locations in China and U.S. airlines halting travel to the country. *—Brooke Sutherland*

THE BOTTOM LINE Worries that the slowdown in industrials would drag on the consumer economy haven't materialized in part because manufacturers have avoided mass layoffs.

The will-he-or-won't-he tariff debate created an impossible environment in which to make major purchases

Ikea Solves Soviet SAMENESS

● The retailer launches a web service for customers in cookie-cutter apartments

Ikea has been diversifying its business model as fewer consumers trek to the big-box suburban showrooms that helped turn it into a furniture giant. In Russia, it found a way to replicate part of that shopping experience on the web—thanks to a preference for uniformity among Soviet city planners.

About 60% of Russians live in standard, Soviet-era apartment blocks, which have a limited number of designs and floor plans. Ikea has replicated the layouts on its Russian website and given them virtual makeovers, letting a customer select suggested items and furnish her apartment with a few mouse clicks.

The service, called *Kvartiroteka*—"selection of apartments" in Russian—has brought 2.8 million visitors to Ikea's site since last June's launch, mostly new customers, and contributed to a 17% jump in sales in Russia in the fiscal year that ended in August. Russia is Ikea's fastest-growing market after Hungary, and the company is weighing whether to expand the offering to places with similar communist-era housing stock, including Germany, Poland, and China.

"Many people couldn't believe that they could do anything good out of this standard typical planning," says Pontus Erntell, head of Ikea's Russia business. "The idea was to show that there can be lots of different things to do and to inspire people to do something to change their lives in their homes."

The Swedish furniture giant is trying to remain the world's top furniture retailer without relying so much on its roughly 30,000-square-meter (323,000-square-foot) blue-and-yellow stores, where customers fuel up on Swedish meatballs before navigating a maze of showrooms and a ▶

▼ Three Ikea makeovers for the P-44, the most common apartment configuration in Moscow

○ Buildings with P-44 apartments are typically 17 floors

○ About 1,500 towers were built from 1978 to 2000 in the Greater Moscow area

○ They were designed by the Moscow Scientific-Research and Design Institute of Typology and Experimental Design

PHOTO: SERGEI BOBYLEV/GETTY IMAGES. ILLUSTRATION: COURTESY IKEA


Bloomberg
The Future of Banking
February 25, 2020 | Singapore
Virtual bank licenses are enabling fintech start-ups, super-apps and gaming companies to compete with established banks for customers across all service areas. But banks aren't giving up so easily – they are innovating hard to defend themselves.
Join Bloomberg at The Future of Banking as we bring bankers together with their new disruptors to predict what kind of industry will emerge after the coming decade of disruption.
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◀ self-service warehouse. Although the traditional stores still account for about 90% of Ikea sales worldwide, foot traffic has stagnated in recent years as more young people move into urban areas, drive less, and buy more things online. The company has set up smaller outlets in cities and expanded its e-commerce platform to fight aggressive online rivals such as Wayfair Inc. and Amazon.com Inc. “Almost all retail is moving to have greater digital engagement, and those who do not follow are likely to be left a long way behind,” says Charles Allen, senior retail industry analyst at Bloomberg Intelligence. “Ikea was slightly late but is making a lot of investment to catch up.”

The Kvartiroteka service offers a choice of designs for common apartment layouts in 14 types of buildings. One suggested layout for a family home shows a children’s room adapted for two kids of different ages to share. A curtain divides the room in two and displays recommended wardrobes, chests of drawers, and mounted shelving units that fit well in the space. In the hallway, shelves under the ceiling save space, and hooks on the wall can hang skateboards.

When Victoria Sanina wanted to renovate her standard 12-square-meter bedroom last fall, she drew inspiration from Kvartiroteka. The 28-year-old graphic designer lives in Chelyabinsk, far from any of Ikea’s 14 big-box stores in Russia. She saw an image with nightstands attached to the wall instead of standing on the floor. “I thought, that’s elegant, and things won’t get lost behind them,” she says. “I ordered them online with light fittings that turn them into sources of light in the room.” Sanina says her aunt, who lives in a typical five-floor block known as the 1-335 series, is considering a ready-made Ikea design to renovate her entire apartment.

Residents of Moscow, St. Petersburg, and Tyumen who use Kvartiroteka can seek further advice from a consultant at one of five smaller Ikea “design studios” in the cities’ centers. The stores may help keep people like Veronika Sumina shopping at Ikea. The 31-year-old financier, on maternity leave in Moscow, recalls when going to one of the superstores was a big event. “You could have spent half a day there–looking at the interiors, sitting down on a sofa and taking a photo, eating Swedish meatballs and shopping,” she says. “Now it’s not comfortable for me anymore to go a large Ikea store and spend a lot of time there navigating with a baby carriage.” *—Ilya Khrennikov, with Hanna Hoikkala*

THE BOTTOM LINE Ikea, battling aggressive online retailers, is boosting sales in Russia with a digital tool for standard apartment blocks that could be expanded to Germany, Poland, and China.

BW Talks Hans Vestberg

Verizon Communications Inc.’s chief executive officer talks about partnerships with Disney, Apple, and Amazon, as well as the wonders of “edge computing” (think low latency—that is, quick response times) coming to the consumer marketplace. —*Carol Massar and Jason Kelly*

● The Swede, 54, was CEO of Stockholm-based telecommunications giant Ericsson from 2007 to 2009 ● He took the top job at Verizon in 2018 after serving as chief technology officer ● He was president of the Swedish Olympic Committee from 2016 to 2018

Are you seeing payoffs from the partnerships yet?

Apple Music, definitely. Disney+ is still in its infancy, but we are happy with it.

How about your edge-computing deal with Amazon Web Services? Will it fulfill the promise of swift connectivity between device and data?

This is exciting. We are bringing their cloud service together with our 5G. Amazon couldn’t have done it by itself because it doesn’t have wireless. Verizon couldn’t have done it by itself because we don’t have cloud software. Today, a developer can click on our first 5G edge site in Chicago and start developing an application with low latency.

What does that enable you to do?

Autonomous cars. Real-time augmented reality and virtual reality. Artificial intelligence. All of that can come from edge computing. And we’re just seeing the start of it.

How is the move from 4G to 5G different from 2G to 3G to 4G?

5G was meant to be a wireless technology for industries. It was never thought that consumers would get the benefit. But phones are better every time we get a new generation. Twenty 5G phones are going to launch this year. If you have a 4G phone, you probably have 40 to 50 megabits per second. I get 2 gigabytes per second on my 5G phone.

You still have some media properties such as Yahoo, HuffPost, and AOL.

I can go to a customer and say, “Hey, I’m not only gonna sell you connectivity and 5G, I also have the advertising platform.” We’re happy with the assets. They’re coming from double-digit declines to very small declines.

● Interviews are edited for clarity and length. Listen to *Bloomberg Businessweek With Carol Massar and Jason Kelly*, weekdays from 2 p.m. to 5 p.m. ET on Bloomberg Radio.

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● Astra, Darpa's rocket startup of choice, is preparing to launch satellites into orbit in record time

Edited by
Jeff Muskus

The 40-foot-long, 4-foot-wide rocket loomed over the quiet suburb of Alameda, Calif., on the morning of Jan. 18, near the Pottery Barn Outlet. A handful of engineers and metal wrenchers got to work early, setting up the rocket and connecting it to a mess of electronics and tubes. The device stood up straight, with the help of some black metal scaffolding. Its bottom third gleamed aluminum; the rest, actor-teeth white. Over the course of the day, the team pumped in various gases and liquids to prepare the rocket's valves, chambers, and other components for a crucial test.

Shortly after midnight, the rocket was ready for an exercise called a cold flow, meant to ensure that its propellant tanks can handle liquid fuel. Once the team had filled the rocket, taken the needed measurements, and checked for leaks, they simply evacuated the machine by releasing huge volumes of liquid nitrogen into the air. The thing about liquid nitrogen is that it must be kept supercold to remain liquid. It boiled instantly on contact with the outside air, creating a billowing white cloud that stretched out more than 200 yards. With the team's floodlights beaming down on the test site, this odd fog monster easily could have been seen by anyone living in the houses as close as 2,000 feet away. Soon, though, the rocket was trucked off toward its next temporary home, a spaceport in Kodiak, Alaska.

Until speaking with *Bloomberg Businessweek*, Astra, the 3-year-old rocket startup behind the test, had operated in secret, nitrogen clouds aside. The company's founders say they want to be the FedEx Corp. of space. They're aiming to create small, cheap rockets that can be mass-produced to facilitate daily spaceflights, delivering satellites into low-Earth orbit for as little as $1 million per launch. If Astra's planned Kodiak flight succeeds on Feb. 21, it will have put a rocket into orbit at a record-setting pace. Chief Executive Officer Chris Kemp says he's focused less on this one launch than on the logistics of creating many more rockets. "We have taken a much broader look at how we scale the business," he says.

Going fast in the aerospace business is a rarity and doesn't usually work out so well. But the U.S. government has made speedy rocket launches something of a national priority, and Astra is a Department of Defense darling right now. The Pentagon's R&D arm, the Defense Advanced Research Projects Agency, or Darpa, made Astra one of three finalists in a contest called the Launch Challenge. The terms: Whichever startup could send up two rockets from different locations with different payloads within a few weeks of each other would win $12 million.

Astra is the only finalist still in the running. Virgin Orbit LLC, part of billionaire Richard Branson's ▶

▼ The satellite haulers

SPACEX

SpaceX's Falcon 9

Payload	50,265 lb.
Cost per launch	$62m
Height	230 feet

ROCKET LAB

Rocket Lab's Electron

Payload	331 to 496 lb.
Cost per launch	$7.5m
Height	56 feet

ASTRA

Astra

Payload	165 to 450 lb.
Cost per launch	$2.5m
Height	40 feet

◀ An Astra rocket undergoes testing in Alameda

PHOTOGRAPH BY JASON HENRY FOR BLOOMBERG BUSINESSWEEK; DATA: SPACEX, ROCKET LAB, ASTRA

◀ spaceflight empire that's been working on its rocket for about a decade, has withdrawn from the contest. Vector Launch Inc., the third finalist, filed for bankruptcy in December. That's left Astra in a competition against itself and physics, which may be why Kemp, a relentless ball of confident energy who dresses all in black, is uncharacteristically trying to set modest expectations for the Kodiak launch.

"It would be unprecedented if this was a successful orbital flight," he says. "We want to emphasize that this is one of many launches we will do in an ongoing campaign."

The 42-year-old CEO spent almost five years at NASA, but he's not a rocket scientist by training. He joined NASA in 2007 after running a string of internet startups, eventually becoming the space agency's chief technology officer. While at NASA he shepherded an open source software project called Open Stack, which turned into a data center and cloud computing phenomenon. He left in 2011, hoping to capitalize on Open Stack's success, but his next company, Nebula, found itself outgunned by Amazon.com Inc.'s cloud computing services; Oracle Corp. acquired Nebula's piece parts in 2015. Unsure what to do next, he spent a couple of years hunting for fresh ideas, which is when he ran into Adam London, Astra's co-founder and CTO.

London is the rocket man, a 46-year-old with a doctorate in aerospace engineering from MIT and a talent for calculating drag coefficients and gravity losses in his head. He spent 12 years running a small rocket company called Ventions in the heart of San Francisco. Ventions's handful of employees focused on miniaturizing rocket technology in their makeshift lab, living on NASA and Darpa contracts and the odd consulting gig. By 2016, London had grown determined to build the rocket of his dreams, but he needed a lot more capital. Kemp and his talent for winning over investors seemed like a good match, so after many chats, they joined forces. "I liked Chris's enthusiasm, his ability to think about the story, and certainly his network," says London, the measured counterpoint to Kemp's bravado.

The rest of Astra's 150-person team includes some legit aerospace veterans—former SpaceX employees such as Chris Thompson (part of the SpaceX founding team), Matt Lehman (propulsion), Roger Carlson (the Dragon capsule), and Bryson Gentile (the Falcon 9 rocket). But there's also a large contingent that came from gritty, bootstrapped rocket outfits or from other fields entirely. Much of the engine building has been done by Ben Farrant, a former Navy engine man who's spent the bulk of his career in the auto racing world tuning vehicles. Les Martin, a launch and test infrastructure engineer, built test stands for SpaceX, Virgin Galactic, and Firefly Aerospace after learning electronics in the Marines. "I didn't know the first thing about rockets, whenever I got into it," he says. "But with these startups, you're involved pretty quickly in just about every single aspect."

Astra has raised more than $100 million from investors including Acme, Advance, Airbus Ventures, Canaan Partners, Innovation Endeavors, and Salesforce co-founder Marc Benioff. Billions of dollars have flowed into commercial spaceflight ventures in the past few years, often to newcomers that, like Astra, have shied from competing directly with Elon Musk's SpaceX and government-backed makers of large rockets.

The jumbo end of the market centers on rockets that fly roughly once a month and cost $60 million to $300 million per launch, typically carrying tons of cargo. Astra says its daily launches, meant to carry about 450 pounds of cargo to orbit, will be pitched to the dozens of companies making a new breed of small satellites, such as Planet Labs, Spire Global, and Swarm Technologies.

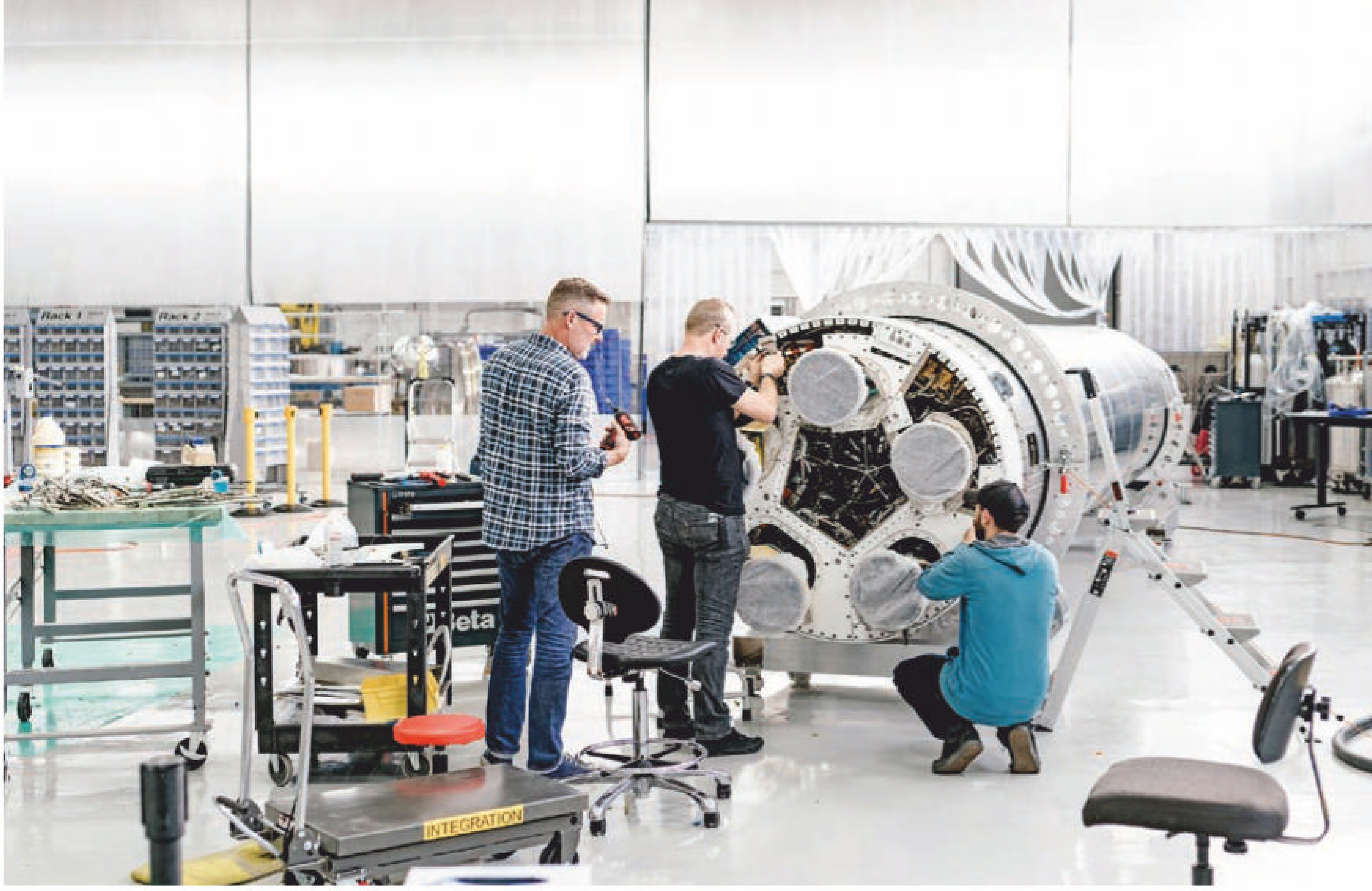
Whereas conventional orbital networks are composed of a relative handful of satellites the size of a car, Planet and its rivals produce tens to hundreds of basketball-size satellites for use in specific orbits to photograph, track, and connect things on Earth in near-real time. At the moment no one really knows how big or viable the market for smaller rockets to ferry these satellites might be. Rocket Lab, a company founded by Peter Beck in Auckland in 2006, is the only small-rocket maker that's actively launching. Rocket Lab enjoyed a banner 2019, putting six rockets into space, and has about a dozen more launches scheduled for this year. Its success has placed immense pressure on companies such as Astra and Virgin Orbit to catch up.

"Our strategy is to always focus on the bottom line"

Astra has operated in secrecy partly to avoid being pushed to set unrealistic deadlines. Most of its workers have online résumés that list their employer as "Stealth Space Company," and there hasn't been a website. At the former Alameda Naval Air Station, Astra took over a decrepit building used decades ago to test jet engines indoors, which has helped keep its secrecy intact. The facility has two long tunnels that send fire and scorching hot air up through exhaust towers and thick concrete walls capable of absorbing the explosive impacts of tests gone wrong.

This setup has allowed Astra to conduct thousands of runs on its rocket engines without its neighbors noticing much of anything. It's also meant Astra can put the engines through their paces on-site and make adjustments to the hardware quickly, instead of going to the Mojave Desert or an open field in Texas where other rocket makers typically run engine trials.

Kemp says Rocket Lab's going launch rate of about



◀ Astra is betting it can launch a second rocket from a Darpa-chosen site within just a few weeks

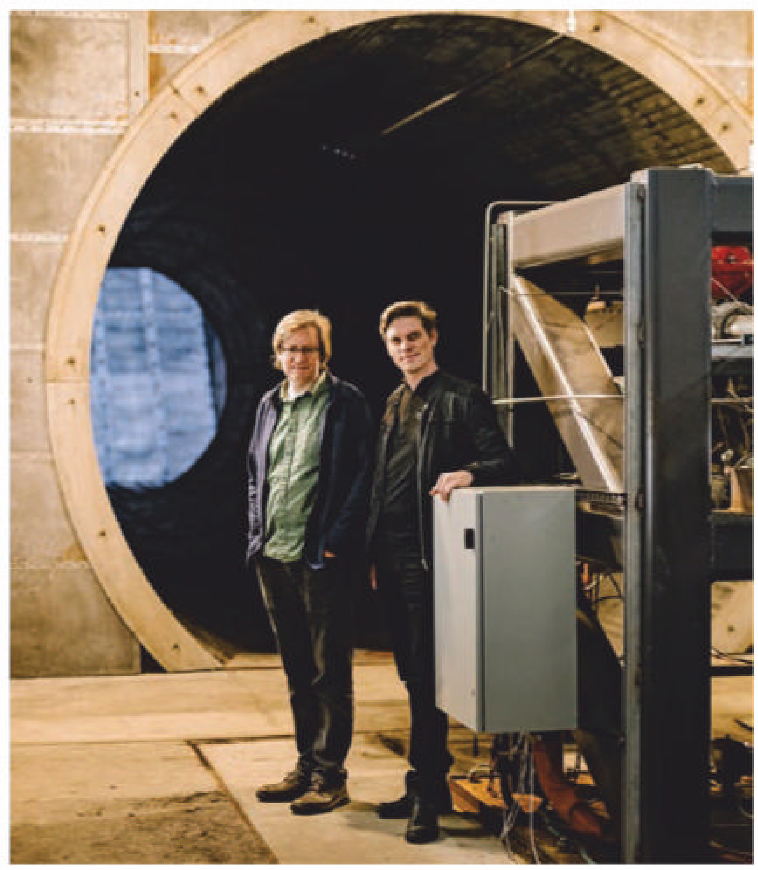
$7.5 million a pop is too high and that the company's Electron rocket has been overengineered. Instead of using carbon fiber for the rocket body and fancy 3D-printed parts as Rocket Lab does, Astra has stuck with aluminum and simplified engines built with common tools. London's team has tried to make the Astra radios, igniters, and even the rocket transport vehicle low-cost, high-performing, and easy to re-create.

Alongside its rocket test building, Astra has been assembling a 250,000-square-foot manufacturing facility that Kemp says will be able to churn out hundreds of rockets a year. "Our strategy is to always focus on the bottom line," he says. "Nothing is sacred. We're able to profitably deliver payloads at $2.5 million per launch, and our intent is to continue to lower that price and increase the performance of our system."

The proof is in the orbital launch. Most spaceflight companies' first crafts go boom in a bad way, but Rocket Lab has an almost flawless launch record. Beck, a self-taught rocket engineer, says his perfectionism is a selling point. "If someone wants to build a rocket that is super inaccurate, let them," he says. "I'm not built to build shit." Astra's previous two launches, each of a smaller version of its current rocket, tumbled back onto the Kodiak coastline in 2018, breaking apart in spectacular pyrotechnic displays.

"That is what was expected," Kemp says. "Many of our objectives on those launches were achieved, and I guarantee we couldn't have built our orbital rocket in three years if the team hadn't benefited from that experience." London is more circumspect—but comparably optimistic. "I did expect or at least hoped we would be in orbit by now," he says. "But outside of things being a little harder than you would like, the broad direction and slope of things line up pretty well with our original plan."

To win the $12 million, Astra will need to place a satellite of Darpa's choosing into the right orbit. The



◀ London (left) and Kemp developed their small-rocket startup in secret for three years

Pentagon agency will then select another launch site—probably somewhere in California, Florida, or Virginia—and give Astra a few weeks to get a fresh rocket to the new launchpad. It would be an incredibly quick turnaround for an industry in which 6 to 12 months is a typical time span needed to calibrate the specifics around new launch sites and payloads.

Astra has several rocket bodies awaiting the challenge on its Alameda factory floor. Kemp says the company has signed contracts for more than a dozen launches with paying customers, and it plans to create a launchpad in the Marshall Islands to match the one in Alaska. So far, he says, there are no plans to launch directly from the Alameda Pottery Barn. *—Ashlee Vance*

THE BOTTOM LINE If Astra can complete the Pentagon's Launch Challenge, it may become a credible competitor to Rocket Lab, the early leader in the small-satellite-launching business.

PHOTOGRAPHS BY JASON HENRY FOR BLOOMBERG BUSINESSWEEK

What Use Does Wall Have for

● Warren Buffett just gave up on local news. But other investors look even less friendly

Warren Buffett always had a soft spot for newspapers. He didn't just own a lot of them. He described himself as a newspaper addict and fondly recalled delivering them as a teenager. For many years he hosted a newspaper-throwing contest at the annual meeting of his Berkshire Hathaway Inc. conglomerate, challenging anyone to toss a rolled-up paper closer to the front door than he could.

Now he's getting out of the business. On Jan. 29, Lee Enterprises Inc. announced that it's buying Berkshire's 31 daily newspapers and some other publications for $140 million. Buffett set up the sale in a way that allows him to make money from the deal for years to come. Lee will pay Berkshire a 9% annual interest rate on a 25-year loan that it will use partly to pay for the deal and partly to refinance Lee's other debt and provide cash. Berkshire will also keep the newspapers' real estate and lease the buildings back to Lee. "Berkshire Hathaway wouldn't be the company it is without making money in any environment," says Ken Doctor, a longtime newspaper analyst. Some aspects of the Lee deal, such as the refinancing, could also make it easier for the chain to get through a difficult time for the industry.

Still, the transaction was another disappointing milestone for those who still love and depend

Edited by
Pat Regnier

18+

WHAT IS AVAXHOME?

Street Newspapers?

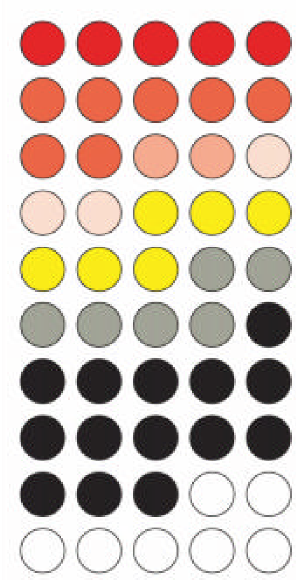
on their hometown paper. As private equity and hedge fund investors gained control of the business, Buffett once stood out as someone who believed in the mission of newspapers and had the wealth to invest in a potential turnaround. And he was famous for his patience—in the past, he's said he's "reluctant" to sell even subpar businesses. "If one of the richest men on the planet has soured on newspapers, what chance do newspapers have?" wrote Tom Jones, a media writer at the Poynter Institute, a journalism school and research center.

Buffett's days as a newspaper baron began five decades ago with his acquisition of the *Omaha Sun*. Over the years, the billionaire investor argued that despite circulation and advertising declines, local newspapers still had some advantages. "If you want to know what's going on in your town—whether the news is about the mayor or taxes or high school football—there is no substitute for a local newspaper that is doing its job," he wrote in a shareholder letter released in 2013.

But as readers flocked to the internet, his comments grew increasingly pessimistic. His publications started cutting jobs. In 2012, Berkshire shut down the *News & Messenger*, based in Manassas, Va. About two years ago, Buffett said he was surprised that the circulation decline hadn't let up. His business partner, Charlie Munger, suggested their emotions might have clouded their judgment. "The decline was faster than we thought it was going to be, so it was not our finest bit of economic prediction," Munger said at Berkshire ▶

▼ Fifty top U.S. newspapers*

- 100% owned by a hedge fund
- 32% hedge fund-owned
- 23% hedge fund-owned
- 6% hedge fund-owned**
- Recently acquired in a deal financed by a private equity firm
- Owned by a billionaire businessman
- Family-owned
- Other ownership



PHOTOGRAPHS BY JANELLE JONES FOR BLOOMBERG BUSINESSWEEK; PROP STYLIST: JENNY WICHMAN. *2018 PEW ANALYSIS OF ALLIANCE FOR AUDITED MEDIA AND COMSCORE REPORTS. **A HEDGE FUND-CONTROLLED FIRM OWNS 6% OF LEE ENTERPRISES, WHICH OWNS OR IS ACQUIRING THESE PAPERS. DATA: COMPANY REPORTS, NEWS REPORTS

◀ Hathaway's 2018 annual meeting. "To the extent we miscalculated, we may have done it because we both love newspapers."

Buffett's exit wasn't a total surprise. He was already inching out the door: About 18 months ago, Berkshire asked Lee, which owns the *St. Louis Post-Dispatch* and more than 40 other dailies, to manage most of its papers. In a statement, Buffett said he was confident that his newspaper empire was in the right hands: "We had zero interest in selling the group to anyone else for one simple reason: We believe that Lee is best positioned to manage through the industry's challenges."

Buffett's former newspapers may soon find themselves under pressure from other investors. Just hours after the deal was announced, MNG Enterprises Inc. disclosed it had bought a 5.9% stake in Lee, becoming its third-largest shareholder, and said it wanted to talk with Lee's management about the Berkshire deal, among other issues.

MNG is majority owned by Alden Global Capital, a New York hedge fund, and has a stable of about 50 daily newspapers, including the *Denver Post*. It's gained a reputation for making deep cuts to newsrooms, and its journalists once protested outside its New York offices, carrying signs that read "Invest or Sell Now" and "Stop Bleeding Our Newsrooms Dry." Alden didn't respond to a request for comment.

Alden's investment might be the start of a battle for what to do with the Berkshire papers and other Lee assets. Alden could buy a larger stake, gain board seats, and pressure Lee to make further cuts or sell. A year ago, Alden made an unsuccessful takeover bid for the Gannett Co. newspaper chain. Gannett was eventually bought by New Media Investment Group Inc. In November, Alden bought a 32% stake in Tribune Publishing, becoming its largest shareholder. In response, two Tribune journalists published an op-ed in the *New York Times* in January calling for a new "civic-minded local owner," saying Alden's influence could lead to a "ghost version of the *Chicago Tribune*."

Alden is one of several Wall Street firms that have gained control over the newspaper industry. Others include Chatham Asset Management LLC, the largest shareholder in McClatchy, publisher of the *Charlotte Observer* and *Miami Herald*. New Media Investment Group Inc., which became the largest U.S. newspaper chain after the Gannett merger, is managed and controlled by the private equity firm Fortress Investment Group.

The financial firms' strategy centers largely around buying other newspapers to boost revenue, then cutting costs by centralizing operations and laying off journalists. But some investors have devised additional strategies to make money. Alden also owns a real estate business that buys and leases newspaper offices and printing plants. Apollo Global Management, a private equity firm, issued a loan to New Media Investment Group to buy Gannett at an 11.5% annual interest rate, an even higher rate than Buffett's 9% loan to Lee. Fortress collected about $20 million in both 2018 and 2019 for managing New Media Investment Group, according to Doctor, the media analyst. "If you can extract the cash as you're managing the decline, you can make a lot of money," he says. "But they do not posit a long-term strategy and turnaround."

Financial firms have also assumed control of newspapers because they're willing to shrink them, Doctor says. "The reason you see them in the business and not others is because they do the dirty work of continuing to cut an operation," he says.

Many newspapers were once owned or controlled by families who stayed in the industry for decades. Buffett had served as a bridge between the old and new generations of owners. He believed in the role of newspapers but could still be gimlet-eyed about the business. "If horses had controlled investment decisions, there would have been no auto industry," he said in a shareholder letter published in 2015.

"To the extent we miscalculated, we may have done it because we both love newspapers"

Buffett didn't breathe new life into his newspapers the same way billionaires Jeff Bezos and Patrick Soon-Shiong have since buying the *Washington Post* and *Los Angeles Times*, respectively. Buffett's papers sometimes struggled to embrace change, with his hometown newspaper, the *Omaha World-Herald*, continuing to publish an afternoon edition until 2016.

Journalists at the *World-Herald* didn't want a national chain to own them. Todd Cooper, who leads the paper's union, says they'd been in touch with Buffett and his deputy Ted Weschler to see if they would be willing to sell if the union could find another buyer. They'd even started to petition local foundations last year to take over the paper. "We just felt that the best fit for journalism and the future of journalism is either single local ownership or ownership groups, or nonprofits, foundations," Cooper says.

He says he was blindsided by the news about the sale to Lee. Buffett was an investor who had long ties to the industry, yet even he wasn't able to make it work. "He loved journalism and probably still loves it," Cooper says. But "he's totally a numbers guy." —*Gerry Smith and Katherine Chiglinsky*

THE BOTTOM LINE Financiers are still interested in newspapers, but some journalists think the papers would be better off in the hands of local owners or nonprofits.

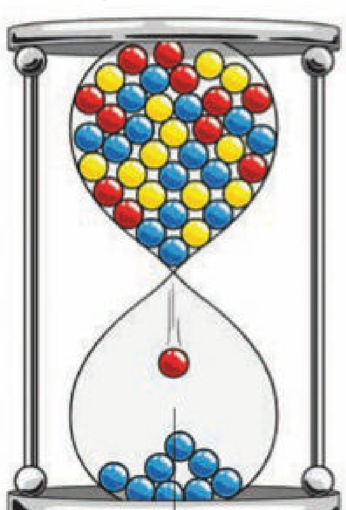
Looking Beyond CEOs for Boards

● If companies want more diverse directors, they can tap rising stars instead

Outside corporate board gigs are a classic perk of being a chief executive officer. The side jobs offer extra pay, as well as a way to network—perhaps for the next big job. But all those top bosses filling up directors' seats has a predictable effect: Since CEOs are overwhelmingly white and male, they tend to reinforce the lack of diversity on corporate boards.

That makes a push by Marriott International Inc. to get lower-level executives to join boards a bigger deal than it might seem. CEO Arne Sorenson says his aim is to give the hotel company's rising stars valuable experience. Incidentally, though, of the five who have found board positions, three are women and one is a black man. The same trend is showing up at other large U.S. companies: Among the 10 companies with the most employees serving on other boards, the executives with directorships are overwhelmingly women or people of color, according to data compiled by Bloomberg.

There's a long way to go before boards become genuinely diverse. Goldman Sachs Group Inc. made news in January when it announced it would no longer underwrite initial public offerings for U.S. and European companies without at least one director who is a woman or a person from an underrepresented group. Although women make up half the workforce, they didn't exceed a quarter of S&P 500 directors until just last year.



For the first time, a majority of new directors last year were either women or men of color. Boards are casting a wider net, in part, as a response to pressure from investors such as BlackRock Inc. and State Street Global Advisors, which cite better returns for more diverse companies. For different reasons—such as the drain on CEOs' time and energy—big investors have also been pushing companies to rein in their CEOs' outside board service. A decade ago, half the CEOs in the S&P 500 served on at least one outside board, and many were on at least two. Last year, almost 60% weren't on even one outside board.

Sorensen was one of the first Marriott executives to serve on an outside board. He's now a director at Microsoft Corp. He felt it made sense to encourage other executives to get similar experience: Board service could expose them to industries they need to stay in touch with, including technology. Chief Financial Officer Kathleen Oberg joined the board of software company Adobe Inc. in January 2019. Others went to businesses closer to Marriott's consumer focus. Stephanie Linnartz, a group president in charge of consumer strategy, has been a Home Depot Inc. director since May 2018. "The human touch is very similar between our two companies," she says. "I think I've been able to bring back some best practices from Home Depot and vice versa."

Most companies are willing to let key executives serve on one board, but usually that's the limit, says Julie Daum, who leads the North American board recruiting practice at executive search firm Spencer Stuart. And companies want to avoid situations that might carry a reputational risk. "They don't just say you can go out and serve on any board," she says. Because of those risks—and long hours—some companies still won't entertain the possibility of their executives moonlighting as directors, says Lisa Blais, who leads U.S. board recruiting for Egon Zehnder in Boston.

But outside board service is a tool companies use both to groom future CEO candidates and to retain executives for whom a promotion is not yet available, says James Drury, whose executive recruiting company specializes in helping companies find boards for their executives to serve on. Such a role can be lucrative: The average total compensation for an S&P 500 director passed $300,000 this year for the first time, according to Spencer Stuart. For companies seeking to fill boards, going down a rung or two from the CEO has its own advantages. Such people may bring more specific skills, such as in human resources, says Blais.

While the effort at Marriott doesn't have a diversity goal, executives who aren't white men benefit more because they are in demand, Sorensen says. Meanwhile, the willingness of companies to let their non-CEO executives join boards means that many directors are joining a board for the first time. "If they don't give us a first shot at it, it's never going to change," says Linnartz. "I'm definitely trying to pay it forward to other women." —*Jeff Green*

THE BOTTOM LINE Big companies are encouraging more executives to take outside directorships, and many are women or people of color.

● Oberg

● Linnartz

PHOTOS: COURTESY MARRIOTT. ILLUSTRATION BY KHYLIN WOODROW

What Trump Can Do To Juice the Economy

● With Democrats in control of the House, more fiscal stimulus is likely off the table

Governments up for reelection typically do what they can to nudge the economy into high gear just as voters are starting to pay attention. On that front, things already look pretty good for Donald Trump. One problem for the president ahead of the vote in November is that his most powerful tool is now in the hands of his enemies.

Fiscal stimulus is the main reason for faster growth on Trump's watch. In 2018 tax cuts coupled with higher spending helped the U.S. economy match its best performance in the years since the financial crisis. But Republicans lost control of the budget machinery in Congress last year, when the House convened under its new Democratic majority.

Ever since then, with his own options for juicing the economy having narrowed, Trump has been on a crusade to lower interest rates—a lever that's controlled by the Federal Reserve and its chairman, Jerome Powell. "The idea that a Democratic House is going to sign off on another Trump tax cut seems extremely far-fetched," says Jared Bernstein, a senior fellow at the Center on Budget and Policy Priorities. "I don't think there's much stimulus there in any recognizable sense that doesn't require legislation."

Bernstein is personally familiar with Trump's predicament: In 2011, as chief economist to Vice President Joe Biden, he was part of a team tasked with finding ways to boost the economy that could

Edited by Cristina Lindblad

bypass the House. Republicans had just seized control there, led by members of the Tea Party movement who opposed new government spending. The list the group came up with was "uncomfortably short," he recalls.

Barack Obama won a second term in 2012 anyway, and if the economy is a guide (it often but not always is), then Trump is well placed to follow suit. He gets good ratings on the economy, and he's campaigning on unemployment being near all-time lows and stock prices at all-time highs. Still, economists reckon gross domestic product will expand at a 1.8% pace through the first three quarters of 2020. That would be slower than the same period in 2019—and not much different than 2016, when elections didn't go well for the incumbent party.

The Trump administration's use of deficit spending a decade into an expansion has been unorthodox. Some analysts have warned it could leave the government short of budget firepower in the event of a recession—and drive inflation and interest rates higher. Those threats haven't materialized yet, and economists are coming around to the idea that the U.S. has room to spend.

Trump has also added tariffs to the toolkit. He's shown that a president can run trade policy almost single-handedly, and since the escalation with China was largely of his doing, he can probably control timing when it comes to de-escalation.

U.S. business has put some investment on hold because of the trade war, so trade peace would likely boost the economy—but that may not happen before the election. Most analysts haven't upped their forecasts for U.S. growth this year as a result of the "phase one" deal signed with China last month.

Even so, a follow-up before November could help Trump's reelection campaign, says Brian Riedl, a senior fellow at the Manhattan Institute: "The more the president can show he's moving toward a resolution on trade, that will help him in the battleground states and make the case for a second term."

On fiscal policy, too, Trump may have reached the point where he can offer promises for a second term rather than action in his first. His administration has been dangling the prospect of more tax cuts—especially for the middle class—ever since pushing the last round, which favored the wealthy, through Congress late in 2017. Last month at Davos, Treasury Secretary Steven Mnuchin said a "Tax 2.0" proposal may be unveiled within months. Congressional Republicans hope to campaign on the plan to regain control of the legislature. The GOP would need to pick up about 20 seats in November to regain a majority. Most political analysts think it's unlikely the party can win that many races, especially with several long-standing Republican lawmakers retiring.

Even just the release of tax plans could lift the stock market, and that in turn could boost consumer confidence, according to Kyle Pomerleau, a resident fellow at the American Enterprise Institute. That's what happened after Trump's election, he says, and "you could imagine it happening again."

A $2 trillion overhaul of U.S. infrastructure is another fiscal stimulus that's been touted since Trump's first days in office. A cross-party deal in Congress proved elusive then and would be tougher in an election year—and even if it happened, only the most shovel-ready of projects could get under way before voting.

If there was a lever to move the dollar, Trump would surely pull it. The president often complains that the strong greenback is hurting manufacturers. He hasn't come up with a mechanism for weakening it, beyond tweeting his displeasure at the Fed, though the Commerce Department is weighing tariffs on countries seen as unfairly manipulating their currencies.

There is one wild-card idea that Trump could potentially execute on his own—one borrowed from Democratic rivals. Senators Bernie Sanders (I-Vt.) and Elizabeth Warren (D-Mass.) propose to write off most or all of the $1.6 trillion in student debt. Trump has privately expressed concerns that he doesn't have a plan to counter them and asked aides to come up with one that will lower costs for student loan borrowers, the *Wall Street Journal* reported.

Forgiving the debts would boost the economy like a tax cut, Moody's Investors Service says. A Roosevelt Institute study released in December explained how it could be done without Congress. The idea has a populist flavor that might appeal to Trump. But there are plenty of obstacles, including likely legal challenges and hostility from some Republican voters.

Trump has other tools under his direct control, including executive orders and policy at the federal agencies run by his appointees. The Federal Housing Authority could loosen credit requirements for homebuyers, for example, or the U.S. Department of Labor could make more workers eligible for overtime pay. It's just that those tools are small-bore compared with cuts in interest rates—or in taxes. "You hear Trump yelling at Jay Powell every waking hour because his ammunition is pretty much tapped," Bernstein says. "He can't go back to the fiscal well." *—Laura Davison and Ben Holland*

THE BOTTOM LINE Trump can make promises about what he'd do in a second term, but his tools for boosting the economy before November are limited.

▼ Average quarter-over-quarter GDP growth during expansion period

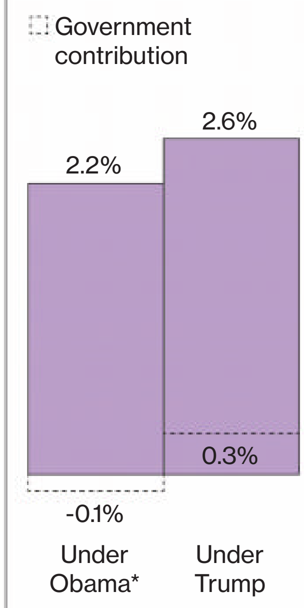


ILLUSTRATION BY SCOTT GELBER. DATA: U.S. BUREAU OF ECONOMIC ANALYSIS, U.S. TREASURY; *AVERAGE DURING ECONOMY EXPANSION, Q3 2009 TO Q4 2016

Russia's Shrinking Welcome Mat

● Migrants from Central Asia face increasing obstacles to obtaining work permits

Russian President Vladimir Putin is taking a page from Donald Trump's tough-on-immigration playbook. That's bad for people like Umed and millions of migrants from other former Soviet republics who've flocked to Russia in search of work. The Tajikistan native, who declined to give his full name, had been working as a delivery driver in Russia when he was deported in 2015. "They don't want Muslims to live in the country," says Umed, who now resides in Kazakhstan.

Immigrants are Russia's best hope to replenish a 75 million-strong workforce that's shrinking by 800,000 people a year. Yet their numbers are barely growing as Putin's government has tightened regulations, largely in an attempt to curb the number of migrants from Central Asia. This is a major headache for Russian companies, many of which are struggling to fill jobs even though the economy is stagnant. To cope with a shortage of drivers, food delivery service Yandex.Eats plans to deploy suitcase-size robots that will take orders to apartment building entrances. Grocery chain Magnit is plastering flyers around apartment blocks and putting ads in local newspapers hoping to lure stay-at-home mothers and students to take part-time shifts.

"Business needs the extra manpower, but the authorities are desperate to avoid provoking voter anger" ahead of 2024, when Putin faces the challenge of how to stay in power once he runs up against presidential term limits, says Alexei Makarkin, deputy director of the Center for Political Technologies, a research organization in Moscow. "Times are hard, and that's bolstering anti-immigrant sentiment." At his annual press conference in December, Putin said the large number of migrants from Central Asia provokes "irritation among the local population."

Just two years ago he boasted that his government had managed to reverse the demographic slump triggered by the collapse of the Soviet Union. But in his most recent state-of-the-nation speech he warned of a fresh population crisis. "We have entered a very difficult demographic period," Putin said, unveiling benefits to encourage families to have more children. "Russia's future, her historical prospects, depend on how many of us there are."

In 2018, as the flow of migrants fell to its lowest point in 13 years, Russia's population recorded its first dip since 2008—a decline that continued last year. By 2050 the nation of approximately 146 million inhabitants will have 10 million fewer people, according to Russian and United Nations forecasts.

Russia has made huge strides in curbing alcohol consumption and smoking, boosting life expectancy to more than 73 years, from a low of 65 soon after Putin came to power. The government has had less success in raising the birthrate. It plunged to 1.2 births per woman at one point in the 1990s, which is why Russia suffers a shortage of women of childbearing age. And while the rate is now comparable to that of Western European nations, it remains below the so-called replacement rate.

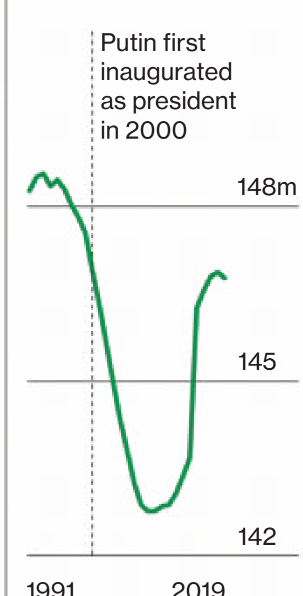
"Migration should be the top priority," says Anatoly Vishnevsky, director of the Institute of Demography at the Higher School of Economics in Moscow. Yet the foreign-born population is static: It was 12 million in 2019 (equal to 8% of the total), the same as in 2000, according to UN estimates. In the U.S. it rose from 35 million to 51 million over the same period.

The demographic situation could be "turned around if the authorities didn't worry about a backlash," Vishnevsky says. The bulk of migrant workers in Russia hail from Central Asia, but strict controls block most from acquiring citizenship or even long-term residency papers—and the rules have been tightening for the past five years. Regulations introduced in 2015 require those applying for long-term work permits to pass a Russian-language exam and obtain medical insurance. Fees for temporary working papers can total about 5,000 rubles ($80) per month. The entire system is riddled with corruption, say immigrant-rights advocates.

The government has tried to lure as many as possible of the 30 million native Russian speakers living outside the country's borders, yet in the past dozen years less than 1 million so-called compatriots have accepted Moscow's invitation to resettle. (That number doesn't include 227,000 inhabitants of Eastern Ukraine who agreed in 2019 to become citizens of Russia but may never actually move there.)

Vyacheslav Postavnin, a former deputy head of the Federal Migration Service, says authorities should be working to ensure immigrants from

▼ Russia population



non-Slavic cultures integrate successfully. But nothing has been done despite a mass outbreak of nationalist riots targeting Muslim immigrants in Moscow six years ago. "Migrants still live in a parallel universe," he says. *—Henry Meyer and Ilya Khrennikov, with Naubet Bisenov, Ilya Arkhipov, Stepan Kravchenko, and Zoya Shilova*

THE BOTTOM LINE Many Russian businesses have become dependent on migrant workers from Central Asia. But Putin's government is intent on reducing those workers' numbers.

Surf, Turf, and Low Taxes

● Uruguay's incoming government wants to lure rich foreigners to help shore up the economy

The way Uruguay's president-elect sees it, his country faces a couple of pressing problems: too few residents and too little investment. Why not solve both in one stroke by making the South American nation of 3.5 million people so attractive to well-heeled foreigners that they'll pack up and move there? "It's generally accepted that Uruguay would benefit from 100,000 or 200,000 more people," said Luis Lacalle Pou during a Jan. 22 radio interview, explaining changes he wants to make to the country's tax-residency rules.

Greece, Spain, and Portugal have gone down this road, wooing the wealthy with relatively loose requirements for official residency status. In Portugal, you can invest as little as €350,000 ($387,000) in property to qualify. To be eligible for tax residency under Uruguay's current rules, a foreigner must spend more than 183 days a year there, as well as purchase real estate worth more than $1.8 million or invest more than $5.4 million in a business. Expats pay a flat 12% tax on income earned from offshore assets after a five-year grace period.

Destino Punta del Este, a nonprofit that promotes the resort city, has asked the incoming government to reduce the residency requirements to 90 days and $500,000. "Not many people are going to come way down here to a small country like Uruguay if it's not competitive," says Juan Carlos Sorhobigarat, the group's chairman. Lacalle Pou, who takes office on March 1, hasn't said how low he wants to go.

Uruguay has lots going for it. Nestled between Argentina and Brazil, it's one of South America's wealthiest nations. The coast is lined with stunning beaches, the countryside dotted with picturesque farms and vineyards. Plus, Uruguay has so far avoided the social unrest that convulsed other nations in the region last year. On the economic front, the view is less pleasing. Growth has averaged a meager 1.3% the past five years, and unemployment stands above 9%. The public-sector deficit is approaching 5% of gross domestic product.

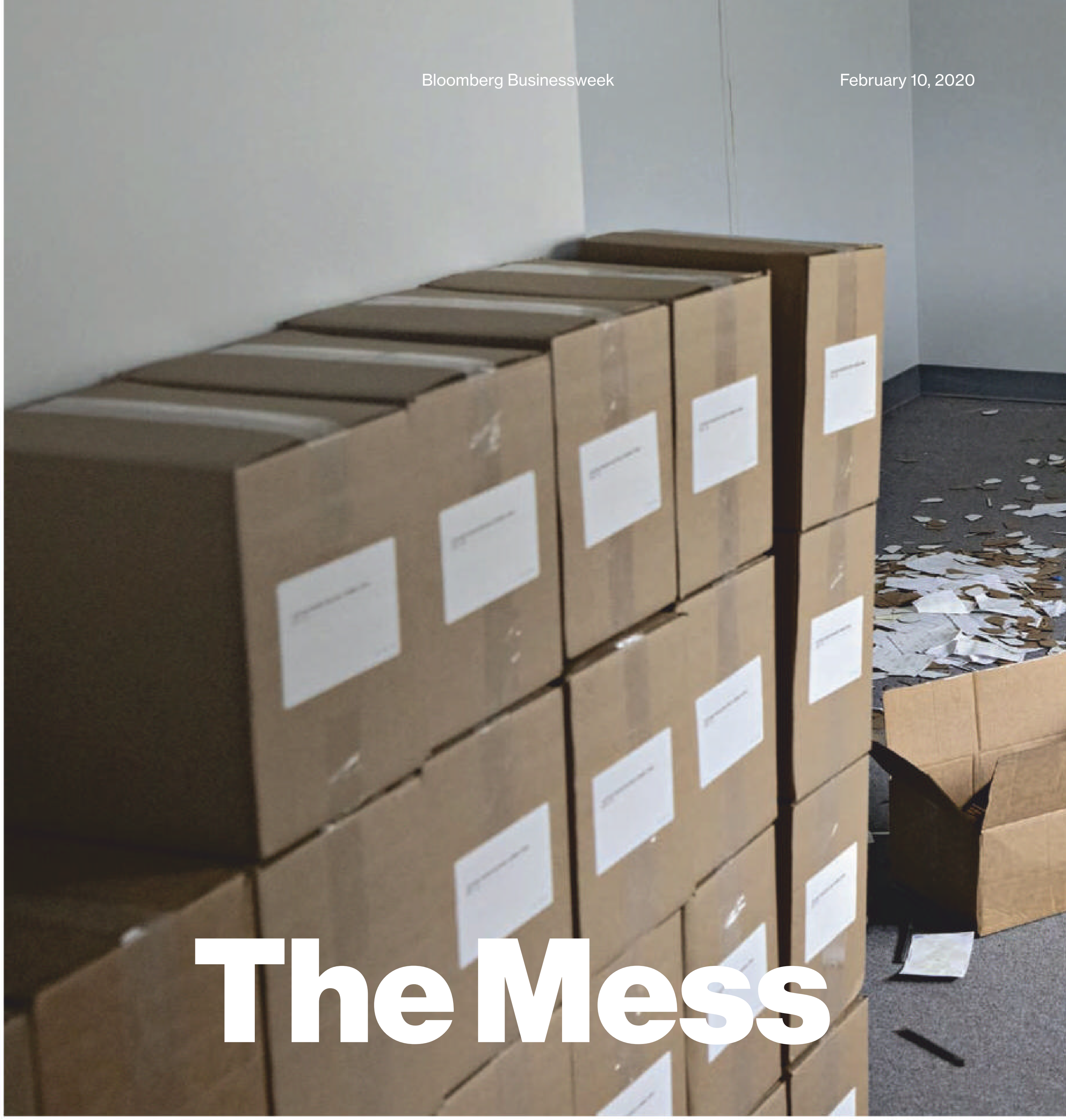
Attracting residents wouldn't be a miracle cure, but it couldn't hurt. "As people with high disposable income settle here, that will have an immediate impact on the economy," says incoming Tourism Minister Germán Cardoso, because they'll buy homes, enroll their children in private schools, and employ domestic help.

Long a haven for tax-dodging Argentines, Uruguay has taken steps to curb money laundering and has been sharing more information in recent years about Argentine residents with that country's tax agency. Lacalle Pou's tax-residency plan hasn't gone down well with Argentina's new leadership. In a recent TV interview, President Alberto Fernández urged his counterpart to "think twice" before undoing years' worth of efforts by predecessors to shed Uruguay's reputation as a "fiscal paradise."

▲ Punta del Este

The governing coalition will hold majorities in both chambers of congress, so getting legislation approved shouldn't be difficult. Even so, success isn't assured. "We have to see how many people participate and what is the economic result of the activities they undertake," says Julio de Brun, a former head of the central bank. But, in general, "I see it as something positive." *—Ken Parks*

THE BOTTOM LINE Uruguay's president-elect wants to follow in the footsteps of Greece and Portugal and change tax-residency rules to make it easier for affluent foreigners to settle there.



The Mess

● A muddled outcome and low voter turnout made the country's first presidential primary contest an unmitigated disaster for Democrats

The Iowa caucuses usually play a critical role in the presidential primary process by testing the candidates, winnowing the field, and slingshotting the top two or three finishers to national prominence. The results coming out of Iowa often shape the national narrative for the rest of the race. But this year's app-induced fiasco, which produced a low-confidence split decision between Pete Buttigieg and Bernie Sanders, won't even fulfill that basic function. The only certainty coming out of Iowa was that all of the candidates are now going on to New Hampshire.

Instead of clarifying questions of viability and moving the party forward in settling on a nominee, it did the opposite.

Absent a clean result, candidates like Joe Biden and Minnesota Senator Amy Klobuchar who placed well below the first tier escaped the reckoning that ordinarily accompanies disappointing finishes. A decisive Buttigieg or Sanders victory typically would have produced a fundraising windfall, glowing media coverage, and a strong bounce in the polls—since 1976, the Iowa winner has gained an average of more than 12 points in national polls in the month following the caucuses. With no one getting that boost, no one will be forced from the race.

For the party's left wing, the results were a frustrating muddle. The tepid third-place finish of Massachusetts Senator Elizabeth Warren ratified the belief that she's fallen back from last fall's front-runner status and isn't broadening her coalition into a unifying movement that could go all the way. And while Sanders remains a viable threat to win the nomination, he didn't demonstrate

Edited by Weston Kosova

Iowa Made

anything like the runaway strength his backers hoped for and his opponents feared. After spending $50 million in the last three months of the year, it looks as though the Vermont senator will end up drawing about half the level of support in Iowa that he did four years ago. That means a lot of his 2016 followers switched their allegiance—hardly the stuff of "revolution."

Moderate and centrist voters may have it even worse. While Biden's strength in national polls has been the one constant throughout the past year, his poor caucus showing, scattershot organizing, and lackluster fundraising bring new doubts about whether voters will ultimately decide that the 77-year-old former vice president has the stamina to face off against Donald Trump. The map will soon improve for Biden when Southern states start voting, but he'll have to stave off an exodus of support before then.

Sanders rose to the top of Iowa and New Hampshire polls because he faced nothing like the attacks on his policies that Biden—and Warren and Buttigieg—have endured and suffered from. Now, amid the cloud of confusion and recriminations from the Iowa results, some Democrats say he may escape that fate until it's too late for centrists to stop him. "Warren spent two months undergoing rigorous scrutiny for [supporting] Bernie's Medicare for All policy, scrutiny that was never applied to him," says Brian Fallon, a former top Hillary Clinton aide who's neutral in the race. "It's a symptom of the failure of D.C. Democrats to take his chances of winning the nomination seriously enough."

Sanders's fundraising strength and passionate base of supporters make him a serious contender, even if it takes a little longer to secure the nomination. That's left establishment Democrats struggling to embrace the possibility of a socialist standard-bearer. "Bernie would have a hard time winning the election," says former Pennsylvania Governor Ed Rendell, a Biden supporter. "But if he wins the nomination, I'd do the best I could for him. I'd be all in for Bernie. It's a wild thought."

Could Buttigieg parlay his Iowa showing to ▶

▲ Boxes of voter registration forms in a Democratic Party office in Des Moines

DANIEL ACKER/BLOOMBERG

Buttigieg

◀ rival Sanders in upcoming contests? Perhaps. In the weeks leading up to Monday night's first-in-the-nation Democratic contest, Sanders had seemed to be pulling away from the field. Buttigieg appeared to be sinking, especially after Warren branded him a privileged enabler of tech and finance titans who showered him with money in a lavish "wine cave" fundraiser. Yet the 38-year-old former mayor of South Bend, Ind., relied on his moderate appeal and dedicated turnout operation to overperform in rural and suburban areas across the state.

Betting that fortune favors the bold, Buttigieg also relied on moxie, marching out amid the caucus-night chaos to declare a victory that was far from certain, infuriating the Sanders campaign and other top finishers. "We don't know all the results," he declared to the crowd, auto-tuning his rhetoric to match the soaring cadence of former President Barack Obama. "But we know, by the time it's all said and done, Iowa, you have shocked the nation—because by all indications, we are going on to New Hampshire victorious!"

Sanders

BUTTIGIEG: AL DRAGO/BLOOMBERG; SANDERS: JOE RAEDLE/GETTY IMAGES; APP: DANIEL ACKER/BLOOMBERG

Buttigieg's stubborn unpopularity among the black voters who'll be critical in deciding South Carolina and Super Tuesday states poses what still could be an insurmountable hurdle. And thanks to the delayed caucus results, Buttigieg, for whom developing a national campaign infrastructure was already challenging, can't expect to benefit from the sudden influx of money and support usually directed at the Iowa winner.

This could open the door for someone who already has a national campaign team, virtual control of the TV airwaves, and almost unlimited resources: Michael Bloomberg. A late entrant to the field who didn't compete in Iowa, the former New York City mayor has a message of competent managerial centrism and a willingness to spend $1 billion to defeat Trump, which could be newly attractive to Democrats spooked by the debacle they just witnessed. (Bloomberg is the founder and majority owner of Bloomberg LP, the parent company of *Bloomberg Businessweek* and Bloomberg News.)

His viability at this point is still theoretical: To be the Sanders-slayer and centrist alternative to Biden and Buttigieg, he'll first need to persuade primary voters to pull the lever for him. At the first sign that voters are willing, he'll also have to contend with a populist backlash from energized partisans on the left wing.

Besides the failure to clarify much of anything, the Iowa caucuses amplified a set of issues that Democratic officials are quietly worried about. A full year of campaigning has done nothing to settle the central debate within the party between those who believe a nominee must steer leftward to excite and attract new voters and those who believe that such a course would guarantee President Trump another term. Iowa's neck-and-neck finish between Buttigieg the moderate and Sanders the radical is the party's conundrum come to life.

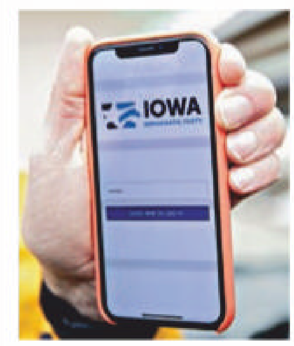
Then there's the matter of excitement—or lack of it. On a day when Gallup measured Trump's approval rating at an all-time high of 49%, Iowa Democrats showed up to caucus in only modest numbers. Not long ago, state party officials expected turnout to rival or exceed the record level of 240,000 set during Obama's first run in 2008. Instead, turnout was closer to 2016's level of 170,000. Democrats are counting on a growing blue wave of enthusiasm to oust Trump. Iowa denied them that, too. —*Joshua Green*

THE BOTTOM LINE Iowa usually helps determine presidential candidates. For Democrats, this year's outcome seems to have added only more chaos to the race.

What Was With the App?

● In Iowa, a bug in some code brought democracy to a standstill

Shadow Inc., the company whose app was supposed to help the Iowa Democratic Party quickly compile results in the state's 1,765 precincts, instead roiled the state's caucuses and upended the opening act of the 2020 Democratic presidential primary. "I'm really disappointed that some of our technology created an issue that made the caucus difficult," says Gerard Niemira, 37, chief executive officer of the political technology company. "We feel really terrible about that."



▲ Even more reasons to hate technology

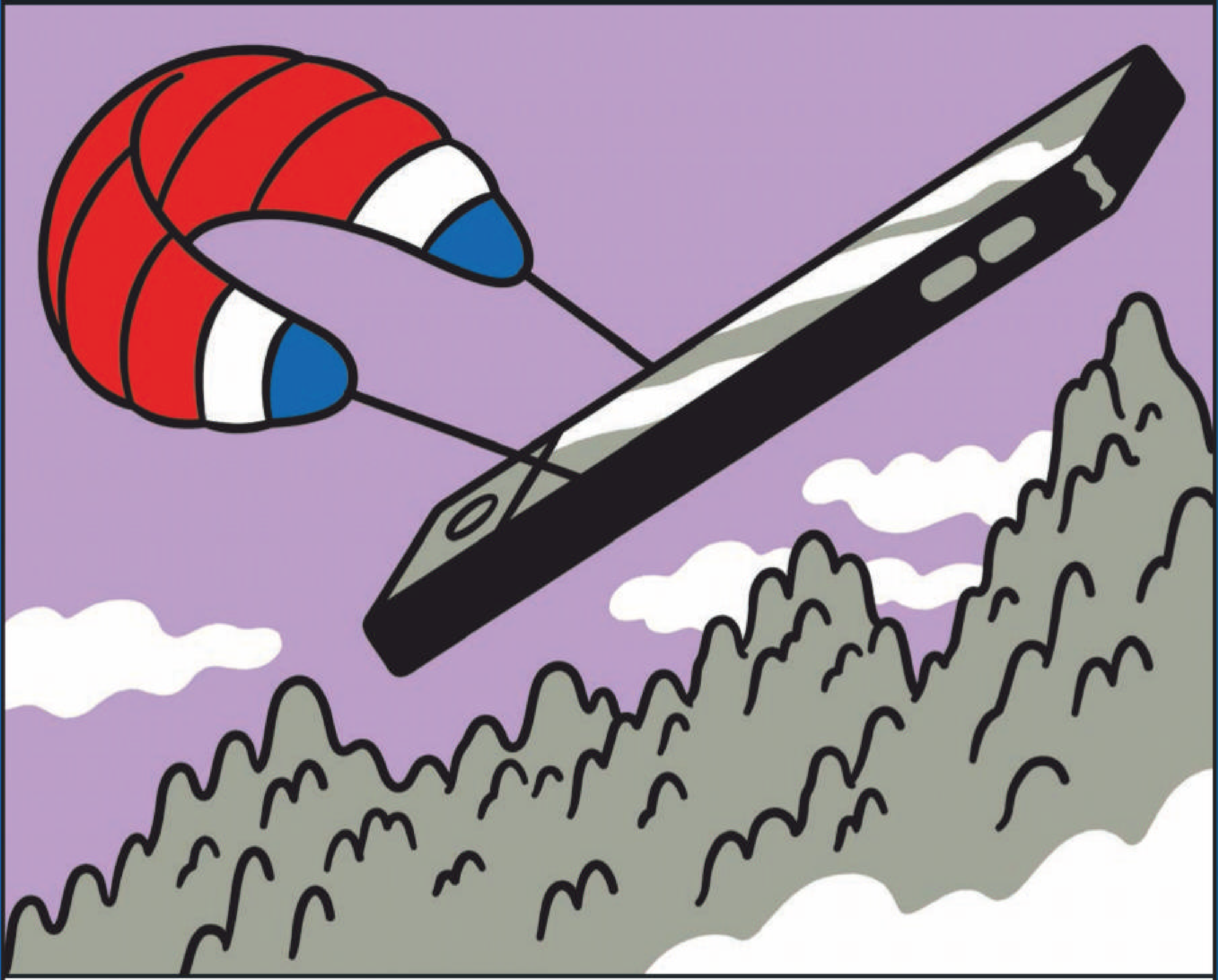
So, what happened, exactly? "The problem was caused by a bug in the code that transmits results data into the state party's data warehouse," he says. By 9 p.m., problems with the app had delayed the official results, leading to confusion and anger. Niemira says the bug in the code was discovered and fixed by about 10 p.m. Ultimately, most caucus officials reported by phone.

The bug wasn't the only issue with the app, however. Some caucus chairs also had trouble signing in and complained of insufficient training. The difficulty of logging in to Shadow's caucus app stemmed in part from the technological tools meant to safeguard the caucuses from foreign interference, according to Niemira. Chairs needed a specific precinct ID, two-factor authentication, and a personal identification number. "We'd had people using this app for weeks," Niemira says. "It had a 'sandbox' mode to practice with. What we were seeing early on caucus day was people having difficulty logging in for the first time."

Denver-based Shadow was founded last year and builds technological tools for Democratic candidates and progressive causes. (Its major funder is Acronym, a nonprofit group that invests in progressive technology companies.) "We exist to help campaigns," Niemira says. "It really pains me that we did the opposite." Shadow, which hadn't previously done election-related work, he says, built the app specifically for the Iowa caucuses and had another in the works for the coming Nevada caucuses. The Nevada Democratic Party has said it no longer plans to use Shadow's technology. —*Joshua Green and Eric Newcomer*

THE BOTTOM LINE A political technology startup created an app for the Iowa caucuses that delayed official results, leading to confusion and anger.

Small Business



A Weather Startup Takes Flight

Windy.com is moving beyond extreme-sports fans with its hyperlocal forecasts

February 10, 2020

Edited by David Rocks

PHOTOGRAPH BY FILIP ZUAN FOR BLOOMBERG BUSINESSWEEK. ILLUSTRATION BY ARNE BELLSTORF

A few years ago, Ivo Lukacovic hauled 25 pounds of gear up Switzerland's Gotthard Pass expecting to spend the day snow-kiting—gliding from peak to peak tethered to a sail the size of a bedsheet. But instead of the favorable conditions he'd seen in the forecast, he found himself blinded by a freezing fog and had to give up for the day. Although he always obsessively combed the predictions spit out by NASA supercomputers or crunched by Swiss climate scientists to find just the right conditions, "I'd often still fail," Lukacovic says. "I needed to create my own version of the weather forecasts."

Unlike most other snow-kiters, Lukacovic had both the coding chops and the money to do that: He's a programmer who founded and still owns the Czech Republic's biggest internet portal, Seznam.cz. Six years ago he launched Windy.com, a website that aggregates vast amounts of data to create hypergranular forecasts and assessments of climate conditions ranging from staples such as temperature, rainfall, and cloud cover to detailed looks at dew point, fire risk, air pollution, and more. "We're the only service in the world right now that can sell this very complicated data to common people," says Lukacovic, 45. "That's where we want to stay a leader."

Windy employs 15 full-time coders who translate raw files into richly animated weather illustrations, with flowing arrows that indicate wind speed and direction, a rainbow of colors for data such as snow depth, and a sidebar indicating anything from dust density to active fires. Surging interest in data about extreme weather on a warming planet—hurricanes, floods, and heat waves—has helped double the site's traffic in the past year, to 1.5 million visitors a day. Although he declines to provide details, Lukacovic says Windy has collected some €400,000 ($440,000) in contributions and concluded several deals with companies that topped out at about €100,000 each. The vast majority of users today pay nothing, but he's considering a €20 annual subscription for as-yet-unspecified premium services. Windy would be "very profitable," Lukacovic says, if just 3% of users signed up.

"Windy was a real game changer," says John Kealy, a former meteorologist at the U.K.'s Met Office who's now researching mathematical forecasting models at the University of Exeter. "It bridges the gap between national weather services and the public in a way I hadn't seen before." The Prague-based company taps into the mountains of climate information becoming available as space agencies invest billions in new satellites. Windy draws data from the U.S. National Oceanic and Atmospheric Administration, Meteoblue AG at Switzerland's University of Basel, and the Copernicus Atmospheric Monitoring Service, a nonprofit that offers feeds from European satellites. The latter provides Windy with air quality and pollution data, allowing Lukacovic to create animations that show where the wind is carrying nitrogen oxide, sulfur, carbon monoxide, and other dangerous pollutants. That kind of info will become increasingly valuable as countries step up efforts to monitor and verify pledges to cut emissions, says Vincent-Henri Peuch, chief of the Copernicus service. The goal is to help regulators pinpoint greenhouse gas emissions like "drops of ink released in a pool of water."

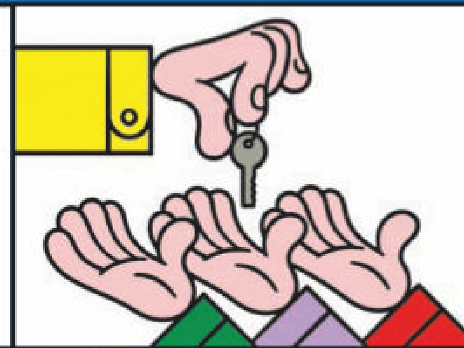
Lukacovic faces growing competition as dozens of companies analyze climate information to improve decision-making by everyone from transportation planners to real estate agents. Assist, a software house backed by consultant Capgemini SE, is using Copernicus air quality data to help airlines reduce maintenance costs. France's Mon Toit Solaire uses its measurements to improve placement of solar panels. Finnish startup AeroZee offers pinpointed information on air pollution to potential homebuyers.

And a host of services are broadly available to the public—AccuWeather and the Weather Channel offer vast amounts of free info and boast financial firepower, having received backing from the likes of IBM, NBCUniversal, and Blackstone Group. Lukacovic says his service can thrive because its website and app use proprietary compression and transmission systems that let its complex graphics load quickly, even on a sailboat in a thunderstorm or a mountainside in a blizzard. The goal is to cater to people whose safety and well-being often depend on knowing the weather, and who would be willing to pay for information delivered in a simple, digestible format. "We do not plan to compete with the big guys," Lukacovic says. "Our target users are people like sailors, pilots, firemen—and kiters." ——*Jonathan Tirone*

A lost day of snow-kiting inspired Lukacovic to start his forecasting business

THE BOTTOM LINE As the planet warms, surging interest in weather events such as hurricanes, floods, and heat waves has helped double the site's traffic in the past year, to 1.5 million visitors a day.

Sharing a Share Of the Company



More entrepreneurs are opting to transform their small businesses into cooperatives

In 1995, Susanne Ward opened Rock City, a homey cafe in the Maine fishing town of Rockland offering morning coffee, warm lunches, and evening performances by local musicians. Fast-forward 20 years, and Ward was tiring of the grind and wanted to cash out and travel, but she feared a buyer might change the character and charm of the business she'd spent much of her adult life nurturing. So she floated the idea of converting Rock City to a cooperative owned and managed by the staff, and after some initial resistance, 17 of the 35 workers opted to join. "We're small and live in a rural area where good jobs with retirement programs are few," Ward says. "None of my employees could have bought a business like Rock City on their own. Buying it as a group allowed them each to have ownership."

It's an idea with growing appeal for small-business owners. The U.S. has about 800 worker-owned co-ops, up from 350 a decade ago, employing more than 8,000 people and generating almost $500 million in annual revenue, the U.S. Federation of Worker Cooperatives estimates. Co-ops run businesses ranging from housecleaning to taxi services to construction. The smallest have fewer than a half-dozen worker-owners, while the biggest are sizable players in their industries. Founded 35 years ago to boost employment and wages in low-income areas, Cooperative Home Care Associates in New York City has more than 1,000 worker-owners caring for the elderly, ill, and disabled. "In many communities, there's a hunger for jobs that offer both dignity and a chance at ownership and control," says Joseph Blasi, director of the Institute for the Study of Employee Ownership and Profit Sharing at Rutgers University in New Jersey.

While most companies operating as cooperatives have shared management and ownership from the beginning, more conversions are likely as baby boomers—who own two-thirds of small businesses in the U.S.—move toward retirement. Many have no succession plan, and finding a buyer isn't always easy, especially in rural areas where high-quality employees are scarce and many young people have moved to cities in pursuit of opportunities. "The typical succession strategy in a lot of rural Maine is liquidation and closure," says Rob Brown, a director at the nonprofit Cooperative Development Institute (CDI), which provides training and technical assistance to co-ops in New England. "The business owner isn't realizing the wealth they should be, and employees lose their jobs."

Recent federal legislation has made it easier for co-ops to get loans and for small businesses to finance a conversion, which typically costs about $30,000 for technical assistance and closing expenses, according to the CDI. The U.S. Department of Agriculture in 2017 modified its lending rules to allow former owners to stay involved in a co-op for five years after conversion. And a 2018 law requires the Small Business Administration to make loan-guarantee programs more accessible to worker-owned co-ops and directs the agency to promote employee ownership through its investment funds.

Businesses with a long history in their market tend to transition best, and most remain small so each worker can afford a meaningful share. Almost three-fourths of American workers would prefer to work for an employee-owned company, according to a survey by the Employee Ownership Foundation, and studies have found that worker ownership increases productivity, profits, and wages and creates stability.

Entrepreneurs who need help with rapid expansion but have difficulty recruiting and retaining managers are also contributing to the shift. Aja Hudson founded a landscaping company in New York's Catskill mountains 19 years ago, and as the business thrived she found herself having to turn away potential customers. Four years ago she converted the company, now called Earth Designs, into a cooperative she owns with nine employees. "It was too much for me to manage by myself," Hudson says. The transition from owner to co-owner "required a tremendous amount of patience and many more meetings than any of us expected," she says. "But every time, the group was able to rise above it, and the rewards have been great."

Since the conversion, Earth Designs' staff has grown from 9 to 25, and sales last year approached $2 million, almost four times what they were in 2015. Before the transition, Erin Domagal had worked as a crew manager, overseeing projects in the field; after buying a stake in the business, she became creative director. She's working harder, she says, but she earns more and the job feels more meaningful. "It takes more work to engage this deeply," Domagal says. "Our employees value the way they are seen and heard within the company, which they've never experienced at other jobs." —*Karen Angel*

THE BOTTOM LINE Conversions of small companies to co-ops are likely to become more common as baby boomer business owners retire. Many have no succession plan, and it can be tough to find a buyer, especially in rural areas.

ILLUSTRATIONS BY ARNE BELLSTORF

A Panic Button for Shootings

Israeli startup Gabriel offers protection from attacks but frets about the reasons for its growth

Yoni Sherizen's startup has grown from two employees to seven in the past three years, he's close to sealing his biggest deal to date, and investors value the business at $13 million. Yet every time he signs up a customer, he worries about the cost of success.

His company, Gabriel—named after the horn-blowing archangel—helps protect places such as community centers and synagogues from attackers. "Unfortunately, bad news brings a lot of attention to a product like ours," says Sherizen, a 41-year-old American-born rabbi who lives on a kibbutz in central Israel. So far, all of Gabriel's customers are Jewish groups in Florida, Michigan, and New Jersey concerned about anti-Semitic violence, and Sherizen hates the idea of profiting from shootings and the fear they spawn. "I wrestle with that all the time," he says.

Gabriel's sole product is a hardware and software package that includes panic buttons to be placed around a site, each with a fisheye camera that gives police and security managers a view of the scene. Community members can download a mobile app that has its own alert button, so they can send real-time updates on escape routes or safe places to hide. The price starts at $10,000 a year for 10 devices and associated services.

Ramapo, a town with 90,000 Jewish residents 30 miles north of New York, had been in talks with Sherizen for months. After three attacks on Orthodox Jews in the metropolitan area last fall, "panic set in," says Mona Montal, chief of staff for the town's supervisor. Ramapo is poised to install Gabriel's system at more than 200 locations—synagogues, schools, and banquet halls—serving more than 50,000 people, which would represent a sevenfold expansion of the company's sales. "I hope we never use it," Montal says on her way to an event honoring the police officers who intervened in a stabbing spree at a nearby rabbi's home in December.

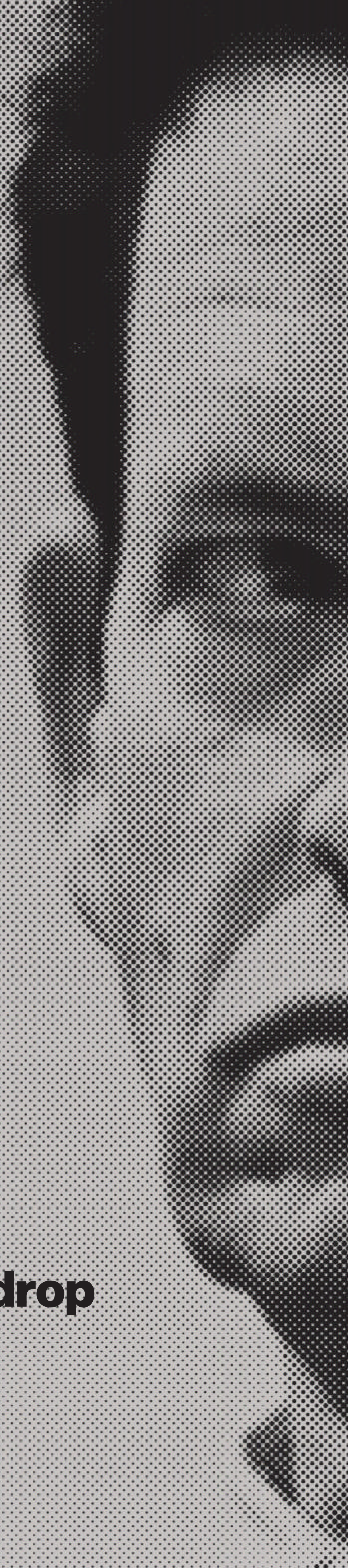
Last year the U.S. saw 400-plus shootings in which four or more people were injured. That's boosted demand for improved security in public places, with revenue in the business on track to grow 52% by 2025, to $61 billion globally, researcher MarketsandMarkets predicts. Dozens of companies have jumped in, providing everything from bulletproof backpacks and hoodies to full-time monitoring systems. Rave Mobile Safety and Alertus Technologies offer panic-button software similar to Gabriel's. Avigilon, a unit of Motorola Solutions Inc., sells video and surveillance equipment. Athena Security says it can program cameras to detect hundreds of types of guns and immediately alert police if they sense a threat. "The market is ripe for good products," says Noel Glacer, head of a security industry recruitment firm, whose son was a student at Marjory Stoneman Douglas High School in Parkland, Fla., when a gunman killed 17 people there two years ago. "I tell people, if you think it won't happen to you, that's what I thought. And then it did."

While testing its system at new installations, Gabriel conducts drills to help students, teachers, and other community members understand what to do in a shooting and to give administrators a chance to familiarize themselves with the equipment and software. Gabriel's network also addresses a frustration for police: Most Orthodox Jews avoid sites such as Twitter and Facebook for religious reasons, but that's where authorities typically post emergency updates. Rabbis have deemed Sherizen's app appropriate for their followers.

Sherizen got the idea for the company in 2016 after a pair of Palestinian gunmen attacked a Tel Aviv restaurant, killing four people. The same year he and co-founder Asaf Adler started Gabriel, now based in a suburb of Tel Aviv, with backing from friends and relatives. He just raised $3 million in funding from new investors as he seeks to move beyond the Jewish community, pitching his product to schools, churches, mosques, malls, nightclubs—anywhere people gather. "We chose the name Gabriel because it's cross-religious," Sherizen says.

After the October 2018 shooting at the Tree of Life synagogue in Pittsburgh, which claimed 11 lives, Sherizen gave a series of interviews in which he identified his first customer. The leaders of that community were furious, concerned that he'd effectively issued a challenge to anti-Semites to beat their defenses, he says. He immediately apologized and asked journalists to scrub mentions of the name. "I have to safeguard my customers' interests," Sherizen says. "They are a target for a lot of people." —*Yaacov Benmeleh*

THE BOTTOM LINE The business of protecting public spaces is expected to grow 52% by 2025, to $61 billion, as dozens of companies offer everything from bulletproof backpacks to video monitoring systems.



A Crude, Sexist Joke Cost Ken Fisher $4 Billion In Assets

Some big investors were quick to drop the money manager. But his sales machine is doing just fine

By Sabrina Willmer

He Still Runs $121 Billion

Ken Fisher ranks among the most successful money managers in America. But you can reach one of his main offices only by driving up a steep and curving country road in Northern California. A compound of simple wood-shingled buildings, it sits atop a peak with sweeping views of redwoods and Half Moon Bay. "Kings Mountain Country Store," reads a weathered sign near the entrance, lined with moss-covered boulders.

An avowed cheapskate who buys shoes at Walmart, Fisher picked up this property years ago at a fire-sale price. It had been a commercial chinchilla farm in the 1940s. Fisher, 69, grew up here in San Mateo County and remembers the freedom he had as a child, hitchhiking in the area or taking the train to nearby San Francisco as a 10-year-old. "It was just a marvelous world that used to exist—just so free and so different," he says.

Speaking of the business he built, he says, "I had this vision, which was like a sort of preindustrial age family, like a farm." His wife and children have all worked for the company, Fisher Investments, and the Fishers once lived at this Woodside, Calif., compound, where a statue of a bull fighting a bear adorns a back patio. Some of his former employees—referring to the way many are molded in the founder's image, or Fisherized—have called his firm the cult on the hill.

Late last year the outside world came crashing into this idyll, after comments Fisher made at a San Francisco conference sparked anger on Twitter and then were reported by Bloomberg News and others. Fisher cautioned against using financial planning—which involves getting people to talk about their money—as a way to sign up new investing clients, comparing that approach to picking up a woman in a bar. But he was crude about it, making a reference to "trying to get into a girl's pants," one horrified attendee told Bloomberg. (A recorded excerpt of his remarks broadcast later by CNBC captures Fisher saying you wouldn't go up to a woman and ask what's "in your pants.") In an interview with Bloomberg at the time, Fisher said his comments had been taken out of context.

Large clients including Fidelity Investments and Goldman Sachs Group Inc., as well as some public pension funds, pulled nearly $4 billion from his company in a month. Then and now he says he made similar comments many times, and no one had complained. Still, he apologized, though he also repeatedly said his remarks were misinterpreted. "By saying those inappropriate things, I was demonstrating inappropriateness," he says, in a two-hour interview, his first extended remarks since the crisis. "I said, 'It would blow up in your face. You'd come off like a jerk.'" In his view, some big investors bolted only because of pressure from the press. "Literally we have people that have told us they wouldn't fire us if it wasn't for you people writing about this," he says, his general counsel and an outside lawyer by his side.

Fisher speaks in a gravelly, stentorian voice, like an anchorman's. In fact you might have seen him commenting on financial news shows, in his boxy suit and a wide gold bull-and-bear power tie. Or maybe you've seen him in one of his ubiquitous ads or learned about him from the bulk-mail pitches he sends out on heavy embossed paper. Perhaps you've read one of his many books or his column that ran for years in *Forbes*. With help from the soaring bull market, his assets under management have more than quadrupled since 2009, to more than $121 billion at the end of December. He's also gotten rich, with an estimated net worth of about $4 billion.

Fisher seems like a figure from an older Wall Street, before low-cost index funds began to replace investment gurus such as him. He's still able to charge lucrative fees for actively managing money. He also brings to mind the age before the rise of the corporate HR department and the #MeToo movement. Some former employees describe Fisher Investments' corporate culture as a "boy's club," where the use of crude language had long made some women, and men, uncomfortable. For some institutional investors hearing about Fisher's comments in October, walking away from the firm was a fairly simple decision. Many of them—especially retirement funds that represent diverse memberships—want to show they support equality for women.

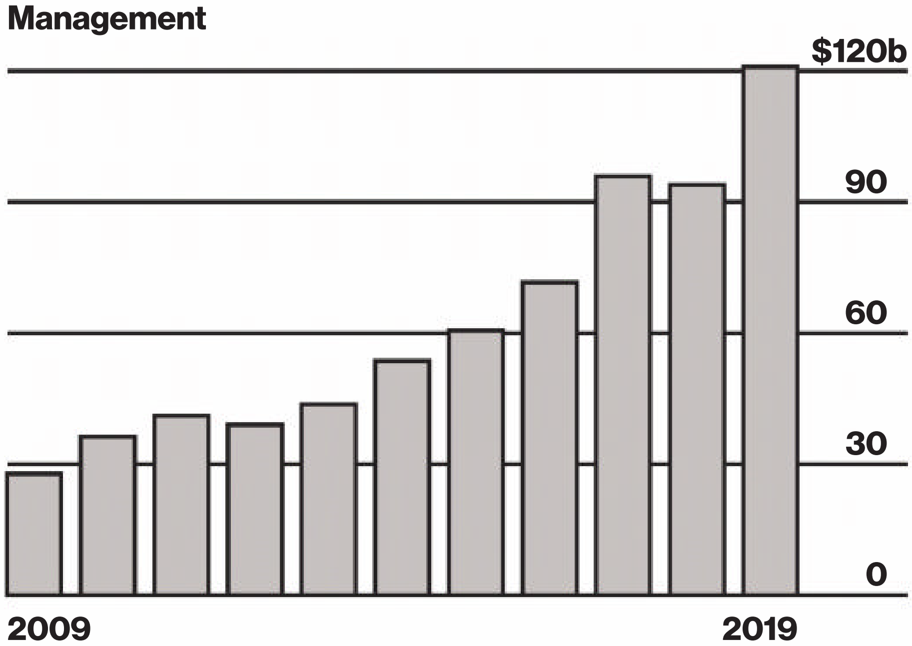
But another part of Fisher's business is serving about 70,000 individual investors. That kind of money turns out to be a lot stickier—it doesn't leave easily. In part that may be due to inertia, but it's also because of the relationship an investment adviser can build with clients. And Fisher has a kind of genius for communicating to small investors that he's on their side. "He is awesome," says Kathryn Cardona, a retired teacher and client in rural Oregon, who heard Fisher speak at a luncheon. "He can talk about money and not make it boring. He cracks jokes." Fisher Investments says it's brought in hundreds more clients representing billions in new money since early October. Fisher isn't going anywhere—at least as long as this bull market lasts.

Fisher's father, Philip, was legendary on Wall Street. He was an early practitioner of what's now known as growth investing and wrote a bestselling 1958 guide to stockpicking that influenced Berkshire Hathaway Inc.'s Warren Buffett. But, whereas Philip offered his investment services to no more than a dozen clients, Ken has a passion for mass marketing. Small investors make up more than two-thirds of Fisher Investments' business, which Ken founded in 1979 out of his basement.

"Ken himself says, 'I send junk mail,'" says Meir Statman, a finance professor at Santa Clara University, who has collaborated with Fisher on investment research. "There are many professionals who are bashful about marketing. We tend to underestimate the effect of marketing in financial services, as if it were all about alpha," he says, "alpha" being investor jargon for beating the market.

In 1995, Fisher sent 5,000 letters to high-income prospects—doctors, specifically—at a cost of about $1 a piece. The positive response he got made an impression, and direct mail has captivated Fisher ever since, so much so that he's used it as a kind of incantation. In the early 2000s he was known to say something that sounded like, "God, I'm someone. God, I'm someone. God, I'm someone," but it's really "GDDMSAHNWAM. GDDMSAHNWAM. GDDMSAHNWAM." It's an acronym and distillation of his dream: "globally dominant direct marketer

Fisher's Assets Under Management



separate account high-net-worth asset management."

In his promotions, Fisher has long stressed his status as a bestselling author, like his father. The younger Fisher had help from his company, which bought copies of his books. Some employees could expense books, which would pile up in warehouses and staffers' garages, according to people familiar with the arrangement. The company says that it sent books to customers for educational purposes and that they were "a perfectly legitimate business expense."

Despite being so much in the public eye, Fisher describes himself as an introvert. He can be nerdy, rattling off economic and financial jargon such as "mean variance optimization." He can also be condescending when challenged. "That's one of the most basic questions that anyone could possibly ever ask, so let me take you through the basic thinking to see it correctly," he responds to a question in an interview about his investment approach.

Still he doesn't come off as a polished finance guy. He drives a 15-year-old Volvo and likes to duct-tape together old shoes. He went to Humboldt State University in rural Arcata, Calif., where for a time he wanted to study forestry. He switched to economics, and after graduation went to work for his dad. While setting up his own business, he used to play slide guitar in dive bars. As it grew, he positioned himself as a market expert and an advocate for the everyday affluent.

Among his books are *How to Smell a Rat: The Five Signs of Financial Fraud* and *Debunkery: Learn It, Do It, and Profit From It–Seeing Through Wall Street's Money-Killing Myths*. He's very good at showing the many ways brokers, as the joke goes, can make their customers broker. Fisher is best known for his ads that blare, "I HATE Annuities. And you should, too." He's even more emphatic in a promotional video, saying, "I would die and go to hell before I would sell an annuity." He's picked a fat, largely deserving target. Annuities, which are a kind of investment product issued by insurance companies, are notorious for their punishing fees and confusing rules. And they're aimed at many of the same people Fisher is selling to–people who may have a half-million or more squirreled away in a 401(k) or an IRA rollover.

Fisher's ads invite readers to call or click to get a free report. That gets you on the sales-lead list. Some 125 people have filed complaints against Fisher Investments with the Federal Trade Commission since 2016, alleging excessive calls, emails, and mailings, according to records released under the Freedom of Information Act. "CALLS REPEAT EVERY DAY. I SUBMIT A COMPLAINT EVERY DAY. NO CORRECTIVE ACTION TAKEN. WHAT CAN I DO???????????????????," a resident from Waterford, Pa., wrote in a July 2016 email to the FTC. The company disputes the FTC complaints and says its sales force acts "respectfully and professionally."

Fisher says the important thing about his approach is that sales and financial advice are kept distinct. Traditional commission-based brokers are expected to sell hard–to engage in what Fisher calls "hornswoggling"–at the same time that they're providing service to customers. "I didn't like that," he says. "So I wanted to separate the sales from post-sales service." Once individual customers sign on with Fisher, his company generally charges 1% to 1.5% of assets per year to run their portfolios. Although that far exceeds the cost of investing in most mutual funds, Fisher says the price includes broader financial advice, as well as extras such as hundreds of private luncheons for clients around the country. "We do things for clients that no one else does," says Fisher, who calls it "a total offering."

B*loomberg Businessweek* spoke with more than two dozen current and former employees of Fisher Investments. Some describe an always-be-calling operation reminiscent of a David Mamet play. In addition to the Woodside location, Fisher has main offices in the city of San Mateo and Plano, Texas. Several years ago he moved the company's headquarters to woodsy Camas, Wash., outside of Portland.

Michael Kay, who worked as an account executive from 2017 until June, says he would make at least 250 outbound sales calls a day. "Fisher recruits people out of college," he says in an interview. "We are poor, smart, and hungry for money, so we can be molded into an efficient closing sales machine." Kay testified in a 2018 lawsuit in California claiming that Fisher stiffed ▶

"That's one of the most basic questions anyone could possibly ever ask, so let me take you through the basic thinking"

PREVIOUS SPREAD: GILLIANNE TEDDER/BLOOMBERG. DATA: SEC

◀ employees out of overtime—allegations the company denies. A lawyer for the company says Fisher never required so many calls in a day.

When the company loses a client, managers will interrogate investment counselors and rummage through their notes, according to some former employees. Fisher prizes loyalty: He likes to praise those who "bleed Fisher green" and have the initials of Fisher Investments "stamped on their butt," according to an internal company memo. The company, however, bristles at the cult comparison, saying it prizes independent thought.

Male entry-level account executives sometimes displayed a frat house attitude. "Who do you think is hung like a horse?" one person wrote in a 2013 email. Another named a female co-worker and, in an apparent reference to her genitalia, wrote, "That's her Laybes though bro." Fisher provided these emails when Bloomberg asked about the behavior of one of the employees, who's still with the company. After the email episode he was demoted, was docked three days' pay, and had his compensation cut to $14 an hour from $24 an hour. Fisher says such episodes inevitably occur in a company with 3,800 employees. "When we find out about things, we deal with them pretty completely," he says.

Still, some employees complain of repeated comments about women's clothing and appearance. "I got to hear and witness a lot of things that didn't sit well with me," says Joey Hays, who worked in the marketing department from 2013 to 2015 and sat near the sales bullpen. "No sooner would a woman leave the area, and these men would start initiating highly sexualized conversations about these women." Hays, who is gay, says he also heard employees make homophobic remarks and vulgar, sexual comments about clients. (The company says a female employee once complained to its human resources department about Hays, saying he made an inappropriate comment; Hays says he and others joked about the co-worker, and he later apologized.)

Fisher's own words were part of the macho atmosphere. "I have a hard-on looking at all of you," some people remember him saying at a London gathering. Back in 2008, as financial markets were reeling, a woman at a staff meeting asked Fisher if he'd considered shifting into defensive holdings. "Why would I want half a dick?" he replied. Fisher doesn't dispute that he made comments such as these, though he says he may have been misunderstood.

In a recording from a 2018 investing conference, Fisher can be heard saying: "If I was 30 years old and I had to do it over again, I would have more sex. ... Once you get older, you're like a Christmas tree. You're firm once a year, and the balls are just for decoration." Some in the audience laughed.

A number of women at Fisher Investments say they've been fairly treated in what they consider a meritocracy. The company notes that three of five senior executive vice presidents reporting to Chief Executive Officer Damian Ornani are women. One of those leaders, Jill Hitchcock, who oversees the company's largest business unit and was the former head of human resources, says Fisher's comments have never offended her because she always considered him to be using analogies to explain complex topics. "If I didn't believe in what we were doing and the firm and the culture, I wouldn't have stayed here," says Hitchcock, a widowed mother of two boys, who's worked at the company for 20 years. "I've also seen how our employees and how our clients react to seeing Ken, which is they love to see Ken speak."

The company points to an internal survey showing 79% of employees think it's a great place to work. Jacob Gamble, who worked there from 2002 through 2015, says the company does well by its clients. "It can be hard, and you are held accountable to learn from every single little flaw that comes across in your work," he says. "But that's how they're successful and how they move forward."

If Fisher's sales force is aggressive, so is his investment approach. When prospects turn over their nest egg to Fisher, his company often puts the bulk of it in stocks, even for older clients. That's an outlier in an industry that typically recommends a more conservative approach: All things being equal, younger people should go heavier on stocks, retirees should go in a more fixed-income direction, and so forth. In retirement funds designed for 65-year-olds, Vanguard and Fidelity place just over half of investments in stocks; Charles Schwab and BlackRock, 40%. Fisher has little time for the idea that it's safer to keep a lot of money in bonds—not when you need to grow enough savings to fund retirement. On a podcast, Fisher once referred to husbands who put their spouse's money in a mix of stocks and bonds as no better than "wife beaters." Fisher says, for example, a 65-year-old man may marry a woman 10 years younger who can expect to live many more decades. That means the couple has to plan for a longer future. "If you have a 30-year time horizon, you ought to be starting off with a 100% equity benchmark," he says.

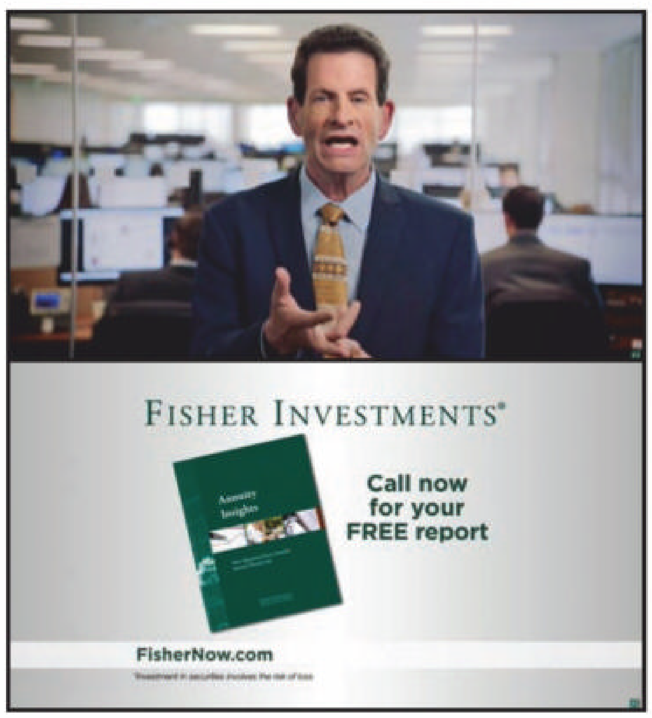
Besides stocks, another investment he likes is an obscure instrument called an exchange-traded note, or ETN. They're essentially contracts, issued by a bank, that entitle the owner to a certain payout. The notes' returns can be linked to the performance of other securities, such as an index of stocks. And they can be designed so they return even more when those stocks rise—and fall even harder when the stocks fall. The risk and costs of ETNs have drawn scrutiny from federal regulators, and most investors shun them. (Although ETNs are backed by

"I committed myself to never saying words like that again or any things like that again ever"

major banks, one risk is the possibility that an issuer might not be able to pay.) Fisher Investments is one of the biggest ETN players in the world, with $6 billion of clients' money invested in them last year, making up a quarter of the market. The company says its ETNs are less volatile than most individual stocks and work in its portfolios to reduce risk relative to return.

The main investment strategy he uses for wealthy clients' accounts has trailed the benchmark the firm uses over the past decade by about one percentage point annualized. Over the past three and five years, however, it has beaten the same index by a percentage point annually, according to the company. The portfolios he runs for institutions tend to have lower fees, and some have performed better. For Florida's pension fund, the firm returned, on average, 2 percentage points per year above its benchmark over the past 10 years.

No doubt, leaning into a bull market has been good for Fisher. After all, this one's been going for more than a decade. Cardona, the Fisher client, says she has confidence in her 100% stock portfolio and also likes the customer service she gets. As for the remarks that got Fisher in trouble, she says people are too politically correct these days. "What he says doesn't bother me as it doesn't impact the 401(k)," says Cardona, who is 74.



Fisher built his business on savvy media

In a bear market the company's aggressive stance can backfire. Fisher faced at least a dozen legal claims from customers who lost money in the 2008 financial crisis. Clients alleged that the company advertised a tailored approach while putting everyone in the same stocks, misled them about risks, or failed to build suitable portfolios. Most were resolved in arbitration, where the outcome wasn't always public. One arbitrator ordered Fisher to pay out $376,000 in damages to a retiree in New Orleans who signed up in September 2007 and lost 57% of her $876,000 nest egg in a little more than a year. But in some other cases, arbitrators sided with Fisher, saying that clients had sought out "growth" portfolios of stocks, understood the risks they were taking, and would have prospered if they had ridden out the downturn as the company advised.

Several former employees say Fisher would identify clients who know prominent people—such as lawyers, politicians, and journalists—flagging them in case they became unhappy with their investments. A 2015 corporate script tells investment counselors to determine whether customers have such high-profile people in their "sphere of influence." Fisher denies the effort was designed to protect the company. Instead, he says, the script was part of a since-abandoned effort to create a panel of experts the company could harness for research. "This was effectively an innovative attempt that failed," he says.

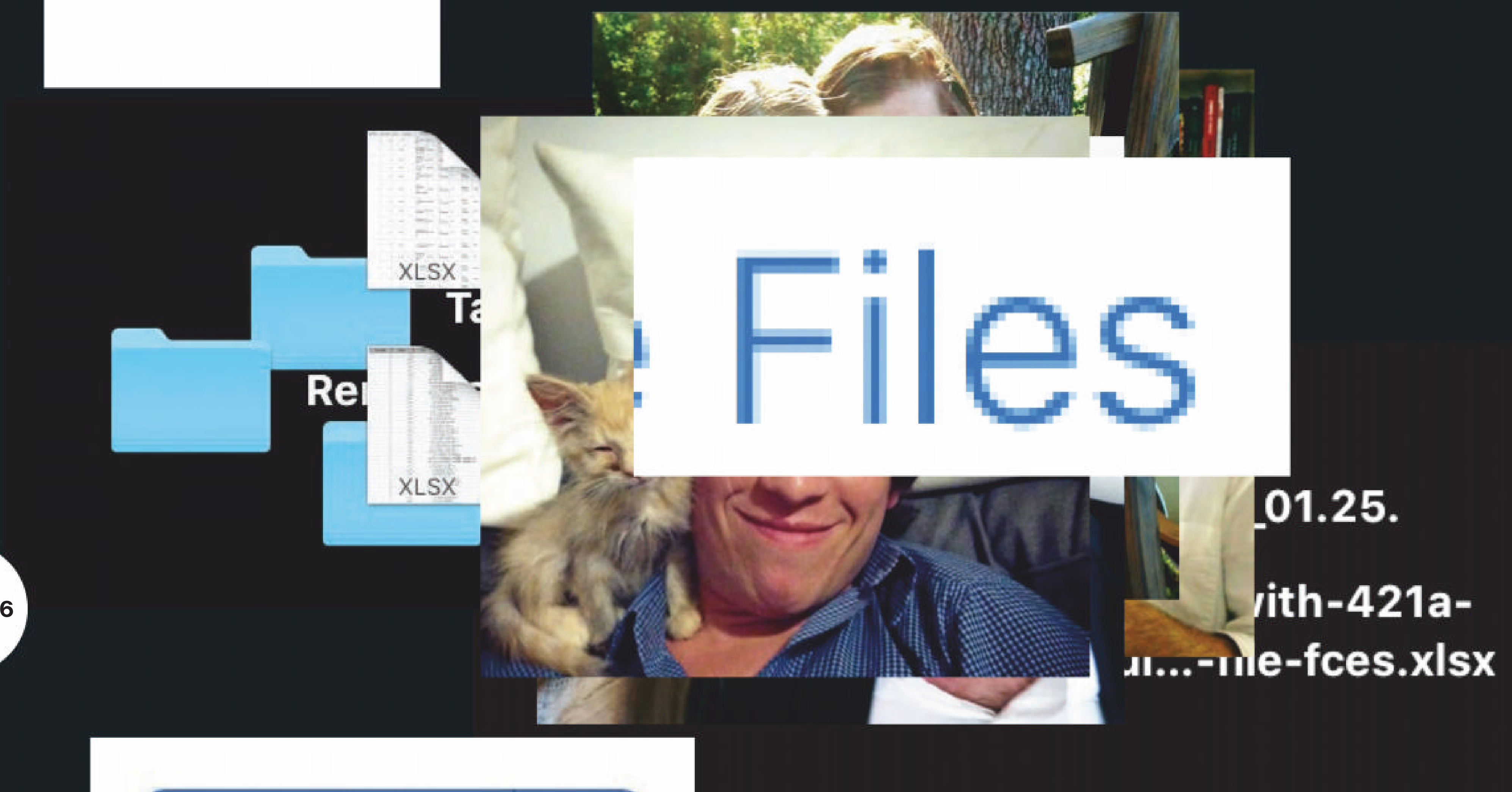
In response to the negative publicity about Fisher, the company introduced a counteroffensive. On Oct. 29, Hitchcock, the 20-year veteran and senior executive, asked hundreds of women employees to gather for a last-minute meeting at Camas and three other main offices. She asked them to sign releases permitting them to appear in photos for an ad campaign. More than 1,000 employees, or more than a quarter of Fisher's workforce, are women, and 350 appeared in the ad, the company says. Full-page spreads would ultimately run in the *Wall Street Journal*, the *Dallas Morning News*, and newspapers across the country under the headline "You Heard Their Story. Now Hear Ours." Along with the group photo, it featured seven senior women offering testimonials about the company's integrity, ethics, and empowerment of women.

Privately some of the women in the ad say they felt pressure to participate. In interviews others say they were delighted to vouch for the company. "People are treated equally here regardless of race, gender, and culture," says Jessica Smith, a Fisher Investments vice president. "This is a place that really strives to do what's best for our clients, and that's much different from an industry that's just trying to make money." The woman-focused campaign referred readers to a website that asked for phone numbers, addresses, and emails—making it a source of fresh sales leads.

Back in his Woodside mountain redoubt, Fisher says he's proud of the culture he's built, both for men and women. (The company has launched a diversity and inclusion task force.) "Businessweek Best Places to Launch a Career," reads an award in the office. As he did when evoking the days of the family farm, he can sound like a kind of patriarch as he mourns what he calls "a world that doesn't exist anymore but existed when I was very young." Fisher wants young people to join his company out of college and stay until they retire, as they did in the age of the IBM lifer. He revels in noting managers who have been with him for decades. Ever since the backlash against his comments began, Fisher has expressed bewilderment that outsiders would react so strongly. "I realized that there's no place for that in the work world in any way at all, and I committed myself to never saying words like that again or any things like that again ever," he says.

During the interview he speaks slowly, as if measuring his words, and pauses frequently. Fisher says his own employees, with whom he's long worked side by side, never said anything to him when he made an off-color analogy—not once, not ever. "Those people know that I'm not perfect," he says. "But they also don't get offended by anything that I do because they know how hard I try for them and have tried for them for a really long time." Ⓑ —*With Janet Lorin*

We have Your Files Send bitcoin or else...



The time I sabotaged my editor with ransomware I bought for $150 on the dark web

By Drake Bennett

As you may be aware, there's money to be made on the internet. The question, of course, is how. Not everyone has the reality-distortion skills to start their own tech unicorn, or the Stanford connections to become an early employee there, or the indifference to sunlight necessary to become a world-class *Fortnite* gamer. Not everyone lives in the relatively few places where software engineering jobs are well-paying and plentiful.

If you're willing to break the law–or at least the laws of the U.S., a country you may not yourself call home–your options expand. You can steal credit card numbers, or just buy them in bulk. You can hijack bank accounts and wire yourself money, or you can hijack email accounts and fool someone else into wiring you money. You can scam the lonely on dating sites. All of these ventures, though, require resources of one kind or another: a way to sell the stuff you buy with other people's plastic, a "mule" willing to cash out your purloined funds, or a talent for persuasion and patience for the long con. And, usually, some programming skill. But if you have none of these, there's always ransomware.

Malicious software that encrypts data on a computer or a server, ransomware allows an attacker to extort a payment in exchange for the decryption key. Over the past year in the U.S., hackers hit the governments of Baltimore, New Orleans, and a raft of smaller municipalities, taking down city email servers and databases, police incident-report systems, in some cases even 911 dispatch centers. Hospitals, dependent on the flow of vital, time-sensitive data, have proved particularly tempting targets. So have companies that specialize in remotely managing the IT infrastructure of smaller businesses and towns–hacking them means effectively hacking all their clients.

As the number of attacks has grown, so has the scale of the victims and ransoms. "Ransomware really started as something that targeted individuals," says Herb Stapleton, a section chief in the FBI's cyber division. "Then it started targeting smaller companies without strong internet security protections, and now it's evolved to larger companies and municipalities." In 2019 the Weather Channel, the French media group M6, and the shipping services firm Pitney Bowes Inc. were all hit. Last summer two small Florida towns paid $1.1 million between them to unlock their data. According to the BBC, the European forensics firm Eurofins Scientific also paid off attackers, though it hasn't confirmed this. Travelex Ltd. also won't say whether it paid its multimillion-dollar ransom, though as I write this the global currency exchanger's website remains down, a month after it was attacked.

In a way, the rise of ransomware was foreordained. Simple, scalable, and low-risk, it makes for a particularly tidy cybercrime. Some of the most successful variants are thought to have emerged from the states of the former Soviet Union, where tech-savvy young people can get a high-quality education but not a commensurate-quality job. That combination has helped birth an industry that, in big ways and small, is tech's outlaw twin.

These days, prospective attackers don't have to create their own ransomware; they can buy it. If they don't really know how to use it, they can subscribe to services, complete with customer support, that will help coordinate attacks for them. Software as a service (SaaS in tech vernacular) is a mammoth global industry comprising everything from Salesforce.com customer-relationship management software to the Slack workplace messaging platform to Dropbox cloud storage. Search for "ransomware as a service" or "RaaS" in the dark-web chatrooms that function as both forums and bazaars, and you'll get pages and pages of hits. In the public imagination, hackers are Mephistophelian savants. But they don't have to be, not with ransomware. "You could be Joe Schmo, just buying this stuff up," says Christopher Elisan, director of intelligence at the cybersecurity firm Flashpoint, "and you could start a ransomware business out of it."

You could even be a liberal-arts-educated writer with a primitive, cargo-cult understanding of how an iPhone or the internet work, who regularly finds himself at the elbow of his office's tech-support whiz, asking, again, how to find the shared drive. In other words, you could be me. But could you really? I didn't start out on this article planning to try my hand at ransomware. A few weeks in, though, it occurred to me that if someone like me could pull off a digital heist, it would function as a sort of hacking Turing test, proof that cybercrime had advanced to the point where software-aided ignorance would be indistinguishable from true skill. As a journalist, I've spent years writing about people who do things that I, if called upon, couldn't do myself. Here was my chance to be the man in the arena.

In late 1989 medical researchers and computer hobbyists around the world opened their mailboxes–their actual physical ones–to find a 5.25-inch floppy disk containing an interactive program that evaluated someone's risk of contracting AIDS, at the time an unchecked, fatal pandemic. In all, 20,000 disks, from the "PC Cyborg Corporation," were mailed from London to addresses throughout Europe and Africa. But the disks had their own viral payload, an additional program that, once loaded onto a workstation, would hide files and encrypt their names, then fill the screen with a red box demanding a $189 "software lease." A banker's draft, cashier's check, or international money order was to be mailed to a post office box in Panama. The AIDS Trojan, as it came to be known, was the world's first ransomware.

Within weeks, an American named Joseph Popp was stopped on his way back to the U.S. from an AIDS conference in Kenya. An evolutionary biologist who specialized in baboons, Popp had caught the attention of security officers at Amsterdam's Schiphol airport because of his erratic behavior. According to a story later published in the *Cleveland Plain Dealer*, Popp, convinced he was being drugged by Interpol agents, had written "Dr. Popp Has Been Poisoned" on someone's duffel bag then held it over his head. When his own luggage was searched, authorities discovered a PC Cyborg Corporation seal. Popp was extradited from his native Ohio to London but eventually ruled unfit to stand trial: Among other things, he'd started wearing curlers in his beard to ▶

◀ protect against radiation. He returned home, self-published a manifesto urging people to reproduce more, and was starting a butterfly sanctuary in Oneonta, N.Y., when he died in 2006.

While Popp's motivations and mental fitness remain the subject of debate, the effectiveness of his ransomware does not. Most of the recipients of the disk didn't even load the pernicious file onto their computers. Among those who did, only a tiny number paid the ransom. For one thing, it was a pain, requiring a trip to both the bank and the post office. And it was unnecessary. One victim, a Belgian named Eddy Willems, was a computer systems analyst for a multinational insurer. "I'm not a cryptologist, but I was able to easily see what it did," he says. "And I was able to put everything back in something like 10 to 15 minutes." Willems and other security researchers quickly circulated free AIDS Trojan decryption programs, also by floppy.

It's a testament to Popp's imagination (and possible mania) that he attempted the scheme at all with the tools at his disposal. The idea of selling stolen data to the highest bidder wasn't new, but Popp's innovation, as Mikko Hypponen, chief research officer at the Finnish cybersecurity firm F-Secure, puts it, was "the realization that in many cases the highest bidder is the original owner of the information."

A decade and a half later, technology caught up with Popp's insight, first in the form of the internet. In 2005 security researchers starting seeing ransomware they dubbed Gpcode. (In cybersecurity taxonomy, it's customary to bestow the same name on a strain of malware and the anonymous gang behind it.) Gpcode smuggled itself onto computers as attachments to seemingly legitimate emails, a technique known as phishing, if it's done at scale, or spear phishing, if a bespoke email is aimed at a single target. Gpcode's later versions also used much stronger encryption to scramble the contents of files. The only real weakness was the payment step: Ransoms were settled up by prepaid credit or gift cards, and therefore flowed through the highly regulated pipes of the global financial system. Over time, with the help and prodding of law enforcement, payment processors grew better at spotting ransom payments and recovering at least some of the money.

That problem was solved—from the ransomer's point of view—by Bitcoin. By 2013 the cryptocurrency had become mainstream enough that a ransomware gang decided to give it a try, in a variant that would come to be known as CryptoLocker. Bitcoin isn't technically untraceable, especially when people convert it into dollars or euros or another fiat currency. Still, the forensics are difficult and time-consuming, complicated by "tumblers" and other anonymizing measures that obscure a transaction's path through the public blockchain. And there's no payment processor for law enforcement to ask to shut it down. All of which makes it ideal for ransomware. The only wrinkle is that most people are still unfamiliar with the mechanics of buying and sending cryptocurrency—it's not uncommon for ransomware attackers to encourage their victims to reach out if they want help with the process.

CryptoLocker was hugely successful. Three Italian computer science researchers traced 771 payments flowing into Bitcoin wallets connected to the ransomware variant, totaling 1226 Bitcoin ($1.1 million at the time), likely a very conservative figure. And the CryptoLocker recipe—phishing, strong encryption, Bitcoin—remains the dominant template for ransomware today. But there are others: Some attacks pretend to be from a law enforcement agency that's locked down your machine because of illicit material found there. (Some ensure the material is there by first downloading actual child pornography.) Some attackers start by luring victims to a compromised website where a software "exploit kit" can slip the malware through their browser's vulnerabilities. And some attacks turn out not to be ransomware at all: NotPetya, which caused billions of dollars in damages worldwide in 2017, lacked any means to reverse its encryption. It's widely suspected to have been a Russian cyberweapon built neither to steal information nor hold it for ransom, but simply to destroy it.

"With some of the more sophisticated cybercriminal organizations that we've found," says the FBI's Stapleton, "ransomware is just another tool to use for the monetization of their cyber activities." Ryan Olson, a vice president at cybersecurity firm Palo Alto Networks Inc., remembers monitoring a computer for a client after hackers found a way in. First they looked for credit card numbers. Then they searched for passwords or login credentials they could use to take over the network. "And then the last thing they did," he says, "just on the way out the door, was to install some ransomware and encrypt all the files."

When I started shopping around for my ransomware service in October, the community was still grieving GandCrab. Rolled out at the beginning of 2018, GandCrab wasn't the first RaaS, but its overwhelming success—the

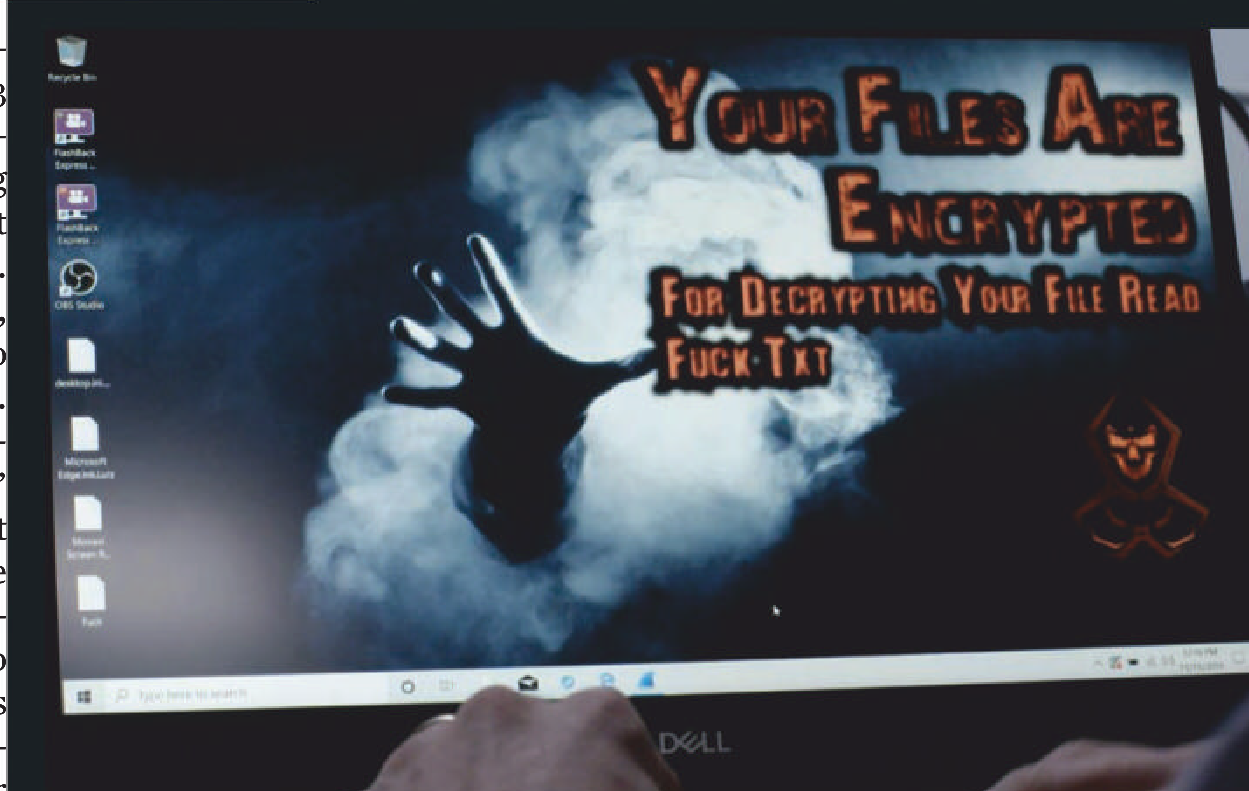


PHOTO: ARTHUR WOO

"EASY to use Ransomware Wanted"

cybersecurity firm Bitdefender estimates that at one point it comprised half of the world's attempted ransomware attacks—had demonstrated the model's commercial potential. The GandCrab gang had licensed their software to "affiliates," fellow hackers with access to compromised computers or lists of email addresses to phish, in exchange for a percentage of the total take. And they had diligently stayed ahead of the efforts of antivirus programmers, shipping out five major software updates, according to computer security researcher Brian Krebs.

Then, on May 31, 2019, a post on the Russian-language forum Exploit[.]in, announced GandCrab's "well-deserved retirement." Over 15 months, the writer claimed, its affiliates had pulled in $2 billion, $150 million of which had flowed back to the creators. Potential affiliates were left asking each other, in thread after thread, what the "next GandCrab" might be.

I'm not going to name the forum where I ended up finding my RaaS; I don't imagine many readers of this article are aspiring ransomware entrepreneurs, but I don't want to make things easier for anyone who is. Like most similar sites, it's on the dark web, a region of the internet that's been configured to be inaccessible by normal web browsers.

The forum's logo is a DOS-green skull. The posts are in English, though that's evidently not the first language of many of the authors, and the mores would be familiar to anyone who's spent time in an overwhelmingly young, male setting. Start a post with "Possibly a stupid question, but…" and someone will respond, "That is a really stupid question." Yet I was also struck by the willingness of participants to answer questions in detail, or just offer encouragement to an anonymous stranger on a range of criminal-mischief topics. "Below is an amazing list of resources," one October post begins. "It has the best books to check out, some websites that have practice hacking targets, a list of free virtual networks to practice on etc."

I wasn't the only clueless person on the site. "Easy to Use Ransomware Wanted," was the headline of an Aug. 31 post. Another read, "I'm browsing resources to acquire ransomware and the like. What specifically do I need to learn to use this stuff?" Some forum members see "noobs" and "script kiddies" like these as targets for scorn, others see them as opportunities. In the hacker ecosystem, the script kiddie's natural predator is the "ripper," a person who sells bogus goods or just takes the noob's Bitcoin payment and disappears. A lot of the back-and-forth on the forum focuses on whether whoever is peddling this or that software or service can be trusted.

I, of course, was a noob's noob, protected only by an awareness of how little I knew and the narrow scope of my ambitions. The plan, worked out with my editor, Max Chafkin, was that I would ransom a single target: him. Max, reasonably enough, wasn't eager to put his own actual personal information at risk, or that of our employer, which handles sensitive data for the world's wealthiest financial institutions. So the two of us bought cheap laptops and took care not to connect them at any point to our work internet. Max loaded his with a grab bag of files: some WikiLeaks documents; a pdf of the *Mueller Report*; some random pictures of cats, boats and monkeys; and what he described to me as "a bunch of Romanian academic papers." He then steeled himself for my attack, which I planned to announce to him in advance. What the plan lacked in realism, it made up for in safety, and, hopefully, our not getting fired.

Or arrested. Several states explicitly outlaw ransomware attacks, and legislators in Maryland recently introduced a bill that would criminalize the mere possession of ransomware. There are also broader federal computer fraud statutes, which were used in the 2018 indictment of two Iranian hackers allegedly behind attacks against Atlanta, Newark, and several large hospital systems. Ransomware prosecutions remain rare, but I, unlike most attackers, was actually in the U.S.

Still, the laws on the books so far seem to require the intent to attack an unaware, unconspiring victim. "A person shall not knowingly possess ransomware with the intent to use or employ that ransomware," says the Michigan law, "without authorization of the other person." My victim would be fully informed, indeed complicit—we were just two consenting adults taking risks on the internet. (If Max tried to pretend otherwise, I had emails.) The Bloomberg lawyer we talked to basically agreed. He did, however, suggest that, if I got the impression I was about to do business with the North Korean government or some other sanctioned entity, I should get back in touch with him.

None of this would have been possible without Joe Stewart. Stewart lives in Myrtle Beach, S.C., and runs his own blockchain development and security research company. Since last year he's been working with the cybersecurity company Armor, who put me in touch with him. He was one of the first analysts to describe the criminal uses for the hijacked computer ▶

"We are team we Are 18 TO 26 year old teens."

◀ networks known as botnets. He also coded an early reverse-engineered decryptor to allow victims of carelessly written ransomware to unscramble their files for free. Several years ago, he helped a couple of my colleagues identify a hacker working for the Chinese People's Liberation Army.

Stewart is quiet and in conversation wears a stony expression that I eventually learned to read as attentiveness rather than dismay. I'd been talking to him over the phone for a few months before I told him I wanted to try ransomware myself. He told me that once I got my hands on some, I could come down to Myrtle Beach and deploy it from his computer lab.

The ransomware service I ended up using was the first one I found, a few minutes after logging in to the first hacker chatroom I tried. Even at the time, there were warning signs. The consensus on the forum was decidedly skeptical. "[T]his guy has been spamming this shit for days now and acts like no one has ever done this before," one poster complained, "can't explain a simple sales pitch about it." The coder himself had weighed in, telling that critic to "stfu" before mocking him with an obscure reference to the coding language C# and signing off with another "stfu." Still, the inquiries I'd sent to other sellers had gone unanswered, and a couple others were clearly fake. And while the popular Ranion RaaS costs $900 a year, according to the possibly defunct ad I'd tried responding to, this one was only $150. I decided it was worth a try. The morning of Oct. 23, I paid my 0.020135666 Bitcoin and sent a note through Protonmail, an encrypted email service, to the address on the payment page. A half-hour later, I got a response: "Hello sir, your account is activated now!!! sorry for the delay!"

The web page I could now access was white, with a black Mercator projection of the world beneath a row of tabs. Clicking on "Dashboard" called up an empty table with the heading "Victims." Its columns would presumably populate once I had multiple campaigns going, with the names of each and their corresponding decryption keys. A second tab, "Builder," took me to a page that created my malware for me. I typed in a Protonmail address for my victims to use and specified the kind of operating system on my target computer. (The vast majority of malware is written for Microsoft Windows; on Stewart's suggestion, I was using the Linux operating system, decreasing the chances of getting hacked myself.) I clicked on a button labeled "Build," and a box popped up asking me if I wanted to download a file. After a few moments' hesitation, I clicked yes. I now had a piece of malware on my computer. I attached it to an email and sent it, clearly marked, to Stewart.

By the time I showed up in Myrtle Beach on the morning of Nov. 11, Stewart had run it on a special quarantined computer he used to defuse and dissect malware. High-quality variants are often coded so they won't deploy if they sense they're in a "sandbox" such as Stewart's, or they have dormancy periods longer than the attention span of the average security researcher. My malware wasn't so equipped, one of several traits that suggested I hadn't procured top-shelf product. The ransomware service itself had been built not on some cryptocurrency-accepting, law-enforcement-unfriendly overseas web hoster—which would, as Stewart put it, have been "best practices in the criminal underground"—but on Amazon Web Services' cloud. A subpoena could produce the name attached to the Amazon account, potentially leading law enforcement directly to my provider.

The biggest snag, though, was the decryptor I got from the site. After receiving my ransom payment, I was supposed to send the file to my victim along with an alphabetical key. But when Stewart and I tested it out, it didn't work—the files in Stewart's sandbox stayed encrypted. In the short term, that wouldn't be my problem: I'd already be paid by the time Max discovered this flaw. But just as with traditional kidnapping, the information-ransoming business model works only if victims are at least moderately hopeful they'll get their data upon payment. As a result, ransomers often go out of their way to show their good faith and dependability. It's common practice to decrypt a few files for free as proof of concept. Some RaaS dashboards dispense with the term "victim" entirely: Screenshots of the Ranion variant taken by Armor analysts show a table headed "clients" instead. Elisan at Flashpoint forwarded me a note one ransomware gang sent their victims that laid out security measures they could take to avoid future attacks.

For Stewart it had been easy enough to throw together a decryption workaround. "I'm guessing he's never actually tested the code in a real environment," he wrote me in an email. Rather than send Max a key to type or paste in himself, I'd need to send him a few lines of code and instructions for where to put them. It was inelegant, but it was the sort of thing that I figured I could walk him through.

But as Mike Tyson famously said, everyone has a plan until they get punched in the mouth. On the appointed morning, sitting in Stewart's windowless computer lab, I logged in to my specially purchased laptop, opened up the anonymizing Tor browser, and clicked on the bookmarked link for the dark-web address of my RaaS control panel. But instead of the Mercator projection and the row of helpful tabs, I saw only a cryptic note. “WE ARE TAKING DOWN THE WEBSITE,” it read, “IN ORDER TO LAKE OF THE USERS.” My first thought was to wonder if “lake of the users” was a coding term I was unaware of, something related to torrents or streams. My second, more practical thought was that I had better email tech support.

“Hi, I see you took the website down,” I wrote to an encrypted email address containing the name of the comic-book antihero Johnny Blaze. “How do I keep access?” The answer came back an hour later: “You have to buy pro version if you want to keep using this.” The pro version, I learned, would cost an additional $500 on top of my $150. When I’d signed up two and a half weeks earlier, the pro version had cost $300, though my provider was at pains to point out that it now featured Android-compatible malware. What became clear in a back-and-forth that went on for much of the morning was that my RaaS had ceased to be a service at all. The server, along with the website, had been taken down, though, this, too, was presented as an opportunity: I could host it myself. At Stewart’s prompting, I asked how I’d be able to get my decryption keys now that the site was taken down. Johnny Blaze informed me apologetically that they’d forgotten to back up their database.

Had the whole thing been a scam? Was I dealing with a ripper? If so, why had they gone to the trouble to stand up an actual service and create actual, if cruddy, malware? In retrospect, it seems more likely that my not particularly adept suppliers, their product having flopped, had decided to close up shop for “lake” of enough paying users—it’s conceivable I was their only one—and were seeing if I might want to buy them out.

The problem wasn’t just the decryption keys. Without a server, ransomware like mine was all but inert. As Stewart patiently explained, before encrypting any files, the program first generated the decryption key and sent it back to the RaaS server to pop up in my dashboard. If the server didn’t answer, the program wouldn’t proceed. Deflated, I wrote Johnny Blaze asking if I was entitled to a refund. I was told, curtly, that I was not.

“I think,” Stewart said, “there’s a way around this.” Sitting at one end of the room on a black leather couch, he hunched forward over his laptop. Minutes later, he sent me a line of code and instructions to forward to Max, at that moment sitting in New York in front of his burner Dell sending me prodding text messages. Stewart’s fix replaced some code in Max’s computer’s operating system so that when the malware told it to reach out to the now defunct Amazon web server, it would reach out to one of Stewart’s servers instead, which would then acknowledge receipt of the key and give the green light to encrypt. My ransomware service provider, in other words, was now Stewart.

And so, the groundwork laid, I launched my reverse-engineered puppet ransomware. An instant later, Max received an email from a trusted colleague: “Hey, Max, sorry it’s so late and that it’s such a giant file, but here’s the draft (attached). Let me know what you think!” He clicked on the “draft,” only for his antivirus software to flag it and warn him not to open it. (Well-designed computer viruses, like actual viruses, envelop their payloads in obfuscatory layers of code; mine announced itself like a man going through customs with cocaine trickling out of his pants leg.) Gamely, Max opened the file.

At first, nothing happened. A few minutes passed, and we started texting back and forth about trying again. “Then, I looked away from my screen for a second,” Max recounts, “and suddenly there was that crazy message.” While ransomware designers often opt for a blandly informational aesthetic, ours had aimed for something more demented. Max’s screen filled with the image of a cloud of smoke, a pale, grasping hand reaching out from its center, and the scrawled words “Your Files are Encrypted.” Max’s WikiLeaks downloads, his cat photos, his Romanian monographs, all of them were gibberish. (*The Mueller Report*, mysteriously, was unaffected.)

Max wrote me a note full of theatrical betrayal and outrage, to which I responded in a tone of bloodless professionalism, telling him the ransom ($100) and my Bitcoin wallet address. If I thought he was dragging his feet, I could have given him a deadline, after which the ransom would increase or I would destroy the decryption key. Once I got an alert from my cryptocurrency app that his payment was processing, I sent him the decryptor with Stewart’s jury-rigged key. Max ran it as instructed and watched as his files returned, one by one, to normal. He got his data back, I got my money. (As agreed, I did eventually return it.) But the grasping hand image didn’t ever go away.

In the end, it’s hard to claim that my ransomware and I really passed our test. The cybercrime singularity appears a ways off. When I returned from Myrtle Beach, I contacted a particularly knowledgeable and helpful-seeming poster on one of the dark-web forums. After insisting on some ground rules and taking various steps to verify who I was, he (or she) agreed to talk. “In regards to types of malware, I have coded and used almost anything you can think of: backdoors, rats, cryptors, droppers, data destroyers, CSRF and phishing pages, ransomware, etc.,” he wrote. He was dismissive of much of what you could buy—in his description the recent surge in ransomware attacks sounded almost like a bubble: “Many of those ransomware projects are just complete junk,” he wrote, amateur coders finding something on the software development platform GitHub, making a couple cosmetic changes, and then trying to pass it off as their own. “In the end, RaaS does allow for higher numbers of less experienced people to have access to ransomware, but the most successful attacks I know of are still carried out by fewer people using more private code.”

Of course, an inexperienced horde launching incompetent ransomware attacks can still cause plenty of damage. And every master was once a script kiddie. When I emailed my RaaS suppliers asking to interview them for this story, they were more than happy to talk, though they were in the end typically gnomic. “We are team we are 18 to 26 year old teens,” Johnny Blaze wrote back. One thing they did emphasize was that the RaaS I had tried was old news. The team was already coming to market with a newer product, something they promised would be “much better.” Ⓑ


PROTEST
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MIETE ALT
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NO CITY HATES ITS LANDLORDS QUITE LIKE BERLIN

ACTIVISTS SAY THE NEW FIVE-YEAR RENT FREEZE IS MERELY A GOOD START. WHO'S UP FOR EXPROPRIATING SOME PRIVATE PROPERTY? BY CAROLINE WINTER AND ANDREW BLACKMAN

On the ground floor of a tan stucco building in the Schillerkiez neighborhood of Berlin sits an anarchist bar called Syndikat. Its windows are plastered with anti-Nazi and anti-gentrification stickers. Motörhead and German punk bands play on rotation, and a small draft beer costs less than €2.

Since 1985, Syndikat has served as a kind of cigarette-smoke-saturated living room for misfits, students, immigrants, and hard-up neighbors. In September 2018, however, an eviction notice from the bar's landlord, Firman Properties S.a.r.l., appeared in the mail. That's when Syndikat's co-managers took on a surprisingly difficult challenge: finding out who owned their building.

"We've had a few owners, but the most recent had an address in Luxembourg," says Christian Schulte, a 42-year-old sociologist with a septum piercing who's helped run Syndikat for 13 years. "When we finally found the company's number, no one ever picked up."

Wondering exactly who he was dealing with, Schulte enlisted friends near the Luxembourg border to drive to the company's headquarters. At the address listed on the bar's lease they found an unremarkable commercial building housing a shoe store and a tanning salon—and an intriguing mailbox. On a sheet of paper posted nearby was a list of 76 companies associated with that mailbox, most of them apparently property management firms. Among them was Syndikat's landlord.

Schulte and his colleagues scoured the internet and Berlin housing logs and discovered that the companies all shared the same three or four managers. They also found that roughly two dozen of the companies had been used to purchase more than 3,000 apartments throughout Berlin. Luckily for Syndikat, some of the companies were also active in Denmark, where, unlike in Germany and Luxembourg, owners must reveal their true identities. (In 2020, this became true for all European Union countries.)

That's how, after about two weeks of fact-finding, Schulte's team identified the actual owners of Firman Properties: Mark, David, and Trevor Pears, three reclusive brothers from London who own a majority of the privately held William Pears Group property company and, according to the *Sunday Times* Rich List, are worth about $4 billion. "They're very secretive," Schulte says. "One of them, you can't even find photographs." (Schulte isn't his real name; he uses a pseudonym when talking to the press about real estate because he's looking for a new apartment.)

Soon, journalists caught wind of the story. In May the Berlin newspaper *Der Tagesspiegel*, together with the German investigative group Correctiv, confirmed Syndikat's reporting. Using information from the Panama Papers, they also revealed that the Pears brothers collected at least $53 million in Berlin rents and sales in 2017, while using standard real estate loopholes and shell companies in the British Virgin Islands, Cyprus, and Luxembourg and reported paying $197,000 in taxes on that income. Syndikat also found that the Pearses' various Berlin companies had forced out a kindergarten and a pottery studio and had tried to remove a flower shop and a decades-old hardware store, presumably to charge higher rents. The Pearses didn't respond to requests for comment for this story.

In Berlin, revelations about the Pearses' real estate ventures stoked a growing rage against big landlords and property speculators. Since 2009 rents in the city have more than doubled. For people looking to buy rather than rent, it's at least as bad—in 2017 alone, property values jumped 20.5%, the highest increase for any major city in the world, according to the real estate consulting firm Knight Frank. And while many factors are at play—most notably, a giant influx of new residents and a shortage of housing—Berliners tend to see greedy landlords as the problem.

Accordingly, Germany's capital is taking extreme measures to stay (relatively) affordable and not go the way of San ▶

◀ Francisco or London. Beginning in early 2020, Berlin's left-leaning government will freeze rents for five years. Landlords will be required to show new tenants the most recent rental contracts to prove they aren't jacking up prices. They'll also have to follow new rent-cap rules, which for many landlords could mean lowering rents by as much as 40%. Those who don't comply will be hit with fines as high as €500,000 ($553,000) for each violation.

Even more radically, tenant groups and thousands of activists are demanding that large corporate landlords be expelled from the city altogether, their property expropriated. The goal is to get the government to buy back roughly 250,000 properties—almost one-eighth of Berlin's housing stock—and turn them into public housing. And while the move may sound far-fetched, it's won support from anywhere from 29% to 54% of Berliners, according to various polls. Two of the city's three ruling political parties have even endorsed a nonbinding public referendum on whether to force big landlords to sell their real estate to the government. (The biggest party, the Social Democratic Party, or SPD, is against the move, as is German Chancellor Angela Merkel's Christian Democratic Union. They've signaled their intentions to challenge the new regulations in court.)

Berlin's landlords, big and small, are reeling. The city's publicly traded real estate companies, whose share prices fell for most of the summer after the government announced the planned freeze in June, complain that Berlin's new regulations will scare off needed capital. Fewer companies will invest in modernizations to make buildings more appealing or energy-efficient, they say, and construction of new units may suffer, which would exacerbate Berlin's shortages. “Almost 30 years after the fall of the Berlin Wall, it seems that some people want the former conditions back,” Michael Zahn, chief executive officer of Berlin's largest publicly traded landlord, Deutsche Wohnen SE, said in an earnings call in November, referring to the former East Germany's all-controlling government. “Tenants and landlords will face great uncertainty. That's a poison pill for investment.”

THE ANARCHIST BAR WHOSE EVICTION NOTICE INSPIRED A MOVEMENT TO UNMASK ABSENTEE LANDLORDS

Until about 15 years ago, Berlin was unimaginably cheap. Although vibrant and beloved by artists and students for its do-it-yourself culture, throbbing techno scene, and world-class cultural institutions, the city had little industry, few jobs, and a glut of derelict apartments. That all began to change as Berlin became the premier startup hub in continental Europe. Then big companies moved in, including Amazon, Daimler, Sanofi, and Sony, as did foreign investors.

Today, Berlin is still affordable by international standards. A decent apartment in a good part of town costs about half as much as a comparable place in New York and far less for those lucky enough to possess an old lease. More than 80% of Berliners rent, in part because renting was, until recently, so cheap. Tenant regulations also distinctly favor renters, while federal tax laws offer no incentives to homeowners. Because commercial rents are also relatively inexpensive, the city has preserved a thriving landscape of independent bookstores, one-off coffee shops, storefront artist and design studios, and thousands of other small businesses.

In this city of tenants, a certain number of them socialists and ex-communists, animosity toward landlords finds frequent expression. In April 40,000 people filled the streets to protest what they call *Mietenwahnsinn*, or “rent insanity.” (It's a play on the German term for mad cow disease, *Rinderwahnsinn*.) A few months later, the windows of one branch of high-end real estate broker Engel & Völkers AG were smashed. Graffiti a few blocks away read, “CAPITALISM IS THEFT” and “*Gentrifick dich*,” which basically means, “F--- yourselves, gentrifiers.” Two vans belonging to Germany's biggest real estate company, Vonovia SE, were also bashed in, spray-painted, and set ablaze. “We took care to insure that no other cars caught fire,” wrote the anonymous perpetrators on an anarchist website.

Protest culture, squatter movements, and progressive tenant-rights groups are perhaps more entrenched in Berlin than elsewhere, but the city's plight isn't unique. In much of the U.S., home prices are rising at twice the rate of wages, and almost half of renters spend more than 30% of their income on rent, compared with 24% of renters in 1960. A renter working 40 hours a week and earning minimum wage can't afford a two-bedroom apartment in any county across the U.S., according to the National Low Income Housing Coalition. Partly as a result, homelessness is soaring. In Oakland, the homeless population climbed 47% in the past two years. In New York City the number of homeless schoolchildren grew 70%, to 114,000, in the past decade.

INSIDE SYNDIKAT

Elsewhere, affordability numbers look similarly dire. Throughout Spain, average rents jumped 49% over the past five years, while average salaries rose only 4.3%. In Toronto, a 2019 report found that housing costs over the past decade grew four times faster than income.

A main cause of the problem is a shortage of housing as a growing number of people move to cities. According to the United Nations, 68% of the world's population will live in urban areas by 2050, up from 55% today. (In Berlin, more than 40,000 newcomers arrive every year. In November more than 1,700 people reportedly showed up to view a single moderately priced apartment in a desirable neighborhood; some waited in line for 12 hours.) The expansion of Airbnb Inc. and other short-term rental platforms has only aggravated the shortage.

Berliners aren't entirely wrong to focus their ire on big investors and landlords. For decades private equity firms and hedge funds have bought up swaths of affordable housing around the world. The trend accelerated after the 2008 financial crisis, when interest rates fell drastically. Investor money rarely goes into construction. With few exceptions, the strategy is to buy existing housing, renovate it, and raise rents. At the same time, many governments are investing far less in affordable housing, while developers tend to prefer building expensive apartments.

Last March, Leilani Farha, UN Special Rapporteur on Adequate Housing, singled out Blackstone Group, the private equity firm, for a practice she says has become common throughout the industry. "In many countries around the world," she and a co-author wrote in a public letter to the firm, "Blackstone and its subsidiaries have been targeting and purchasing multi-family residences in neighbourhoods deemed to be 'undervalued.' In each case the pattern is similar. A building or several buildings are determined to be located in an undervalued area, which often means they house poor and low-income tenants. Blackstone purchases the building, undertakes repairs or refurbishment, and then increases the rents—often exorbitantly—driving existing tenants out, and replacing them with higher income tenants."

There's nothing new about this strategy, but Farha says Blackstone and other big investors and real estate firms are executing it on an unprecedented scale. Blackstone responded to the letter in a public statement, saying the UN complaint contained several inaccuracies and that Blackstone was in fact "helping to address the undersupply of housing by bringing capital, expertise and professional management to the residential housing sector."

In Berlin the government is partially responsible for the dominance of big real estate firms. Before the reunification of Germany in 1990, East Berlin was communist and West Berlin—a tiny capitalist island within the Soviet bloc—lived off subsidies from the West German government. After the wall fell, the subsidies ran dry and Berlin racked up billions of dollars in debt, which the local government attempted to pay down by selling what it could to private companies. That included, from 1997 to 2004, the city's water utility, half its electricity producers, and more than one-third of its public housing, or about 200,000 apartments. (Berlin has since remunicipalized its water and electricity.)

Global companies swooped in almost immediately. In a sale contested by the public at the time, U.S. private equity firm Cerberus Capital Management, backed by Goldman Sachs, bought Berlin's public housing association, paying \$448 million for 66,700 housing units—about \$6,700 per unit. In 2013 Cerberus's holdings became part of what is now Berlin's biggest and perhaps most reviled publicly traded landlord, Deutsche Wohnen.

Today, Deutsche Wohnen is headquartered in a giant, meticulously renovated former Nazi office building in Berlin's peripheral Wilmersdorf district. "From above, it's shaped like an H," says Philip Grosse, the company's boyish 49-year-old chief financial officer, ruefully recounting the building's origins. "But don't let that give you the wrong impression about us."

Deutsche Wohnen now owns more than 110,000 apartments in Berlin and counts the global investment management company BlackRock Inc. (not Blackstone) as its biggest investor. For years, newspapers have excoriated the company for increasing rents while repeatedly leaving hundreds of tenants without heat or hot water during Berlin's icy winters. In 2017 the CEO, Michael Zahn, hired three bodyguards after receiving death threats. More recently, Deutsche Wohnen inspired the creation of the city's biggest expropriation advocacy group, which calls itself Expropriate Deutsche Wohnen & Co. ▶

PREVIOUS SPREAD: PHOTO ILLUSTRATION BY 731; PHOTOS: GETTY IMAGES (1); REDUX (7). THIS SPREAD: PHOTOGRAPHS BY JOHANNA-MARIA FRITZ FOR BLOOMBERG BUSINESSWEEK

◀ Grosse buries his face in his hands when confronted with complaints about the company. "I'm not suggesting that everything runs 100% perfect in our organization. We could do better," he says, adding that Deutsche Wohnen supplies space heaters when the heat goes out, automatically applies rent reductions until things are fixed, and consistently invests in the upkeep and improvement of properties. "I understand that the shortfalls in Berlin's housing market are causing a lot of people headaches, but, if I look at the kind of product we are offering, it's affordable to many people," he says.

From 2012 to 2018, Deutsche Wohnen shareholders saw annual returns of 24.5%; and in 2018, the company's net income was about $2 billion. Anticipation of the rent freeze, however, wiped roughly $5.3 billion, or 31%, off the company's market value last summer. (It's since recovered by more than half.) Deutsche Wohnen says it stands to lose $363 million in income over the next five years because of the freeze and possible rent reductions. In July the city also stopped Deutsche Wohnen from purchasing more than 670 apartments along Berlin's Karl-Marx-Allee, the neoclassical, Stalin-style boulevard once used for communist marches in East Germany. Instead, Berlin spent about $1 billion to buy the residences. "It is my firm intention to buy apartments wherever possible so that Berlin regains more control over the housing market," Berlin's mayor, Michael Müller, said at the time.

"I'm a very rational guy, and what's happening here is not rational," says Grosse of the coming regulations and Berlin's flourishing antipathy toward landlords. As soon as this month, rents will be capped at as little as $4.30 per square meter for older apartments with few amenities, and as much as $10.90 for newer apartments with better amenities. (The current average price in central Berlin is about $12 per square meter, according to a report by the newspaper *Die Zeit*; in Munich it's $19.30.) Later in the year, tenants paying more than 120% of the government-determined prices will be allowed to take their landlords to court to seek a reduction. Apartments built after 2014 will be exempt, as will government-controlled housing (where rents are controlled anyway). Beginning in 2022, all landlords will be permitted to raise rents 1.3% annually, or in line with inflation. "But the law doesn't take into account location or quality of building," Grosse says. "You might have someone in a beautiful old building in a central location paying less than someone in a less-nice prefabricated building from the '70s out in the suburbs."

Signaling frustration, Deutsche Wohnen says it's reviewing a planned $1.1 billion in new construction spending. Other landlords, including large companies and private investors, have also threatened to pull back. Berlin's construction industry is worried. In December more than 240 construction vehicles, everything from small vans to crane trucks, converged on the Brandenburg Gate to protest the rent cap. Organizers of the demonstration, which also included landlords and landlord associations, warned that Berlin's rent freeze will destroy jobs.

"Who will want to make long-term investments in a city that deals with investors in this way?" asks Michael Voigtländer, an economist with Germany's IW Economic Institute. In a recent report the institute describes Berlin's coming rent freeze as a catastrophe that "threatens to cause considerable damage to both the housing market and Berlin as a whole."

International examples also give reason for pause. A 2019 Columbia Business School study found that expansion of rent controls and housing policies in New York City reduced housing inequality and led to increased well-being. But a 2017 study found that rent control in San Francisco had the unintended effect of advancing gentrification, as landlords took rental apartments off the market and sold them. In Portugal, decades of rent freezes and rent-control laws left the country with a plague of crumbling buildings that landlords couldn't afford to maintain. After the regulations were lifted in 2012, the market began booming. In Sweden, which has perhaps the most

DEUTSCHE WOHNEN'S GROSSE

strictly controlled market in the world, the waiting list for a regulated apartment in Stockholm is almost 675,000 deep. To bypass the wait, which can take as long as 20 years, people sublet apartments, likely paying more and forgoing the security of a government contract. Grosse, of Deutsche Wohnen, warns that black and gray markets will likely result from Berlin's rent freeze, as they did in West Berlin, which also had strict rent regulations before the fall of the wall.

Berlin's senator for urban development and housing, Katrin Lompscher, is credited as the "Mother of the Rent Freeze." A member of Germany's left-wing party Die Linke, Lompscher grew up in East Germany and, as a construction worker, laid heating pipes for buildings before studying architecture at Germany's Bauhaus University. She dismisses international comparisons and the concerns of big landlords. "The politics of housing and urban planning are city-specific. It's good to look around, to the right and the left, but then we have to decide what's right for Berlin," she says.

"The idea behind the rent freeze is to create breathing room so that Berlin can build more apartments," Lompscher says. She is counting on a combination of municipal and private businesses to construct 20,000 apartments each year during the five-year rent freeze. That may be achievable, considering that 17,000 homes were built in Berlin in 2018.

"Some companies have threatened to withdraw from Berlin," acknowledges Lompscher. "These threats shouldn't be taken seriously. As a business you want to be at the heart of things, and Berlin is still an attractive city, despite the fact that we're implanting a different strategy to improve the lives of those who live here." At any rate, she adds, Deutsche Wohnen has never built a single apartment in the German capital.

"Recently I got to see New York through the eyes of my son, who's a big music fan, and he was shocked to find out it's hard to go out and hear heavy metal because the clubs have all been priced out," says Lompscher. "Here in Berlin, you can go out and hear metal at five clubs every night. And we want to keep it that way."

Scaring off investors like Deutsche Wohnen, that's exactly what we want," says one activist tenant who uses the alias Ingrid Hoffmann when speaking with the press. "We have no use for them; they only want to make a profit with our rent money." Despite torrential rain, Hoffmann, 69, has just arrived by bike at a Berlin restaurant wearing head-to-toe rain gear. Feisty, with short hair and sparkling turquoise eyes, she looks excited to take on Berlin's corporate landlords.

A former translator, Hoffmann joined Expropriate Deutsche Wohnen about two years ago after Deutsche Wohnen increased her rent by 10 percent, which she says forced her to come out of retirement and get a part-time job doing typist work for banks. She's also dissatisfied with the company's services. "Every year when it's cold out, the heat stops working, and if you complain, nothing happens," she says. "Elevators are also a problem. I'm on the 11th story, but the elevator often doesn't work. Then I walk up."

At first, Hoffmann didn't like the term expropriation. "It gives people the chills, makes them think of a Communist sneaking up with a knife between his teeth," she says. But she concluded it would stir up necessary publicity and get people talking.

According to city estimates, the government would have to pay from €29 billion to €36 billion for about 250,000 apartments. Expropriate Deutsche Wohnen, in a pitch that's radical even by Berlin standards, counters that the government should reimburse the companies only for what they originally paid, plus a bit more to account for renovations, modernizations, and inflation. That price would be as little as €8 billion, and Hoffmann says the city could pay the landlords just 20% now and the rest over time, as rent money comes in. Asked if the money wouldn't be better spent on building more housing, Hoffmann says, "Yes, they should do that, too—but they should have started building a long time ago."

To be clear, Hoffmann's group proposes the socialization of all properties belonging to landlords who currently own more than 3,000 apartments. "If a landlord has 7,000, we won't take just 4,000," Hoffmann says. Those with fewer than 3,000 would be safe. After remunicipalization, the properties would be run as a public nonprofit, similar to Germany's public radio and TV.

Whether or not expropriation is realistic, a recent study, funded by Berlin's Rosa Luxemburg Foundation, examines differences between the city's public landlord, Gewobag, and its 12 biggest for-profit landlords. It shows that, on average, for-profit companies put less into upkeep than Gewobag (4% vs. 17%) and more into modernization (18% vs. 12%), a cost that can be passed along to tenants. They also buy more properties (60% vs. 44%) and build far fewer new apartments (1% vs. 27%). "As a result, rents for private companies climb about 5% per year, much faster than with Gewobag, where they grow with slightly more than 2%," writes Christoph Trautvetter, co-author of the study and one of the journalists who helped Syndikat research the Pears brothers. In a follow-up study, Trautvetter suggests that publicly traded companies aren't necessarily the worst problem for cities. The larger one is anonymous investors that use loopholes to extract wealth while paying very few taxes.

In late October roughly 100 Syndikat patrons and neighbors showed up for the bar's eviction hearing. Syndikat's regulars were dressed mostly in black, with plenty of facial piercings. There were also a few elderly neighbors, as well as colorful characters, including a middle-aged man with flowing auburn hair, painted-on fluorescent-orange eyebrows, and a dirty stuffed animal poking out of his jacket pocket.

Schulte looked nervous. "You know, the Pearses, they have a philanthropic foundation and, according to their website, they want to help people and promote community," he said. "That's exactly what Syndikat has always tried to do. When someone in the neighborhood needs to borrow a drill or a ladder, they come to us. When a grandmother from across the street can't pay for her medicine, she comes and asks if we can help, and of course we do." Syndikat's bartenders, he said, pool their tips and communally decide what to spend them on.

But the neighborhood has changed. "It's absolutely mind-bending," said Schulte. "In 10 years it's gone from one of the poorest corners of Berlin to a famous global hot spot." Already, Firman Properties had converted some of the building's other units into furnished short-term housing. "It's mostly Americans who come," Schulte said. "They call in noise complaints starting at 7 p.m."

To everyone's disappointment and no one's surprise, the Pearses didn't show up in person for the hearing. Instead, Firman Properties sent two lawyers. "My clients didn't want to have to sit through all this," one told the judge, gesturing with her head toward Syndikat's motley supporters packed behind her in the courtroom and the halls beyond.

One month later, the verdict was in. Syndikat, the neighborhood bar, would soon lose its home in Berlin. Ⓑ
—*With Todd White and Benjamin Stupples*

PHOTOGRAPH BY JOHANNA-MARIA FRITZ FOR BLOOMBERG BUSINESSWEEK

A Bonus That Will Appreciate Appreciate Appreciate Appreciate Appreciate Appreciate Appreciate Appreciate Appreciate

In an ever-shrinking bonus season, here's how to make your windfall go further

February 10, 2020

Edited by Chris Rovzar

Businessweek.com

PURSUITS

The era of big bonuses, you might say, is over. Earlier this year, Morgan Stanley, Goldman Sachs Group, Citigroup, and many others announced they'd be cutting back on investment banker bonuses in some shape or form. It doesn't matter how well the company is doing: JPMorgan Chase & Co. is keeping annual bonuses at its corporate and investment bank unchanged this year despite notching a record $36.4 billion profit in 2019. On the other side of the spectrum, Deutsche Bank AG executives have agreed to forfeit the component of their bonus that reflects personal performance as the lender prepares to unveil its biggest annual loss since 2015.

The pattern reflects a general reckoning across banking as electronic systems de-emphasize rewarding individual successes in favor of more broad group performance. "It's a team sport now," Chris Purves, head of UBS Group AG's Strategic Development Lab, told Bloomberg in January.

With this in mind, it may be wise to look at the dwindling reward as a chance to make another good investment. Think of a bonus in both senses of the word "appreciation"–a recognition of your worth, as well as something that will rise in value. It doesn't mean you must spend it only on the boring and practical; there are plenty of ways to have fun, or do some good, that have future upsides. Here are some of our favorites.

PLAY THE PROPERTY GAME

An historic spread, listed by Christie's International Real Estate, is set on more than 200 rolling acres in New York's Hudson Valley. It has 12 bedrooms, a tennis court, greenhouses, and a sheep barn.
Price: $3.95 million
Future value: With a working farm and the possibility of rental income as a corporate retreat, the property is largely self-sustaining.

Looking for a bigger ticket? A $28.8 million listing via Sotheby's International Realty has 15,000 square feet of interior space overlooking Lake Lugano in Switzerland. There's a spa and a pool on the first floor, entertaining areas on the main floors, and bedrooms on the upper levels of the 19th century art nouveau villa. Stock markets may go up and down, but Swiss real estate has been a rock-solid monetary refuge for more than a century.

World Central Kitchen workers

INVEST IN A BETTER WORLD

Elevate Destinations' 12-day volunteering adventure in Sri Lanka lets travelers explore ancient monuments and cave dwellings. Then they help the country's Wildlife Conservation Society study elephant behavior to lessen the local conflict between people and pachyderms.
Price: From $3,500 a person
Future value: Each Elevate custom eco-luxury booking pays for a group of local children to visit cultural sites in their own country.

Or donate to World Central Kitchen: José Andrés's charity has fed disaster-hit areas around the world since 2010. A $10,000 donation will enable a farmer to buy a greenhouse or allow a small-scale food producer to get a walk-in cooler. WCK also offers food-job training to underserved communities, so you're investing in people as well as the world. And if your bonus is in the form of stocks, you can donate to WCK with shares or via a donor-advised fund.

SHARPEN YOUR KITCHEN TOOLS

A good knife is an invaluable piece of kitchen equipment, and it's what great chefs credit as their secret weapon. Bladesmith Quintin Middleton in Saint Stephen, S.C., custom-makes his high-carbon steel knives to the exact specifications requested by each customer.
Price: From $480 for a 9-inch knife (above)
Future value: Besides enhancing your kitchen skills, a well-made knife crafted by a master from high-carbon steel also negates the need to constantly replace it.

BUY A PIECE OF HISTORY

Les Diners de Gala (1973) is a first-edition selection of avant-garde menus and recipes that artist Salvador Dalí completed at age 68 in honor of his wife, Gala. Available at Bauman Rare Books in New York, it has color plates and in-text photographs and illustrations on almost every page.
Price: $13,500
Future value: This extravagant book is made exceptional thanks to a bold inscription by Dalí himself with a hand-drawn sketch of a shooting star above his name.

KNIFE: COURTESY MIDDLETON MADE KNIVES. BRANDY: COURTESY BRANDY CLASSICS. COURTESY WORLD CENTRAL KITCHEN. HUDSON VALLEY: PHOTOGRAPH BY TERRY HOLLAND/LANDVEST. SNEAKERS: COURTESY NIKE. BRACELET: COURTESY FD GALLERY. DUBUFFETT: COURTESY SOTHEBY'S. DOG: JOHN EWING/PORTLAND PRESS/GETTY IMAGES

ACHIEVE HIGHER SPIRITS

We all think we know whiskey. Cognac represents the chance to become an expert in a different, growing category. This bottle of Hermitage Cognac Marie Louise, aged for 60 years and the 2018 Cognac Masters winner, has the bonus of a limited-run crystal decanter.

Price: $2,000

Future value: Cognac is steadily appreciating, especially legendary bottles such as Rémy Martin Louis XIII.

If you prefer putting your wallet behind wine: Bordeaux is still on the way up. A bottle of 2016 Château Les Carmes Haut-Brion is a stunning option for $169; fine wine exchange Liv-ex put it in its Power 100 for the first time in 2019. Price performance, meanwhile, is up 18% over the past year—much better than the first growths.

BRING IN SOME BLING

Designed around 1990, the Cartier Panthère gold bangle bracelet, available at FD Gallery in New York, includes three different colors of gold. The open spiral ends in two sculpted gold panther heads.

Price: $8,800

Future value: Cartier is the most valuable and appreciated brand of jewelry available—even more so when it's vintage.

FIND A BEST FRIEND

Second Chance Animal Rescue of Puerto Rico is a 501(c)(3) nonprofit established in 2000 in Villalba. The organization rescues, rehabilitates, and secures permanent homes for the island's abandoned dogs.

Price: $400 (adoption fee includes vaccinations and spaying or neutering)

Future value: Your heart will grow bigger than you even thought possible.

FASHION YOURSELF FOR A BETTER FUTURE

Alongside handbag investment staples such as the Birkin and Kelly is a relative newcomer—the Chanel Boy Bag.

Price: From $3,900

Future value: The Boy's average resale value is 73% of MSRP, 1.6 times stronger than handbags overall, according to the RealReal.

If you're more of a sneakerhead: Unknwn released a limited-edition $120 pink Nike Air Max Verona during the Super Bowl.

BETTER YOUR BODY

Men, it seems, are coming around to the minimally invasive liposculpting procedure at Ryan Neinstein's plastic surgery center. By using Renuvion's ionized helium (aka plasma technology), skin tightening complements the removal of stubborn fat.

Price: $7,500 (downtime is three days off work and three weeks out of the gym)

Future value: You can't add 10 years to your life, but you can knock them off your body.

For more skills-based personal improvement: Consider CourseHorse, which offers lessons on cooking, pottery, computer programming, and foreign languages, among many other classes. Options can range from about $80 (how to make handmade pasta) to $12,000 (high-impact leadership training).

UPGRADE YOUR CULTURE

A membership to the Metropolitan Museum of Art's Friends of European Paintings Circle is not your typical museum benefit. Along with advance previews and private access, members at this level get tours with department curators and take trips to see like-minded collectors' private collections.

Price: $10,000

Future value: It's taking art appreciation to the next level. Knowledge, after all, is power; what you choose to do with it (collect, impress friends at cocktail parties) is up to you.

THE MET

GET SMART ABOUT ART

A 2006 landscape of walnut trees, for sale at an auction at Christie's in London on Feb. 12, is trademark David Hockney—colorful, ebullient, and dreamily figurative.

Price: Estimated from $3.3 million

Future value: Hockney, who turns 83 this year, has been famous since the 1960s, but in the past couple of years his art has commanded some of the highest prices in his career.

If you think the Hockney market has peaked: There's a 1974 painting by the French modernist Jean Dubuffet (above) at an auction at Sotheby's London on Feb. 11 that carries a low estimate of £900,000 ($1.17 million). It's a prime example of his late style; his works from this period have sold well since their paint was still wet.

VISIT AN AT-RISK LOCALE, SUSTAINABLY

AdventureSmith Explorations offers a land tour through Ecuador from Napo Wildlife Center, an ecotourism project that's conserved more than 82 square miles of the most pristine rainforest in Yasunì National Park.

Price: From $1,332 per person for five nights

Future value: You'll be doing your part to support a local economy in a considerate way.

Then store all those pictures: The $299 Time Capsule from Apple Inc. is a wireless hard drive that works as a master backup hub. It'll allow you to secure all the Mac products in your home in one place—and it's also a full-featured Wi-Fi base station.

A Coat of Arms for Former Commoners
If you stump up enough cash, you can be adopted and complete a metamorphosis into nobility

Buy Your Way Into the Aristocracy

For €80,000 and up, you too can be a lord or lady
By Benedikt Kammel

Born into the rubble and deprivation of postwar Germany, Horst Koch wanted out of his small-town cocoon, and at age 21 found his way to a poker table, where he learned to empty the pockets of less experienced players. For decades, Koch says, he earned a handsome living playing cards in Baden-Baden, Aruba, and Las Vegas. Yet he always lusted after the kind of esteem that's hard for even a champion five-card-stud player to earn at the table.

So when Koch in 2013 heard he might be able to buy an aristocratic title, he considered it a path to newfound respect and admiration. These days, humble Horst Koch is known—legally and in every other way—as Horst Walter Count von Hessen-Homburg. He has his own coat of arms and a gilded family history stretching back centuries.

And if you can stump up enough cash, he'd be happy to do the same for you. "Doors that were shut suddenly swing open, you meet different people, everything becomes easier," says von Hessen-Homburg. "You get put through, and a no becomes a yes."

The legal privileges of nobility were abolished in Germany a century ago, when Kaiser Wilhelm II's monarchy collapsed after World War I. But former members of the upper class were permitted to carry a noble title as part of their name. Even today, the aristocracy benefits from the aura of its separate social strata—at least in the pages of glossy magazines and the imagination of many commoners.

The value of a title lies in part in its scarcity. About 0.1% of Germans are of noble descent, roughly 80,000 out of a population of almost 84 million. In the U.K. the number is closer to 0.01%. There are clear rules about who's in the club: Typically you were born or married into gentility, and only men can legitimately pass their title on to spouses and offspring.

But there's a loophole: adoption. Usually by a noble who can't afford the upkeep on his or her crumbling country estate or the staff to polish the family silver. Acquiring a title this way is a simple transaction between a noble seller and a social-climbing buyer, often involving a go-between such as von Hessen-Homburg.

ILLUSTRATION BY JACI KESSLER LUBLINER

He says each year he brokers about a dozen deals, for prices ranging from around €80,000 ($88,000) to more than €1 million, depending on the dynastic relevance of the name and auxiliaries such as an elaborate coat of arms or storied family tree. The new name is legally binding and appears on all formal German documents: driver's license, credit cards, passport, even a new birth certificate if you want.

Although simple in theory, the process of persuading an aristocrat to offload a cherished name can be fraught. There's no limit to how many buyers a freshly minted count or baron can then bring on board, and blue-blooded families are usually interested in keeping their lineage exclusive. The national nobility archive, maintained by an independent foundation in the city of Marburg, says it receives frequent requests from families seeking to expose potential impostors.

But when a cousin or uncle adopts a status-seeking member of the hoi polloi, there's not much the family can do other than ostracize the buyer and seller. "People might find this sort of deal unappetizing, but there's no real way they can intervene if two adults decide they want to enter an adoption," says Hans-Heinrich Thormeyer, an attorney specializing in family law.

Take Frédéric Prince von Anhalt, the ninth husband of the late film diva Zsa Zsa Gabor. He was born Hans Lichtenberg in Bad Kreuznach, a sleepy spa town an hour west of Frankfurt, and grew up to become a baker who later opened a chain of massage parlors. Lichtenberg gained his princedom in 1980 via adoption by Marie Auguste Princess von Anhalt, an impoverished descendant of the kaiser, in exchange for a monthly pension of 2,000 deutsche marks (about $3,600 today).

It was a lucrative investment. Von Anhalt paid the pension for two years until the princess's death, then sold his princely title to a second generation of customers: There's Michael, who owns a pair of fitness clubs near Frankfurt called Killer Sports and parades around in tasseled military uniforms. Another von Anhalt, Marcus, who worked his way up from butcher to brothel owner, cruises the streets of Dubai in his pink Bentley or white Rolls. Buying the title–he paid less than $10,000 for it, in 2005–was "the best decision of my life," he says. "When you come from the red-light district, you don't get invited to fancy balls or the Oscars. But when you're a prince you do."

Germany's fragmentation before 1871–it was formerly made up of hundreds of tiny states–left it with an unusually large aristocracy, expanded further by Prussian military traditions, which spawned yet more noble families, particularly in the final years of World War I. This relative abundance makes the country the preferred destination for title seekers, though smaller markets exist in parts of Eastern Europe and in the U.K., where the tradition of selling a title goes back centuries. King James I of England created the rank of baronet in 1611, bestowing the dignity on hundreds of men in return for payments to the deeply indebted crown.

There's growing interest overseas, particularly in the U.S., where a tongue-twisting noble name carries an old-world flair (think Claus von Bülow) that can turn the bearer into a dinner-party sensation. Although the U.S. government doesn't allow noble titles on official documents such as passports, you're free to adorn your credit cards with the extra flourishes.

German aristocrats may have lost hereditary privileges, yet many continue to live slightly apart. Tweed-clothed men on shooting weekends and couples twirling in candle-lit ballrooms evoke a bygone era–a mythological lifestyle that can appeal to commoners looking to nibble on some crumbs from the upper crust. "There's something self-assuring if for generations you considered your family a cut above," says Joseph von Westphalen, a Munich author and frequent critic of his social class. "But just like soccer stars or rappers, the fascination is in the eye of the beholder. Most noble families just want to be left in peace."

As von Westphalen tells it, the trappings of a title can be a mixed blessing. Kissing the hands of elderly relatives as a child was annoying, but the name did get him ahead, whether being proclaimed class president in high school or networking with the right people between jobs.

Among von Hessen-Homburg's clients is a childless countess in Munich, now in her 80s, whose husband died in 1994. A few years ago, a shop assistant half-jokingly asked whether the countess would consider adopting her. That sparked the idea: As a wartime refugee from eastern Germany who married into nobility, she'd never had much appetite for the lifestyle. People occasionally bow spontaneously or salute when they hear her name, behavior she calls "absurd." Although her husband invoked his title at opportune moments–applying for a loan, say–he used it sparingly. The countess, who asked to remain anonymous given the sensitivity surrounding adoption, says they also kept the "von" prefix, which betrays aristocratic descent, off their doorbell.

Now living in a humble flat in a quiet neighborhood, she says milking the name for a healthy sum to sweeten her retirement seems like a worthwhile transaction. "I have no actual blue blood running through my veins, so sharing the title isn't really a big deal for me," she says. "My noble relatives always made clear that I was an outsider. I can pay my rent, but if I can earn a little extra from the title, why not?"

But whoever ends up taking her name, title, and coat of arms, the countess says, one thing is certain: "We won't be holding hands under the Christmas tree." B

COUNTING UP

Among German nobility, it's not always clear who outranks whom. Here are the most commonly traded titles.

***Freiherr*/Baron**
Among the lowest noble ranks, which a ruler might bestow on a person of high social standing or wealth. Price: €80,000 to €120,000

***Graf*/Count**
The most popularly traded titles, these range from €180,000 to €600,000, depending on the name, the age of the seller and the family tree. The more storied, the more expensive.

***Fürst*/Prince**
Rulers of smaller states or lords of the Holy Roman Empire who elected the emperor. These titles are rarely sold, because few families have them these days.

***Prinz*/Prince**
Descendants of royal families—kings, queens, or emperors. Sales are infrequent, but they can happen when a family falls on hard times. Prices range from €800,000 to several times that.

Meet the Bro-och

Lapel jewelry for men is back in a big way. *By Harriet Mays Powell*
Photograph by Hannah Whitaker

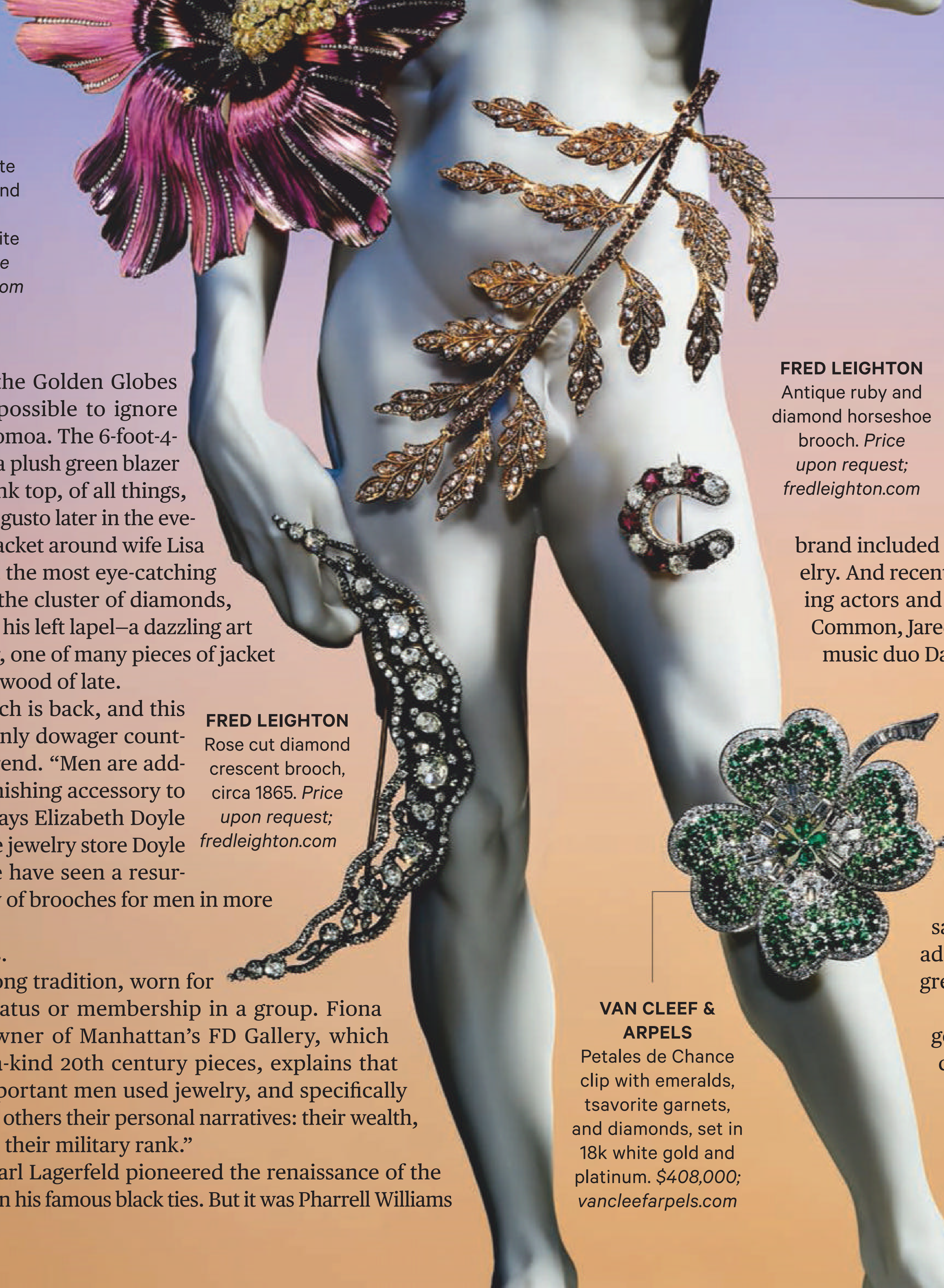
SONIA PETROFF
Silver swan costume brooch. *$285; soniapetroff.com*

TIFFANY
Bird brooch in 18k gold with sapphires and diamonds. *Price upon request; tiffany.com*

HEMMERLE
Gecko fancy-green diamond brooch with cat's-eye chrysoberyl, set in 18k white gold. *Price upon request; fd-gallery.com*

DOYLE & DOYLE
Antique diamond dragon pin, circa 1900, with an old mine cut diamond set in 18k yellow gold. *$2,500; doyledoyle.com*

WEMPE
Spider brooch in 18k white gold, onyx, and sea pearl with brilliant diamonds. *$27,600; wempe.com*



CHOPARD
Flower brooch with white diamonds, yellow diamond briolettes, and black diamonds, set in 18k white gold and titanium. *Price upon request; chopard.com*

DOLCE & GABBANA
Feather brooch in Swarovski crystal. *$1,295; Dolce & Gabbana boutiques*

FRED LEIGHTON
Antique ruby and diamond horseshoe brooch. *Price upon request; fredleighton.com*

FRED LEIGHTON
Rose cut diamond crescent brooch, circa 1865. *Price upon request; fredleighton.com*

VAN CLEEF & ARPELS
Petales de Chance clip with emeralds, tsavorite garnets, and diamonds, set in 18k white gold and platinum. *$408,000; vancleefarpels.com*

On the red carpet at the Golden Globes in January, it was impossible to ignore *Aquaman* star Jason Momoa. The 6-foot-4-inch titan was wearing a plush green blazer by Tom Ford over a tank top, of all things, which he revealed with gusto later in the evening as he draped his jacket around wife Lisa Bonet's shoulders. But the most eye-catching item on his outfit was the cluster of diamonds, onyx, and emeralds on his left lapel—a dazzling art deco brooch by Cartier, one of many pieces of jacket jewelry storming Hollywood of late.

The old-timey brooch is back, and this time around, it's not only dowager countesses embracing the trend. "Men are adding lapel pins as the finishing accessory to their evening attire," says Elizabeth Doyle of the New York vintage jewelry store Doyle & Doyle. "Recently we have seen a resurgence in the popularity of brooches for men in more whimsical styles."

Call them bro-oches.

Lapel pins have a long tradition, worn for centuries to confer status or membership in a group. Fiona Druckenmiller, the owner of Manhattan's FD Gallery, which specializes in one-of-a-kind 20th century pieces, explains that historically "many important men used jewelry, and specifically brooches, to share with others their personal narratives: their wealth, their station in society, their military rank."

The late designer Karl Lagerfeld pioneered the renaissance of the brooch, wearing them on his famous black ties. But it was Pharrell Williams who gave brooches contemporary credibility when he wore a diamond camellia at the 2017 Academy Awards. Jeff Goldblum donned a dramatic star brooch for the recent launch of Tiffany & Co.'s men's jewelry collection, and the brand included several in its 2019 Blue Book of high jewelry. And recently brooches have appeared on tastemaking actors and musicians such as Chadwick Boseman, Common, Jared Leto, Alexander Skarsgard, and country music duo Dan + Shay.

"Brooches are not just for black tie," Doyle says. "They can work equally well for a casual look and are great on a denim jacket, either alone or worn in a cluster." Styled as such, or in a hatband, they're a great way to infuse personality into a simple wardrobe staple.

"I am being asked more frequently to design brooches for male clients," says jewelry designer Shaun Leane. "They add a layer to their personas and make for great conversation pieces."

His personal favorite is a 22-karat gold beetle brooch, which he says adds character to his suits. "It's exciting to see men becoming more experimental in the jewelry they wear," he says. "It comes after a long period of them being afraid to express their personality through jewelry." B

Exquisite Timing

It's the perfect moment to invest in a perpetual calendar watch

By Roberta Naas

It's a leap year, and the leap day falls on a Saturday. That means for collectors who own perpetual calendar wristwatches, there's free time to luxuriate in a phenomenon that happens only once every four years: the "February 29" month and date clicking into place.

Miniature mechanical marvels, perpetual calendar watches accurately track the hours, minutes, and seconds, as well as the day of the week and date, always taking into account months with different numbers of days and leap years. Most such watches will precisely track time without needing an adjustment until March 1, 2100, when the leap year that should take place won't occur so our Gregorian calendars are realigned with solar time. Considered high complications in the world of horology, perpetual calendars are among the most challenging watchmaking feats.

"It's fascinating that in such a tiny space, a series of gears and levers act as a microcomputer to calculate the exact date every day, as long as the watch is wound. It's a single system that performs incredibly," says Paul Boutros, head of watches, Americas, for auction house Phillips. "It is the perfect complication for gearheads and for those fascinated by how to make complex things look simple."

Not all perpetual calendars are created equally. Some use small subsidiary dials on the main dial to indicate the necessary information. Others display only some information on the dial side and secrete the rest on the case back. Further variations even incorporate moon phase indications or other watchmaking complications. Time-consuming to build, perpetual calendars are typically made in small numbers, and some are so highly sought-after that there are waiting lists for them. The finest renditions often command upwards of $50,000 at retail, with those featuring added complications selling for hundreds of thousands of dollars.

At auction, vintage pieces can fetch a lot more. Last year, Phillips sold a Patek Philippe perpetual calendar with chronograph for $2.3 million. Here are some that can be had for less, so next time leap year comes around you won't be left adjusting your watch. B

JAEGER-LECOULTRE MASTER GRANDE TRADITION GYROTOURBILLON WESTMINSTER PERPETUAL
This white gold watch also combines a three-dimensional multiple-axis tourbillon with a minute repeater that sounds the time using Westminster chimes. *$895,000*

AUDEMARS PIGUET ROYAL OAK PERPETUAL CALENDAR OPENWORKED
A black ceramic case and transparent sapphire dial showcase the complex caliber here, some of which is crafted in 18-karat pink gold. It also shows the week of the year and a moon display. *$91,000*

IWC SCHAFFHAUSEN BIG PILOT'S WATCH PERPETUAL CALENDAR SPITFIRE
The IWC Big Pilot's collection has a cult following, and this new version with military green dial and sandblasted bronze case is an eye-catcher. The movement shows moon phases for both hemispheres. *$28,200*

PARMIGIANI FLEURIER TORIC QUANTIEME PERPETUEL RETROGRADE
Aventurine disks at 6 o'clock show the phases of the moon in both hemispheres, and the date is indicated by a red-tipped retrograde hand that, at the end of each month, jumps back to the first. *$64,100*

PHOTOGRAPHS COURTESY BRANDS

Tight Wad

Downsizing doesn't require a downgrade, especially if it's a supple leather cardholder from Loewe
Photograph by Victor Prado

The bulging Rolodex, once a talisman of power, was long ago pushed into the tar pit of history by your phone's contact list. Somehow the equally bloated wallet continues to roam the landscape, dinosaurlike, stuffed with receipts and membership-card plastic. Leave it to Loewe, a 174-year-old Spanish design house under the umbrella of LVMH, to make the most compelling, attractive argument for you to ditch your pocket full of paper: the $265 Puzzle Plain cardholder. Modeled on the already iconic Puzzle handbag, it has four slots for credit cards and IDs and a central slit for a few bills.

THE COMPETITION

• Milanese leather goods maker Valextra SpA has always been a favorite of those who seek quality, not flash. Its $310 card case, which can hold six cards, comes in lobster red or a tobacco brown called Havana and features a signature notched design with lacquered ink piping.

• The two-slot Buckler from Guarded Goods is handmade to order in Minnesota from $65, with your choice of leather and thread color. From there, you can build your own, adding two more slots for $15 or upgrading to shell cordovan leather for $95 to $105.

• Protect your cards from snooping RFID scanners with the Ridge's $105 Titanium metal wallet. It's able to hold as many as 12 cards, and it comes with an attached money clip or cash strap.

THE CASE

When Jonathan Anderson unveiled his first collection for Loewe (pronounced low-EH-vay) in 2014, the star was his Puzzle Bag, with its geometric jigsaw pieces. The cardholder renders his angular design in several different colorways: greige (pictured) is offset with a vibrant blue and yellow; the lagoon/black conjures underwater depths. Made from supersoft calfskin, all are finished with hand-painted black edges. The thin middle compartment has just enough room for daily gratuities—because, remember, always tip in cash. *$265; loewe.com*

BP Is Still Paying for the Deepwater Horizon Spill

By Joe Nocera

BP Exploration et al. v. Claimant ID 100354107

Cases #18-31115 and 31275

● Has the 5th Circuit rejected any claims? Yes. Tampa Bay's football team, the Buccaneers, tried to get $19.5 million, claiming economic damage, despite being 300 miles from the accident site. In its ruling, the court noted the team went 10-6 that season. "The Bucs have not had a 10-win season since," the ruling said.

● How much has the spill cost BP? In addition to the money it's paid to Gulf Coast residents and businesses, it has paid $20 billion to settle suits brought by states and the federal government; a $4 billion fine levied by the U.S. Department of Justice; and $32 billion toward the cleanup. That comes to about $70 billion—so far.

ILLUSTRATION BY GEORGE WYLESOL

❶ THE ORIGIN: On April 20, 2010, the Deepwater Horizon oil well, operated by BP Plc in the Gulf of Mexico, suffered an enormous explosion, killing 11 workers and spewing 130 million gallons of oil. Knowing it would soon be inundated with lawsuits, the company quickly set up a settlement fund and hired Ken Feinberg to administer it. Over the next two years, Feinberg paid out $6.1 billion to 220,000 claimants, thus avoiding thousands of suits. But he also turned down many claims on the grounds that the claimants hadn't shown they had been damaged by the accident. This didn't make the plaintiffs' bar happy.

❷ THE SWITCH: Some of the heavyweight plaintiffs' lawyers eschewed the claims process and pressed on with lawsuits. In March 2012, BP settled with them for $7.8 billion. As part of the settlement, it agreed to replace Feinberg with Patrick Juneau, a lawyer from Lafayette, La. The settlement made it much easier for companies and people to get compensation without any serious documentation. Suddenly all kinds of companies were filing claims. One of them was Claimant ID 100354107: Walmart Inc.

❸ THE CLAIMS: Walmart said that it was owed $15 million for damage done to five stores. BP said that Walmart was using an accounting change to inflate the claim. Walmart made an additional claim for a store in Mississippi that it said qualified as a "startup" (thus eligible for more money) because it had recently reopened after being damaged during Hurricane Katrina. Juneau approved both claims. So BP sued.

❹ THE FINALE: Federal Judge Carl Barbier, who's overseeing the BP litigation, is a former plaintiffs' lawyer. He's been largely unsympathetic to BP's objections. After all, BP did agree to the 2012 settlement that opened the door for more questionable claims. Sure enough, he ruled for Walmart in both cases. And in two separate decisions last month, the U.S. Court of Appeals for the 5th Circuit agreed with him. A decade after the Deepwater Horizon explosion, BP is still paying up. Ⓑ *—Nocera is a columnist for Bloomberg Opinion*

Bloomberg Businessweek (USPS 080 900) February 10, 2020 (ISSN 0007-7135) H Issue no. 4645 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.