Bloomberg Businessweek

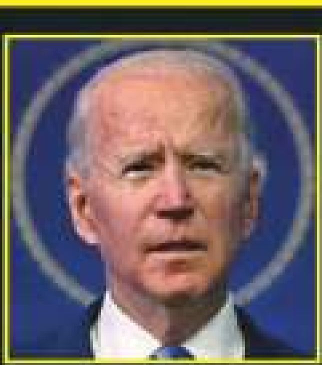
January 25, 2021 ● SPECIAL ISSUE

TECHLASH REGULATORS SHARPEN THEIR BLADES!

WILL THE VACCINE END THE PANDEMIC?

Biden's Big Test

How much can he get done?



PLUS: WHAT TO DO ABOUT CHINA

A BUBBLE? IN THIS ECONOMY?

Brexit Bites Back!

Can BoJo keep the U.K. united?

ELSEWHERE IN THE WORLD, EVEN MORE ELECTIONS!

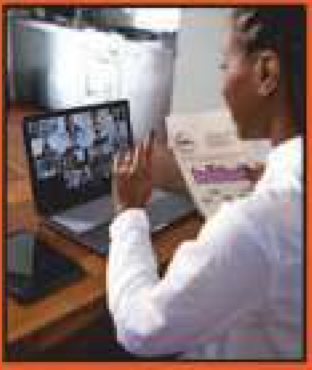
MARS! Who'll get there next?

THE YEAR AHEAD

2021 > 2020?

BOOM TIMES FOR PERSONAL SHOPPERS!

You can't WFH forever!



(Or can you?)

There's A Great Future in Batteries. Think About It!

TRUE STORY! How to Go to 'Shroom School!

AND THEN GET A PH.D. IN MDMA

WHEN DOES THE NEW NORMAL BEGIN?

Pick one:

Q2 Q3 Q4

The Return of BIG Government

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2021 THE YEAR AHEAD

INTRO

ECONOMICS AND POLITICS

CONSUMER

BATTERIES

TECHNOLOGY

FINANCE

LUXURY

50 COMPANIES TO WATCH

BACK PAGE

Cover: Photos: Alamy (3). Getty Images (8). NASA (1)

The economic outlook is starting to bri

HELP IS ON

But the world still need

By Peter Coy

As the coronavirus spread beyond China last spring, forecasters abruptly added two percentage points to their growth predictions for 2021. It was as if they had turned into a chorus of red-headed Orphan Annies singing, "I love ya, tomorrow."

Their upgrades didn't signify optimism, though. They were a consequence of the downturn the forecasters were expecting for 2020. With a deep recession as the new baseline, the partial rebound they anticipated would represent a big year-over-year percentage increase in output.

And here we are. Covid-19 is claiming more lives than ever, and vaccines are rolling out more slowly than expected, so economic activity this year will track well below its prepandemic trajectory. But because it won't be as depressed as last year, on paper 2021 will look like a blockbuster. Bloomberg Economics is forecasting a 4.9% increase in the world's gross domestic product and a 3.5% increase for the U.S.—the strongest since 2005. There's less here than meets the eye.

Economic growth is hard to predict even in a normal year. It's infinitely harder with a pandemic raging. Vaccines were developed in record time. But more contagious strains of Covid are spreading rapidly, vaccine distribution is proving problematic, and a lot of people still aren't taking precautions for themselves and those around them. "There will be bumps along the way," Bloomberg Economics writes in its global outlook, understatedly.

To reflect the greater-than-usual uncertainty, this year we're showing a range of estimates for country-by-country growth: the lowest and highest forecasts among economists surveyed by Bloomberg, along with the median of those forecasts and the predictions of the professional economists who work for Bloomberg Economics, a sister organization of Bloomberg News. Even this range doesn't capture all the unknowns. Any given country could do worse than the lowest point forecast for it or better than the highest.

There are few certainties about 2021, aside from eclipses

ighten just about everywhere you look

N THE WAY

ds a shot in the arm!

and meteor showers. Raul Castro is slated to step down as the first secretary of Cuba's Communist Party, ending 62 years of rule by him and his late brother, Fidel. Angela Merkel, Europe's most powerful leader since 2005, will retire as chancellor of Germany after federal elections scheduled for Sept. 26. There will also be important elections in Ethiopia, Hong Kong, Iran, Iraq, Israel, the Netherlands, and Peru. Japan is debating whether it will be safe to host the 2020 Summer Olympics—make that the 2021 Summer Olympics.

Overshadowing everything is SARS-CoV-2, a shape-changing foe that's killed more than 2 million people, including more than 400,000 in the U.S. A highly infectious variant discovered in the U.K., named B117, has been found in more than 50 countries. In the U.S., health officials recently said it could be the dominant source of infection as soon as March.

Local and national governments are ordering lockdowns to keep soaring infection rates from overwhelming hospitals. That's a blow to economic growth. One indication in the U.S. is that the Federal Reserve Bank of Dallas's national index of mobility and engagement, based on mobile device data, has sagged after improvement last summer and fall.

Less obvious is the scarring that Covid causes. Children who are falling behind in school may never completely catch up. And displaced workers may have trouble fitting into the post-pandemic workplace, because their skills have atrophied or are no longer in demand.

It's dawning on lots of unemployed people that their temporary layoffs are, in fact, permanent. True, many have been called back to work. In the U.S. the number of people who say they're on a temporary layoff fell from 18 million in April to 3 million in December. But over that same period, the number who say their unemployment is not temporary rose 60% to more than 4 million, which outside of the period since September is the highest number since 2014, in the aftermath of the global financial crisis.

Job losses have been greatest in the lowest-paid ▶

PHOTO ILLUSTRATION BY 731; PHOTOS: GETTY IMAGES (4)

◀ occupations. Federal Reserve Governor Lael Brainard said on Jan. 13 that the unemployment rate for people in the bottom quarter of the wage scale is "likely above 20%," compared with a jobless rate below 5% for people in the top quartile.

As with workers, so with companies: Some businesses are never coming back, because Covid has permanently changed the way we do things. That will become obvious this year when the economic tide begins to rise but many businesses—say, office-space leasing—don't float with it.

This raises the question of whether it's a mistake for governments to prop up companies with broken business models. "Bailout money should be used to bridge sustainable businesses that became temporarily unstable due to the pandemic, so we don't impair our economy's capacity," Vikram Mansharamani, a lecturer at Harvard's Paulson School of Engineering and Applied Sciences, wrote in an email.

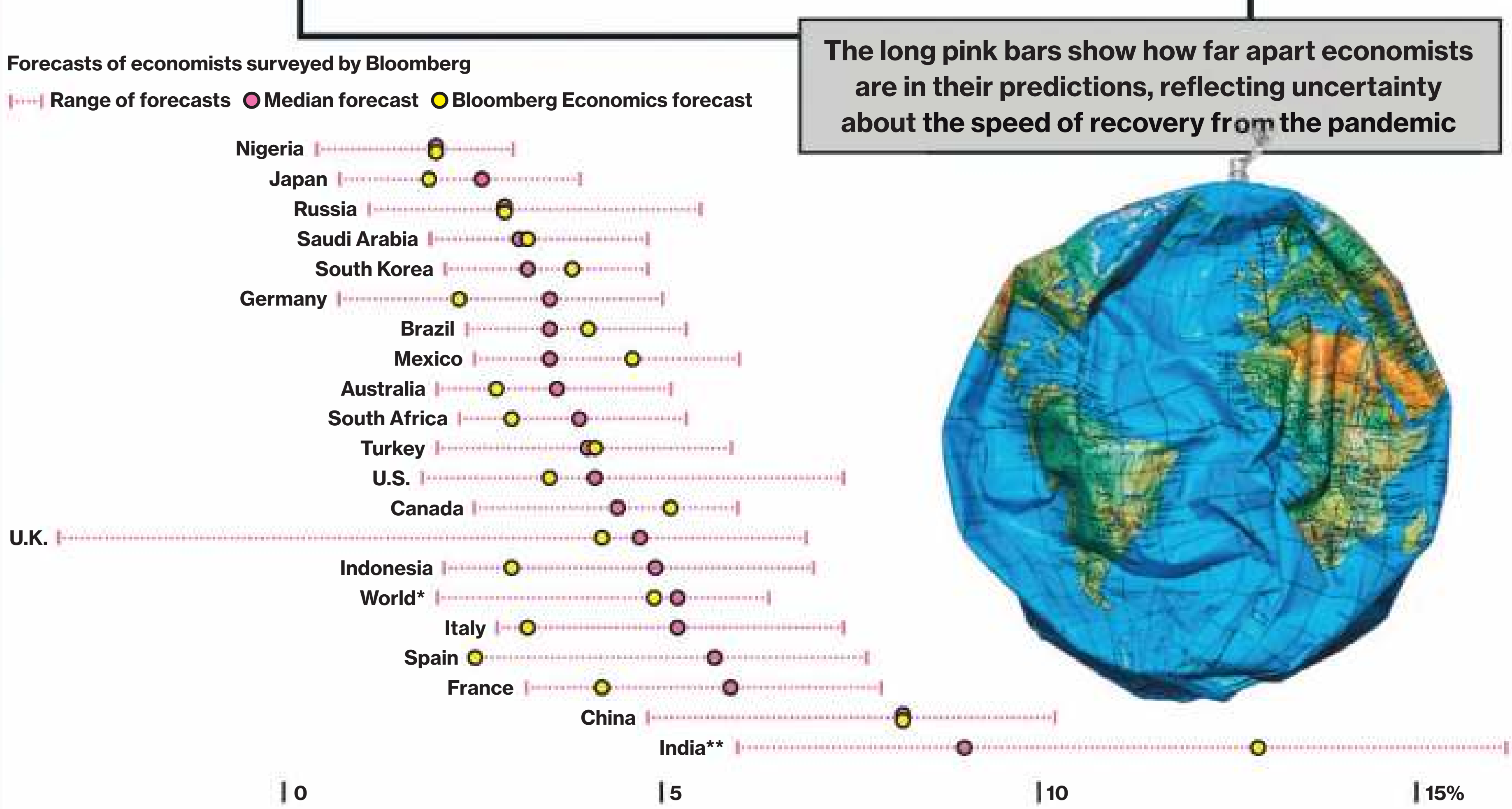
It's hard to believe that as recently as New Year's Eve, people around the world were saying good riddance to 2020 and toasting what they thought would be a much better 2021. In the world's biggest economy, it took only six days for the new year to prove it could be just as bad as the old one. The violent invasion of the Capitol incited by President Trump did what may prove to be lasting damage to America's democratic institutions and its standing in the world. (What's more, the riot was perceived as a smashing success by right-wing extremists and therefore could inspire more attacks.) A day later, the Covid Tracking Project showed record daily fatalities in the U.S.; a day after that, weekly initial claims for unemployment insurance reached their highest level since August.

The American public is being ravaged by two viruses, one attacking bodies and one attacking minds. People are afraid of getting sick yet are frustrated with Covid shutdowns. Some react with resentment, suspicion, and increasingly unhinged behavior—invading the nation's Capitol, for example. "Everyone reacts differently to stressful situations," the Centers for Disease Control and Prevention wrote in a health bulletin in December.

The outlook for the U.S. this year hinges on whether President Biden can clear the miasma. Fixing the health crisis could ease the political and economic ones. Biden's first shot is a $1.9 trillion coronavirus relief bill that includes $1,400 payments to individuals; supplementary unemployment benefits; help for low-income families; raising the federal minimum wage to $15 an hour; and assistance to state and local governments in distributing vaccines and readying schools for in-classroom instruction.

Political passions might cool, at least a bit, if the virus is suppressed and the economy recovers. But the boldness and breadth that make the $1.9 trillion bill popular with Democrats could doom it with Republicans, who are almost neck-and-neck with Dems in the House and could block most of Biden's wish list in the Senate with a filibuster. Bloomberg Economics predicted on Jan. 15 that the bill will be whittled down to $1 trillion, still a substantial sum. That "could be enough to push economic growth above 5% this year, compared with

2021 GDP Growth



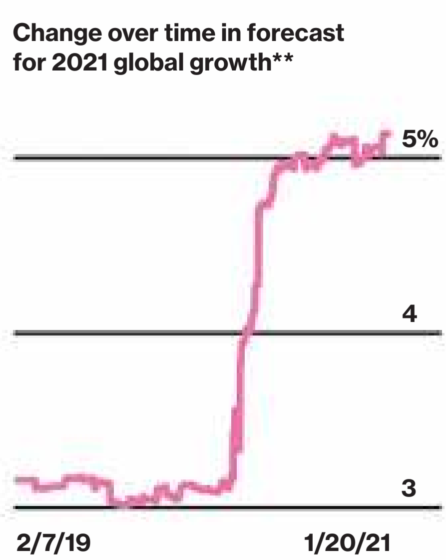
*FOR 31 COUNTRIES TRACKED BY BLOOMBERG. **FISCAL YEAR BEGINNING APRIL 1, 2021. DATA: BLOOMBERG ECONOMICS

China, just wow!

our current baseline of 3.5%," the economists said.

The flailing in Washington and state capitals looks even worse when juxtaposed with the success of China, which clamped down on Covid with compulsory mask-wearing, isolation of the sick, and effective contact tracing. China's death rate from the virus is less than one-third of 1% of that in the U.S. Chinese are blithely eating in restaurants, sitting in theaters, attending school, and going to work. On Jan. 18 the government reported GDP grew 2.3% in 2020, which makes China the only major economy to avoid a contraction for the year. Exports helped: They rose 18% in December from a year earlier despite slow demand growth abroad because Chinese exporters grabbed market share from foreign rivals. This year, Bloomberg Economics forecasts that China will take advantage of stronger economic growth abroad to realize GDP growth of 8.2%.

Don't expect Biden to roll back the Trump tariffs on Chinese products anytime soon. "The mantra for the Biden people has been mostly 'No sudden moves,'" says William Reinsch, a trade official in the Clinton administration and senior adviser at the Center for Strategic and International Studies. Biden's team is likely to insist that China abide by the import commitments it made under a de-escalation agreement that took effect in February 2020. It will differ from Trump's team in pushing China harder on human rights and enlisting allies to jointly combat unfair trading practices.



The pandemic slammed the U.K.'s economy worse than any other member of the Group of Seven nations, with GDP declining an estimated 10.3%, vs. about 3.6% in the U.S. The year's only bright spot was a last-minute free-trade agreement with the European Union that helped the U.K. avoid a chaotic no-deal Brexit. Bloomberg Economics predicts 4.2% growth this year assuming the virus comes under control. Authorities expect to begin lifting the third lockdown in early March, in phases. "You can't just open up in a great 'Open sesame,'" Prime Minister Boris Johnson told reporters on Jan. 18.

About $900 billion in loans and grants should begin to flow to the EU's struggling economies this year thanks to a December deal with Hungary and Poland, which had resisted conditioning recovery assistance on adherence to the rule of law. Germany brokered the agreement; with the U.K. cutting ties to the EU, Germany is more than ever its dominant member.

Economists predict Germany will continue to rankle trading partners by piling up big surpluses this year. The surplus on its current account—a broad measure of trade in goods and services and investment income—could amount to 6.5% of GDP this year, up from 6.3% in 2020. Merkel's most likely successor as chancellor is her ally Armin Laschet, the governor of populous North Rhine-Westphalia, who was elected on Jan. 16 to head her party, the Christian Democratic Union.

Japanese Prime Minister Yoshihide Suga, who took over from the long-serving Shinzo Abe in September, is under pressure to suppress a Covid outbreak that's prompted voluntary restrictions in prefectures that account for 60% of Japan's economic output. He told parliament on Jan. 18 he's still hoping to stage the Olympics this summer. In South Korea, which has fought the pandemic almost as successfully as China, President Moon Jae-in is able to focus this year on a secondary issue, making housing more affordable. The pandemic last year set back India's aspirations to replicate the Chinese growth miracle, with GDP on pace to shrink 6.8% in the fiscal year that began April 1. Bloomberg Economics is looking for growth of 12.9% in the fiscal year beginning this April.

Brazilian President Jair Bolsonaro, a right-wing populist often compared to Trump, is distributing Chinese-made coronavirus vaccines to shore up his sagging popularity in advance of elections in 2022. In Africa, as elsewhere in the developing world, a key challenge for 2021 will be getting hold of shots. High-income countries have secured 85% of the supply of the Pfizer-BioNTech vaccine and all of the Moderna vaccine as of January.

A silver lining of 2020 was the accelerated adoption around the world of cloud computing, videoconferencing, and other efficiency-enhancing business tools. Jimmy Etheredge, Accenture's CEO for North America, says one client of the consultant, a retailer with 1,000-plus outlets in the U.S. and Canada, was fretting before the pandemic that its 12-month timetable for enabling curbside pickup might be a bit rushed. Once Covid hit, it switched to curbside pickup at all the stores in two weeks.

It was exhilarating, but stressful. "A lot of 2020 was management by adrenaline," Etheredge says, adding that this year looks like more of the same. "I think we're still trying to sprint the marathon." B

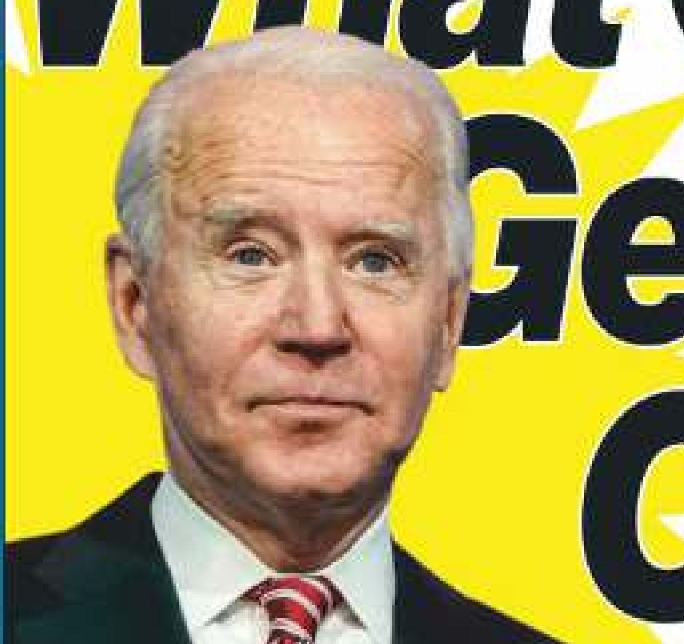
PHOTOS: GETTY IMAGES (2). DATA: *USES GEOLOCATION DATA FROM MOBILE DEVICES TO MEASURE THE DEVIATION IN MOBILITY CAUSED BY COVID-19. **BLOOMBERG WEIGHTED AVERAGE OF ECONOMIST ESTIMATES FOR WORLD GDP GROWTH IN 2021. DATA: DALLAS FED, BLOOMBERG ECONOMICS

PLUS: Stimulus! Cap & Trade! Space Race!

ECONOMICS & POLITICS

MORE INSIDE

Edited by Amanda Kolson Hurley and Cristina Lindblad



What Can Biden Get Through Congress?

Democratic wins in Georgia widened his path, but plenty of hurdles remain

By Bloomberg News

The surprise victories of Democrats in the two Georgia runoffs in early January handed their party the narrowest possible control of the U.S. Senate: a 50-50 split, with Vice President Kamala Harris—who under the Constitution is also president of the Senate—acting as tiebreaker. Because both houses of Congress are now in Democratic hands, President Biden will have more latitude to enact his agenda.

In the short term, some of his agenda items may be delayed by the Senate impeachment trial of his predecessor, which will consume much of the chamber's attention. But the Democrats' one-vote majority will make an enormous difference to the president achieving his policy goals. With Chuck Schumer of New York as Senate majority leader, displacing Republican leader Mitch McConnell of Kentucky, Democrats will set the schedule, deciding what measures can be considered for a vote by the full chamber. That will smooth the path to confirmation for Biden's picks for the cabinet and other roles. Although Republicans may prolong debate, they won't be able to nix a nominee unless they can pull at least one Democrat across the aisle.

Almost all bills will need some Republican support, because the Senate's filibuster rule requires 60 votes for a bill's passage. There's a slim exception for fiscal-related measures that can pass with a simple majority using the budget process; Biden has two chances this year to use so-called reconciliation for items such as his economic stimulus plan. But any overhauls of nonbudget-related climate and immigration regulations—as well as of gun control, labor rights, and police reform—would need 60 votes to proceed.

> **Biden has two chances this year to use reconciliation for fiscal-related measures. Other priorities will need 60 votes**

There's already a push by progressives to end the 60-vote requirement. That could be achieved with a simple majority vote, but West Virginia Senator Joe Manchin, a conservative Democrat, has said he would block it.

Here's a look at some of the advantages and limitations Biden and fellow Democrats face:

● COVID-19 RELIEF

Biden has announced a $1.9 trillion immediate relief package that includes aid for state and local governments, which McConnell and the GOP consistently opposed in stimulus negotiations last year. The House voted to boost stimulus checks to $2,000 from $600 in December, and now the Senate is likely to approve the increase. Further unemployment assistance and health-care measures are in the cards. Biden is also calling to more than double the federal minimum wage, to $15 an hour, a proposal that could alienate Republicans. He said he will lay out a second, broader economic recovery plan in February at a joint session of Congress.

● CLIMATE AND ENVIRONMENT

Biden wants to combat global warming and create green jobs with a sweeping $2 trillion plan, but Congress is unlikely to pass the whole thing. It could use reconciliation to enact parts of it, such as extending tax cuts for electric vehicles. Investment in infrastructure and clean-energy research and development could attract broad support. Democrats can also repeal some recent environmental rules made by the Trump administration with a simple majority using the Congressional Review Act, though they will likely use the CRA sparingly because it prohibits the future passage of similar rules.

● IMMIGRATION

Biden plans to propose immigration legislation to Congress immediately. The priority will be a faster path to citizenship for undocumented immigrants, including "Dreamers," who were brought to the U.S. as children. While the bill doesn't make tighter border security a trade-off for the easier paths to citizenship, it would direct the U.S. Department of Homeland Security to come up with a plan to use technology to enhance border monitoring. Congress hasn't passed a major immigration reform bill since 1986.

● TAXES

Although Biden and congressional Democrats have set out to roll back some of Trump's 2017 tax cuts, in part by raising taxes on corporations and people who make more than $400,000 a year, that won't be easy. Moderate Democrats could join Republicans in blocking or limiting increases. Schumer wants to remove limits on federal deductions for state and local taxes that Trump imposed, but that also may be difficult.

● HEALTH CARE

As with tax reform, some health-care measures, such as changes to the Affordable Care Act, could be wrapped into budget legislation that requires a simple majority. Even so, Democrats would need to secure the backing of their moderate members to proceed, and that could limit the scope of what Biden or more progressive lawmakers want to do. A U.S. Supreme Court ruling against the Affordable Care Act—possible now that the court has a 6-3 majority of conservative justices—could spur legislative action.

● JUDICIAL APPOINTMENTS

A Democrat-held Congress means Republicans can't slow or block Biden's federal judiciary appointments. Activists are already pushing for Supreme Court Justice Stephen Breyer, 82, to retire so he can be replaced with a younger liberal jurist.

● POLITICAL INVESTIGATIONS

Republicans won't be able to force probes of the 2020 election results or the business dealings of the president's son Hunter Biden. Committees run by Democrats may decide to initiate investigations of Trump's actions while in office or of his federal tax returns. B

GETTY IMAGES (2)

The Whiff of Trump

By Jeff Green, Anders Melin, and Jennifer Jacobs

In federal departments across Washington and in the warrens of the West Wing, the question hung in the air in mid-January: Will the Trump name stick?

Among those left at the end of the administration—following the storming of the U.S. Capitol by Trump supporters on Jan. 6—there was worry about a lingering stain from working for the first U.S. president to be impeached twice.

Interviews with experts and people inside the White House reveal a two-pronged reality: Top officials will likely come out just fine, but some junior staffers will struggle.

Those already wealthy, such as former Secretary of the Treasury Steven Mnuchin and former Secretary of Commerce Wilbur Ross, don't have to worry. The nation may have cleaved itself into a red America and a blue America, but connections and money still talk. Decades ago, former cabinet secretaries including George Schulz and Henry Kissinger moved to high-profile jobs, never mind the resignation of their old boss, President Richard Nixon.

Trump alumni are looking for new jobs—and finding closed doors

Senior Trump officials who had established brands before they entered the administration will pivot back more easily, says Maxwell Palmer, a political scientist at Boston University. One example is Elaine Chao, who resigned as transportation secretary on Jan. 7. Her service under President George W. Bush and on boards will still count, Palmer says.

Further down the ranks, job searches aren't going so well. Some junior Trump staffers are incensed with the president and view themselves as being punished for sticking it out until the end of his term, say people familiar with their thinking. One official complains that those who stayed on carry a "scarlet T." Some say they've had offers withdrawn.

Several younger Trump staffers have gone to work for Republican members of Congress. Others are remaining within the Trump political fold: Cassidy Hutchinson, who was an aide to the former president's chief of staff, intends to work for Trump in a post-White House role. A few have landed corporate jobs, including Jalen Drummond, a former assistant White House press secretary who'll be a spokesperson for government contractor Leidos Holdings Inc.

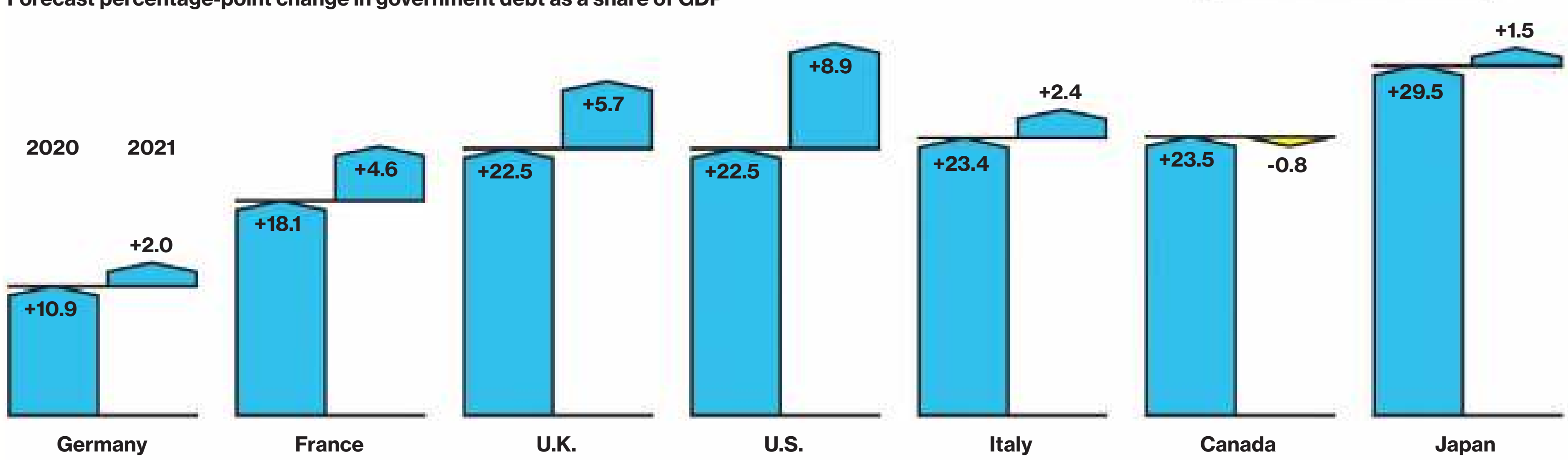
Jan. 6 will likely leave at least an asterisk on the résumés of those who stayed, says Patrick Gray, a recruiter at Raines International Inc. who places senior government officials in corporate roles. For now, at least, sentiment runs against them. Ⓑ

Debt Explosion

Group of Seven governments added about $7 trillion in debt in 2020 as they battled Covid-19. Remarkably, the after-inflation cost of making payments on the newly issued bonds is negative and may remain so for the remainder of the decade.

By Jamie Rush and Maeva Cousin

Forecast percentage-point change in government debt as a share of GDP



DATA: BLOOMBERG ECONOMICS BASELINE SCENARIO

CHIP SOMODEVILLA/GETTY IMAGES

18+

WHAT IS AVAXHOME?

Can Biden give labor a leg up?

A NEW DEAL FOR WORKERS

Labor unions and advocacy groups are pressing Democrats to leverage their control of the White House and Congress to enact policies that benefit workers, including facilitating the formation of unions and adopting a more expansive definition of what it is to be an employee. The Democrats' tenuous control of the Senate may make it hard to pass some of the most progressive measures. President Biden may instead rewrite some rules, such as those that apply to federal contracting, by decree. And by continuing efforts to push the unemployment rate lower, the Federal Reserve may play an important supporting role in helping minorities and other less-advantaged groups reenter the job market.
—Matthew Boesler, Josh Eidelson, Benjamin Penn, Olivia Rockeman, Catarina Saraiva, and Paige Smith

FEDERAL MINIMUM WAGE

The $1.9 billion economic relief plan Biden unveiled on Jan. 14 calls for boosting the federal minimum wage to $15 an hour from the current $7.25. If successful, it would be the first increase enacted since 2007. More than half of U.S. states already have wage minimums above the federal floor. Still, Republicans and a few Democrats in Congress are sure to resist going to $15, arguing it will increase costs for businesses at a time when many are fighting to survive. Proponents say the increase would lower the poverty rate, which jumped by 2.4 percentage points from June to November as the effects of the first round of stimulus dissipated.

PAY DISCRIMINATION

U.S. workers face persistent discrepancies in pay based on gender and race. Data gathered from employers by the Equal Employment Opportunity Commission could help the Biden administration craft policies to close some of the gaps—a stated goal. One wrinkle is that the EEOC is controlled by a Republican majority through mid-2022. The Trump White House tried to halt collection of the pay data in 2017, saying it was overly burdensome for businesses, but was overruled by a federal judge. A report, which could help guide the agency in any future data-gathering effort, is expected by yearend.

MAXIMUM EMPLOYMENT

Achieving full employment has long been one of the Federal Reserve's mandates, alongside battling inflation. Yet following a 20-month strategic review that wrapped up in August, the U.S. central bank will allow the economy to run hotter for longer in the interest of pulling more people—especially minorities—into the workforce faster.

CONTRACTORS VS. EMPLOYEES

In industries from construction to health care to the rapidly expanding app-based gig economy, workers have been squaring off with bosses over a hot-button issue: Are they employees who are protected under laws covering areas such as minimum wage and unionization, or are they independent contractors who aren't? Under President Trump, the Department of Labor and the National Labor Relations Board worked to make it easier for companies to classify workers as contractors. Biden appointees could reverse that approach, but the administration will have to act quickly to prevent some of its predecessor's 11th-hour changes from taking effect.

KARZOF PLEINE/ALAMY

CHILD CARE

By forcing many day-care centers to close, the pandemic helped wipe out five years of gains in labor force participation for U.S. women. Biden's stimulus plan calls for an additional $15 billion in funding for the state-administered Child Care and Development Block Grant program, which subsidizes child care for low-income families. In addition, it proposes a one-year expansion in child-care tax credits, with families eligible for as much as $4,000 for one child or $8,000 for two or more, depending on income. Also part of the Biden plan: paid family leave for those needing to care for a child or elderly parent.

FAIRNESS IN CONTRACTING

In his campaign platform, Biden pledged to "ensure federal dollars do not flow to employers who engage in union-busting activities." His administration will be weighing a range of possible actions to fulfill that promise, including an executive order requiring federal contractors to remain neutral to a union organizing drive. Companies bidding on new contracts may also face increased scrutiny as part of an effort to weed out those with a history of labor violations.

Ones To Watch

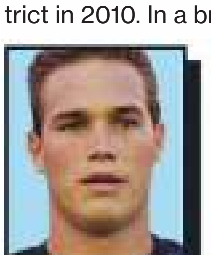
From an American judge to a Peruvian soccer-star-turned-politician, some people we'll be seeing more of in 2021

● LISA MURKOWSKI
U.S. senator from Alaska

With the Senate split evenly between Republicans and Democrats, any legislation from the Biden administration will have to sway the center. Republican Murkowski, 63, has made a career there, carving out a profile as an independent-minded senator willing to deal. While most Republicans swallowed their frustration with Donald Trump, Murkowski often criticized him and should also be willing to buck party sentiment and cut deals with the Biden White House. She has less to fear from her party's right flank than most: Beaten in her 2010 primary by a Tea Party challenger, Murkowski ran as a write-in candidate in the general election—and won. —*Joshua Green*

● GEORGE FORSYTH
Candidate for the presidency of Peru

Forsyth, 38, is leading polls for Peru's presidential election on April 11. He was a goalkeeper for a top Peruvian soccer club before being elected councilman for a populous Lima district in 2010. In a brief stint as district mayor, he earned a reputation for being tough on crime. Forsyth's father is a Peruvian diplomat, and his mother is a former Miss Chile; tabloid newspapers have dubbed him "Ken" for his good looks. He campaigns on a pro-business platform and presents himself as part of a new generation of leaders at a time when many parties are embroiled in corruption scandals. —*John Quigley*



● KETANJI BROWN JACKSON
Judge, U.S. District Court for the District of Columbia

For the last four years, Democrats watched Donald Trump and Senator Mitch McConnell of Kentucky stack the federal courts. Now it's their turn. If a vacancy on the U.S. Supreme Court comes up, President Biden may turn to Jackson, who's served on the U.S. District Court in Washington since she was appointed by President Barack Obama in 2013. A former public defender, Jackson, 50, has spent much of her career focused on criminal justice reform, serving as vice chair of the U.S. Sentencing Commission. She also was on a short list of candidates for the Supreme Court nomination that went to Merrick Garland in 2016. Should Biden pick her, it would be an historic nomination: Jackson would be the first Black woman selected for the Supreme Court. —*David Yaffe-Bellany*

● ALEXANDER NOVAK
Deputy prime minister of Russia

Novak, 49, was promoted from energy minister to deputy prime minister at the end of last year. He'd led the energy ministry since 2012, representing Russia in talks with the Organization of Petroleum Exporting Countries. His new purview will include the Russian energy sector as well as other industries. Novak rose to international prominence as one of the architects of OPEC+, which rescued oil prices from a deep slump in 2016 and again in 2020. He co-chairs several intergovernmental commissions, including the Russia-Saudi commission focused on wider economic cooperation between the two countries. —*Olga Tanas, Evgenia Pismennaya, and Dina Khrennikova*

● HSIAO BI-KHIM
Taiwan's representative to the U.S.

Shortly after arriving in Washington, D.C., last summer, Hsiao hit the ground running—penning articles, speaking out in interviews, and participating in high-profile panels, all while the very pro-Taiwan Trump administration upgraded unofficial ties that had been in place since the U.S. officially recognized China in 1979. More recently, the former legislator, 49, has spoken by phone with incoming Secretary of State nominee Antony Blinken in a bid to boost relations with Joe Biden's camp. As China seeks to drive a wedge between Biden and President Tsai Ing-wen, Hsiao will play a key role in Taiwan's attempt to maintain robust White House support for the democracy of 23 million, which Beijing threatens with invasion. —*Chris Horton*

● GIDEON SA'AR
Leader of the New Hope party, Israel

In December, Sa'ar, a former ally of Prime Minister Benjamin Netanyahu, announced he was defecting to start a political party to rival the nationalist Likud, saying it's become a "tool" for the prime minister's interests. Sa'ar, 54, a lawyer and former cabinet minister, launched his party, New Hope, with the aim of replacing the longtime premier. Israel's fragile governing coalition collapsed weeks later, spurring an election on March 23, Israel's fourth in two years. Polls suggest Sa'ar might be able to siphon off enough voters from both the right and center to unseat the country's longest-serving leader. Support for Netanyahu has sunk following a bungled reopening of the economy last May. —*Ivan Levingston*

● KATHERINE TAI
Nominated to be U.S. trade representative

Tai, who most recently served as the chief trade counsel on the House Ways and Means Committee, was a key figure in negotiations with the Trump administration and House Speaker Nancy Pelosi on a revamped North American Free Trade Agreement. She has a reputation as a progressive Democrat and is respected by members of both parties for her ability to find common ground. If confirmed, she will surely face pressure from competing interests on the question of whether or not to remove billions of dollars in tariffs that the Trump administration put in place. Her early duties are likely to include enforcing—and possibly renegotiating—a partial U.S.-China trade pact, charting a path to revamp the World Trade Organization, and untangling various trade disputes with the European Union. Tai, 46, is a fluent Mandarin speaker. —*Jenny Leonard and Jennifer Epstein*

● MICHAEL REGAN
Nominated to head the U.S. Environmental Protection Agency

An environmental regulator in North Carolina, Regan, 44, is Biden's nominee to run the EPA. He would be the first Black man to lead the agency. If confirmed, he'll be expected to draw up new regulations and reverse Trump administration steps quickly to support Biden's aggressive plans to cut carbon emissions. Another big part of the job at the agency would be rebuilding morale, which crumbled during the Trump years as many scientists left or were sidelined. The role will require collaboration with former EPA head Gina McCarthy and John Kerry, who are Biden's new domestic climate czar and international climate envoy, respectively. —*Amanda Kolson Hurley*

Big Government Is BACK in Europe

By William Horobin and Birgit Jennen

French Finance Minister Bruno Le Maire had just recovered from Covid-19 in October when he faced a familiar adversary at a parliamentary hearing. The government, a leftist legislator told him, needed to bring industry and jobs back to France and was being naive about global trade and the benefit of free markets.

"There are a number of points on which I agree with you—Covid must have unblocked something in me," Le Maire quipped, citing massive spending on job support, a push for carbon border taxes, and the huge sums earmarked for state aid to encourage domestic investment. "Everyone is able to change their beliefs and ideas to respond to the very particular crisis we are in."

Le Maire, a frequent critic of laissez-faire capitalism, may have somewhat exaggerated the change in his own mindset. What's less in doubt is how the devastation wrought by the coronavirus has reinvigorated state intervention in Europe's biggest economies, with potentially far-reaching consequences.

The pandemic pushed Europe to ditch the austerity that mauled its economies after the global financial crisis to mount the biggest fiscal action in recent memory. Not only have governments spent big to prevent the kind of mass unemployment that roiled the U.S., but they've also seized on low interest rates and the suspension of European Union budget and regional state-aid rules to shape their post-Covid recoveries with targeted spending to protect companies or encourage them to invest at home.

Under restrictions to prevent the EU's richer members from gaining an unfair advantage over others, the bloc's governments usually can't give financial support freely to businesses. But so far, the scale of the economic shock is drowning out warnings about protectionism, the politicization of corporate decisions, and the surge in public debt.

EU countries are using stimulus to equip their economies for a post-pandemic future

Germany, long obsessed with balanced budgets, recorded its biggest deficit in a quarter century after stimulus measures that included taking stakes in airline Deutsche Lufthansa AG and vaccine maker Curevac. France offered aid to companies expanding production in impoverished rural areas or in strategic sectors such as health, electronics, and 5G industrial applications. Italy is using a state-backed lender to exert more control over industries from telecommunications to infrastructure, reversing decades of privatization.

"Given the crisis, it's not surprising that all governments intervened," says Gilles Moëc, chief economist at Axa SA, a global insurer based in Paris. "But what's striking is that there's almost no discussion—it's ultraconsensual everywhere."

While politicians will have to discuss the debt pile at some point, a report that Citigroup Inc. published this month says the EU is unlikely to go back to the restrictive budget rules, one of which was a deficit limit of 3% of gross domestic product. "European fiscal support is now a reality," it says.

Instead, governments are focused on how to use the landmark, multiyear €1.8 trillion ($2.2 trillion) joint budget and recovery fund—dubbed NextGenerationEU—to create jobs and invest in green industries and technology.

The challenge is not so much finding the political will, says Laurence Boone, chief economist at the Organization for Economic Cooperation and Development, but spending quickly and cutting through the red tape that's impeded grand projects in the past. If successful and sustained, the effort could motivate businesses. "It's a very good step, but Europe should go further," she says. "This has to become a long-term feature of the EU, because what also helps investing is to have confidence in the stability of your institutions and your economic landscape."

Supporters would agree, seeing the revival of Big ▶

ALAMY

◀ Government as a way to address issues such as climate change and jobs and even helping Europe build its economic might and resist being squeezed between the U.S. and China. But with vaccine rollouts poised to allow economies to reopen later this year, there will be a debate about whether Brussels should continue to look the other way or renew its curbs on state aid at the end of June.

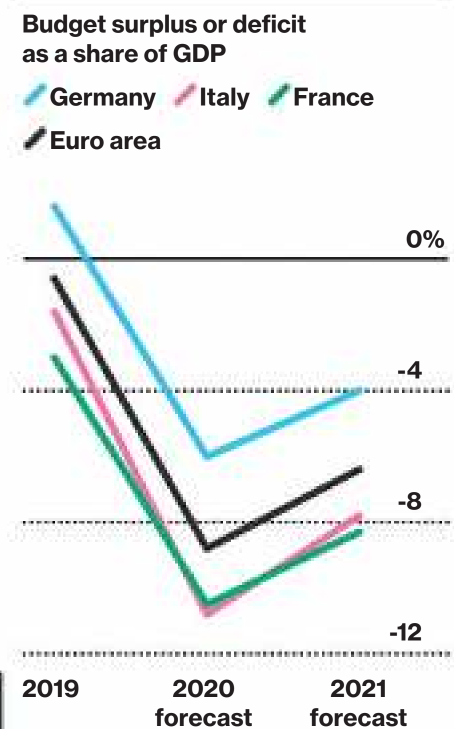
Even though the EU funds come with strings attached—no aid to coal plants is one—there's the familiar skepticism that governments won't spend wisely, with Italy's poor track record often cited. Its coalition government is near a breaking point because of a disagreement over how to deploy the EU money. Another question is whether the bloc should be intervening to pick and build industrial champions, as France has long demanded. "In Europe, in many quarters, the prevailing view is that such a great concentration of economic power would not be beneficial," says Zsolt Darvas, a senior fellow at the Bruegel think tank in Brussels.

Not every country is following the same blueprint. Italy's activism has extended to intervening in corporate decisions such as the sale of stock exchange manager Borsa Italiana SpA.

In Germany the government has been more hands-off. As part of the €9 billion rescue deal for Lufthansa negotiated by Deputy Finance Minister Jörg Kukies, a former Goldman Sachs Group Inc. executive, the state refrained from imposing conditions such as job cuts.

A government official said the policy has encouraged more companies to come forward for aid as a kind of a safety net to help them tap markets for financing. But even here, there's rumbling about too much political influence. Klaus Peter Willsch, a lawmaker in German Chancellor Angela Merkel's party, says intervention could undermine competitiveness.

France is looking to beef up its industrial base with



funds to encourage bringing production home and investing in high-value-added areas. To get the money flowing fast, while rules are still relaxed, the government has focused on small companies that can quickly present projects.

In northern France, yeast manufacturer Lesaffre ET Cie. won a €15 million grant for a plant where production will include a food supplement for treating joint disease that's mainly made in China. It aims to create about 400 jobs in an area where unemployment is around 35%.

"It's significant help that really encouraged us to decide on that site," says Lesaffre Chief Executive Officer Antoine Baule. "Everyone is fighting to create jobs, and industrial jobs in particular, so this possibility of giving us a hand is absolutely welcome." Ⓑ —*With Alessandra Migliaccio, Zoe Schneeweiss, and Aoife White*

HOT SEAT

Boris Johnson

By Tim Ross

On Dec. 31 the U.K. finally completed its divorce from the European Union. It should have been the moment Prime Minister Boris Johnson began to reveal his plans for "Global Britain," translating his slogan into a new mission for the faded imperial power.

But Britain has had to retreat into crisis-fighting mode as the Covid-19 death toll rises. In the early days of 2021, Johnson canceled his first trade mission to India and imposed a third lockdown on a recession-battered economy. While the government is now on course to vaccinate its 15 million most vulnerable people by Feb. 15, a new, highly infectious strain of the virus threatens to delay the easing of restrictions.

For U.K. businesses trying to trade with the EU, the first few weeks of life after Brexit have also been a struggle. Haulers are being overwhelmed by new customs paperwork, while some Scottish fishermen have decided to land their catches in Denmark because prices back home have collapsed. That risks fueling further calls for Scotland to separate from the rest of the U.K.

If the pandemic recedes, there are opportunities this year for Johnson to show what Britain can do. In June he hopes to hold the Group of Seven summit in a picturesque seaside resort, and in November the U.K. will host the COP26 global climate talks in Glasgow. And Johnson wants to nail down a trade deal with Joe Biden's new administration and other trade partnerships around the world.

After his recovery from Covid-19 last spring, the 56-year-old premier insisted he was "as fit as a butcher's dog." With so much on his plate, he'll need to be.

JOHNSON: REUTERS. STOVE: ALAMY. DATA: EUROPEAN COMMISSION

Introducing ATEM Mini

The compact television studio that lets you create presentation videos and live streams!

Blackmagic Design is a leader in video for the television industry, and now you can create your own streaming videos with ATEM Mini. Simply connect HDMI cameras, computers or even microphones. Then push the buttons on the panel to switch video sources just like a professional broadcaster! You can even add titles, picture in picture overlays and mix audio! Then live stream to Zoom, Skype or YouTube!

Create Training and Educational Videos

ATEM Mini's includes everything you need. All the buttons are positioned on the front panel so it's very easy to learn. There are 4 HDMI video inputs for connecting cameras and computers, plus a USB output that looks like a webcam so you can connect to Zoom or Skype. ATEM Software Control for Mac and PC is also included, which allows access to more advanced "broadcast" features!

Use Professional Video Effects

ATEM Mini is really a professional broadcast switcher used by television stations. This means it has professional effects such as a DVE for picture in picture effects commonly used for commentating over a computer slide show. There are titles for presenter names, wipe effects for transitioning between sources and a green screen keyer for replacing backgrounds with graphics.

Live Stream Training and Conferences

The ATEM Mini Pro model has a built in hardware streaming engine for live streaming via its ethernet connection. This means you can live stream to YouTube, Facebook and Teams in much better quality and with perfectly smooth motion. You can even connect a hard disk or flash storage to the USB connection and record your stream for upload later!

Monitor all Video Inputs!

With so many cameras, computers and effects, things can get busy fast! The ATEM Mini Pro model features a "multiview" that lets you see all cameras, titles and program, plus streaming and recording status all on a single TV or monitor. There are even tally indicators to show when a camera is on air! Only ATEM Mini is a true professional television studio in a small compact design!

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The Race to MARS!

The U.S. and China aim to visit the red planet this year, but competition is also growing closer to home

By Bruce Einhorn

In February unmanned spacecraft from China and the U.S. are scheduled to reach Mars, where both will dispatch rovers to the frigid surface, offering dueling images of its barren landscapes. It will probably be a decade or more before any humans travel to the planet, but both countries want to gain the expertise needed to dominate what lies beyond our atmosphere, with China aiming to catch up to—or outdo—the U.S., which has made eight successful Mars landings since 1976. "Mars has moved into the symbolic role of demonstrating the superiority of technology," says Alice Gorman, an associate professor at Flinders University in Adelaide, Australia, specializing in space archeology.

Their competition is heating up closer to home, too, as space takes on greater economic and military importance. NASA is working on plans to return astronauts to the moon sometime this decade, and China is preparing an unmanned lunar mission for 2023 in preparation for an eventual trip there by its astronauts. That would follow up a 2019 visit that for the first time sent a probe to the far side of the moon, as well as the *Chang'e-5* mission, which returned to Earth in December carrying samples from the moon's surface, something only the U.S. and the Soviet Union had done before.

China has been largely shut out of global initiatives such as the International Space Station because the U.S. Congress a decade ago barred NASA from cooperating with Chinese groups. That's spurred China to build its own space station, the first elements of which are scheduled to be launched by this summer. The U.S. restrictions haven't stopped China from forming satellite partnerships with France, Italy, and Brazil, and this year the Asian country aims to sign up others for its lunar projects—both to secure extra funding and to boost national pride. "Every successful space mission is a tribute to Chairman Mao and the old revolutionaries," Chinese astronaut Zhang Xiaoguang said in a December speech at a museum devoted to Mao Zedong.

NASA's Curiosity rover

Dozens of private space ventures have sprung up, too. Galaxy Space, a startup backed by billionaire Lei Jun, operates China's first low-Earth-orbit 5G broadband satellite, launched last year, and the company is planning a factory capable of producing as many as 500 satellites annually. That effort is one of several Chinese initiatives aimed at establishing a competitor to Starlink, Elon Musk's proposed network of tens of thousands of low-flying satellites to provide broadband access. China's systems will likely be put into orbit by outfits such as Galactic Space, which in November became the second Chinese company to launch a satellite. The first, ISpace, raised 1.2 billion yuan ($185 million) in August from investors led by Sequoia Capital China.

With the prospect of mining on the moon shifting from science fiction to solvable logistical challenge, NASA in 2020 unveiled the Artemis Accords, an international agreement allowing countries or companies to establish exclusive zones on the moon. China didn't sign on, and the *Global Times*, an official Communist Party mouthpiece, denounced the accords as bolstering a U.S. "political agenda of moon colonization."

President Biden will have to choose whether to confront China on its space initiatives or find ways to ease tensions and even increase collaboration. Wendy Whitman Cobb, an associate professor at the U.S. Air Force's School of Advanced Air and Space Studies in Montgomery, Ala., says there's precedent for countries setting aside Earth-bound differences in space—in particular the joint Apollo-Soyuz mission during the Cold War in 1975. "I don't think cooperation with China is impossible," she says. "History tells us it can be done." B

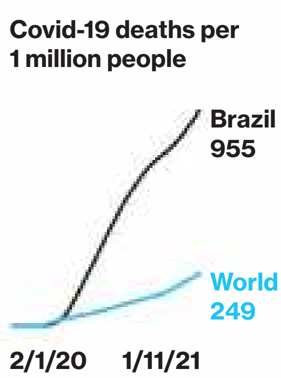
MARS: GETTY IMAGES. ROVER: COURTESY NASA

A Pandemic

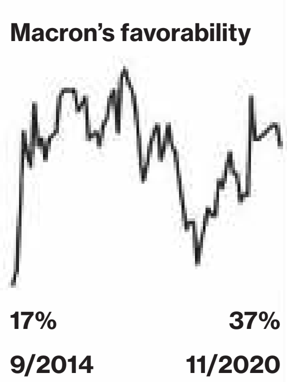
As many of the world's major economies prepare for elections in 2021 and 2022, voters are disillusioned and divided and don't hold much hope for the future

By Andre Tartar and Dorothy Gambrell

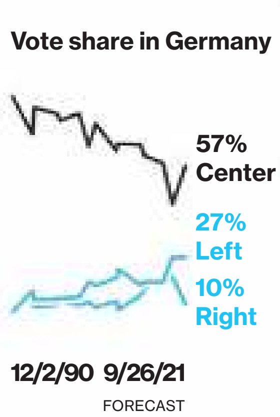
Brazil President Jair Bolsonaro refused to completely shut down the economy, and the country's Covid-19 death toll grew to the second highest in the world. He also championed a generous stimulus package, with tremendous results: The share of Brazilians living in extreme poverty sunk to a level lower than it was before the pandemic. Bolsonaro's ability to keep the money flowing will be key to his popularity—and his 2022 reelection campaign. —*Andrew Rosati*

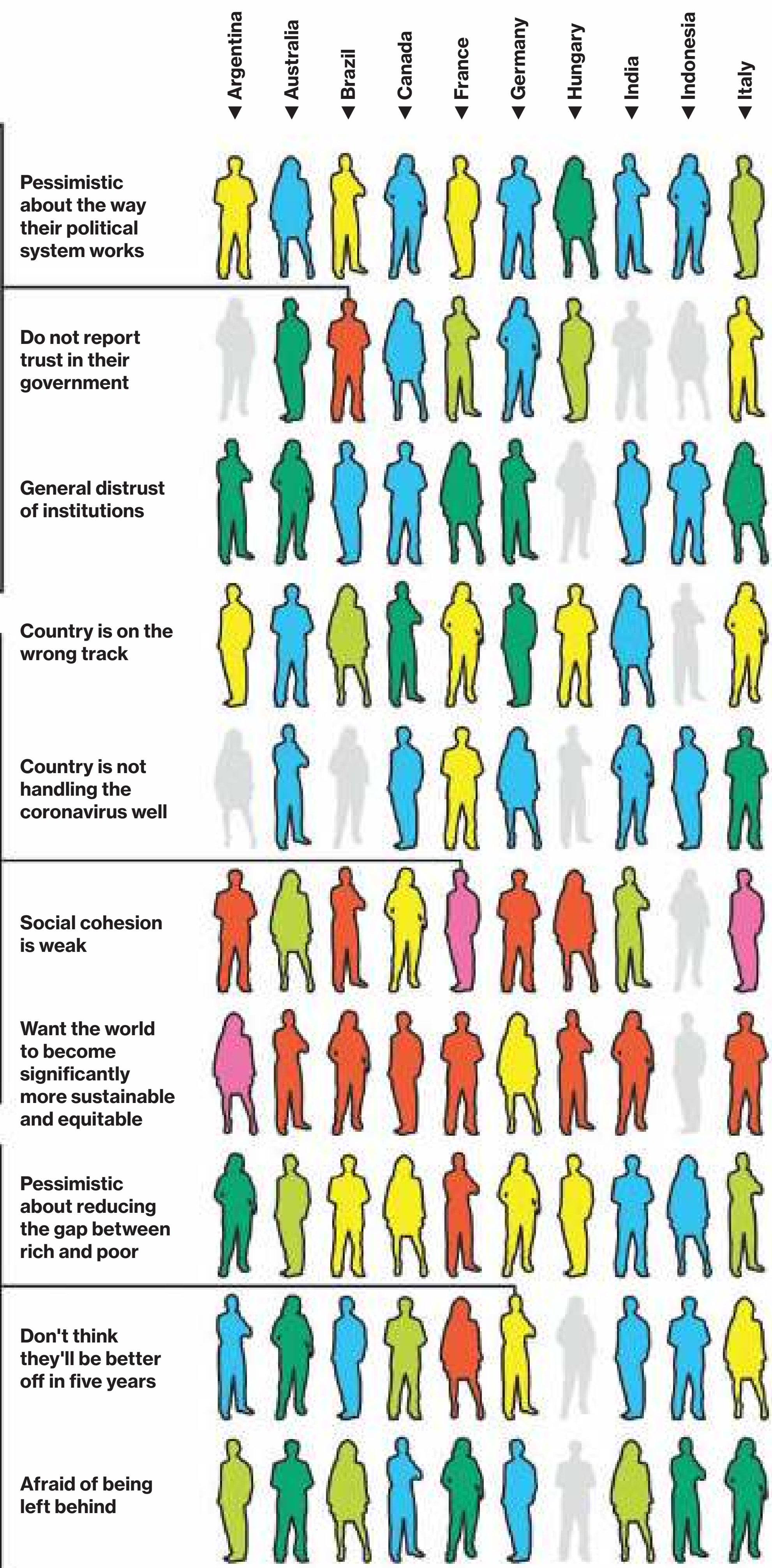


France In the earliest stages of the pandemic, just 29% of French people were satisfied with President Emmanuel Macron's performance. He promised a "new course" and tacked to the right after his party suffered losses in elections in June. Nationalist Marine Le Pen seems to be Macron's main threat in 2022, but the mainstream parties that imploded when he created his centrist party in 2016 could stage a comeback. —*Caroline Alexander*

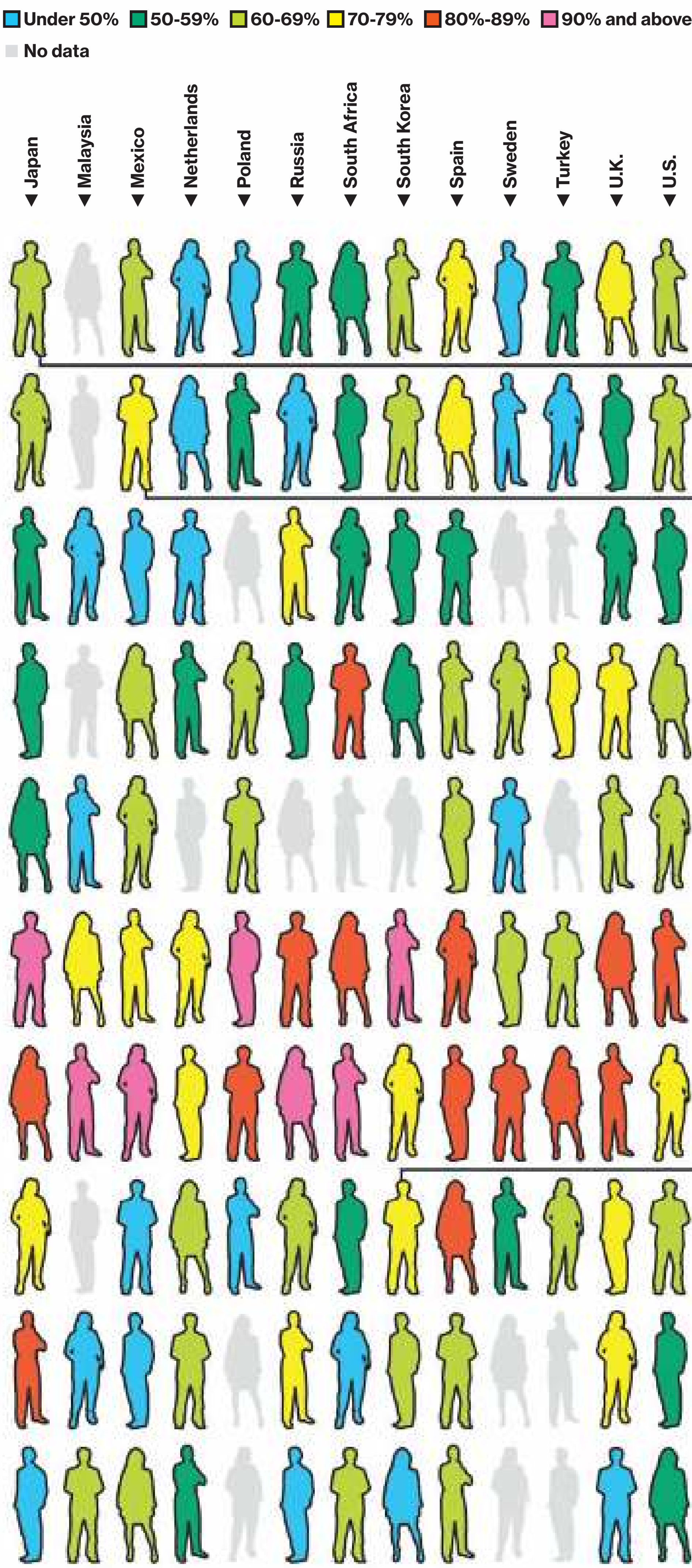


Germany The longest-serving elected female head of state in the world is leaving, and the void will be difficult to fill. Chancellor Angela Merkel has no clear successor. The September elections will be the first in which her Christian Democratic Union and the Social Democrats will face serious competition for the top job from a third party: the Greens, now Germany's No. 2 political force. —*Raymond Colitt and Iain Rogers*



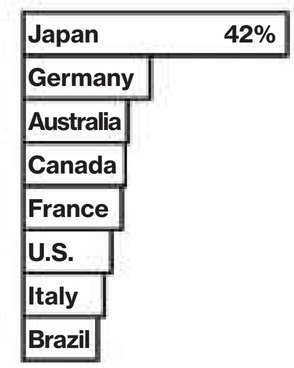


# of Pessimism



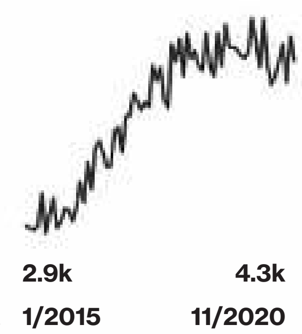
Japan Yoshihide Suga took over from Shinzo Abe, Japan's longest-serving prime minister, last September, and with elections set to be held by October, he has little time to prove he can be more than a short-term caretaker. Japan has passed generous stimulus packages, but forecasts suggest it will be a long time before the country gets back to pre-Covid levels of growth. Opposition parties are unlikely to challenge Suga and his Liberal Democratic Party, but a dynamic challenger could emerge from within Suga's own ranks. —*Yuko Takeo*

Covid-19 fiscal stimulus, share of GDP



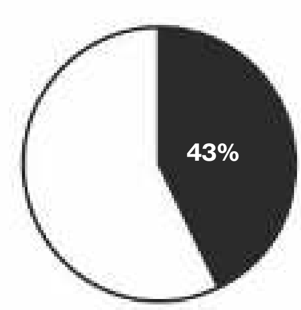
Mexico Citizens disapprove of the government's response to the pandemic, its handling of the economy, and its inability to control a spiraling crime rate. Mexicans do, however, like their president, Andres Manuel Lopez Obrador, known as AMLO. Critics say he's using a high-profile anticorruption campaign to distract attention from the Covid crisis. In June, AMLO faces his first electoral test, with 500 members of the lower house of Congress and more than a dozen governors up for election. His Morena party and its allies have a substantial majority in the legislature and are looking to make inroads in the states. —*Andrew Rosati*

Murders in Mexico, by month



South Korea The South Korean government has allocated more than 31 trillion won ($28.1 billion) to Covid stimulus, about evenly split between aid for small businesses and direct cash payments. The popularity of these measures has made Gyeonggi province Governor Lee Jae-myung a front-runner to win the next presidential election in 2022. Even before the pandemic, Lee advocated for a universal basic income to address growing poverty, particularly among elderly Koreans. Other politicians are getting on board, including the conservative opposition. —*Jeong-Ho Lee*

Poverty rate of people over 65 in South Korea



DATA: PEW RESEARCH, OECD, EDELSON TRUST BAROMETER, IPSOS, YOUGOV, PARLGOV, COVID-19 ECONOMIC STIMULUS INDEX, MEXICO, BLOOMBERG

Saudi Arabia Hits RESET

By Sylvia Westall, Javier Blas, and Fiona MacDonald

Hours before Saudi Arabia jolted the oil market with an output cut it called a "gesture of goodwill," the kingdom's de facto ruler took center stage in a mirrored concert hall, ready to resolve a different crisis.

Crown Prince Mohammed bin Salman had presided over a rift with Qatar for more than three years. But now there were just two weeks before a new U.S. leader took office, and President-elect Joe Biden had promised to treat Saudi Arabia as a "pariah." Combined with threats from Iran and a weakening economy, the prince's calculation had been shifting: Reconciliation looked better than conflict.

So in a Jan. 5 summit, as television cameras rolled in the northwestern Saudi town of Al Ula, Prince Mohammed hugged Qatar's ruler and ended the split, casting himself as a peacemaker. Hours later, Saudi Arabia announced it would cut oil production by 1 million barrels a day to support prices for fellow producers—a directive that the energy minister said came straight from the crown prince.

The crown prince tries to mend ties with neighbors as Biden talks tough

With those moves, Prince Mohammed projected a conciliatory tone—at least for now. Since the 35-year-old prince rose to power in 2015, the world's largest crude exporter had entered into a series of uncharacteristically high-risk ventures: waging an unresolved war in Yemen, partially cutting ties with Canada, engaging in a bitter oil-price war with Russia, and flirting with a trade war with Turkey.

One Gulf-based diplomat described Prince Mohammed as attempting to pull two levers of influence at the same time. With one, he eked out whatever last gains he could squeeze from the Saudi-friendly administration of President Trump. He drew on the desire of Trump adviser Jared Kushner, who attended the summit, to look like a peacemaker. With another lever, by appearing to be constructive, the prince positioned himself as a leader whom Biden can't afford to alienate or ignore.

"This is an effort to take a leadership role, to try and gain some diplomatic advantage with the incoming Biden administration, and a realization perhaps that the last four years allowed too much foreign policy adventurism," says Karen Young, a resident scholar at the American Enterprise Institute, a think tank in Washington, D.C.

Trump was close to Saudi Arabia, taking his first foreign trip as president there and driving a hard line against its archenemy Iran. He also shielded Prince Mohammed from repercussions for his alleged role in the 2018 murder of *Washington Post* columnist Jamal Khashoggi by Saudi agents in Istanbul. The prince has denied any personal involvement in the killing.

It's not just Biden driving the new tone, though—the terrain Prince Mohammed treads has also shifted. His plan to diversify the economy and wean it off oil faces major setbacks, and the kingdom's reputation has taken a dive after a series of scandals. The coronavirus pandemic increased the urgency of challenges at home.

Prince Mohammed

During much of last year, Prince Mohammed took a step back from the public sphere and hunkered down on the Red Sea coast in Neom, one of his signature futuristic megaprojects. It was the finance minister, Mohammed Al-Jadaan, and King Salman—Prince Mohammed's father—who addressed the country, warning citizens of tough times.

At the early January summit, King Salman was absent, and Prince Mohammed was the star. The setting reflected the prince's ambitions, highlighting his plan to turn Al Ula into a world tourism destination. After the meetings, he showed Qatari Emir Sheikh Tamim bin Hamad around. They rode in a white Lexus, with Prince Mohammed at the wheel.

The image would have been unthinkable a few years ago, when the prince's closest advisers regularly disparaged Qatar. Saudi Arabia and its allies have accused the wealthy Gulf state of interfering in their internal affairs, supporting extremism, and using its influential media channels as propaganda weapons against neighbors—charges Qatar denies.

Regional dynamics were key in prompting the mending of ties, including Saudi Arabia's desire to focus on Iran, says Hesham Alghannam, a political scientist and senior research fellow at the Gulf Research Center. Biden has said he'll look to rejoin the nuclear deal with Iran that Trump abandoned, an outreach viewed with trepidation by Saudi Arabia, which has provided added incentive for it to mend ties with Arab neighbors.

Says Alghannam: "Saudi wants to be the referee of the disagreement between Gulf states, instead of being part of these conflicts." Ⓑ *—With Vivian Nereim, Farah Elbahrawy, and Abeer Abu Omar*

COUNTING ON CHINA'S CONSUMERS

By Tom Hancock

While much of the world was under stay-at-home orders on the first day of 2021, Chinese moviegoers packed into cinemas to watch the romantic comedy *Warm Hug* and the drama *A Little Red Flower*, generating the country's biggest New Year's box office on record. The 545 million yuan ($84 million) splashed out on movie tickets was the latest sign that household spending in China is above pre-pandemic levels, mainly thanks to the country's effective suppression of the coronavirus's spread.

That's good news for China's economy, as consumption has accounted for the bulk of growth in recent years. Shifting the development model away from investment in housing and industry and toward consumer demand is a key objective for the country's leadership, which wants to ensure sustained levels of economic expansion, though with less debt.

Beijing talks up demand-side reform, but households are piling up savings

President Xi Jinping introduced the term "dual circulation" last year, signaling a renewed push to build a stronger domestic market to insulate China from the threat of rising global protectionism. In December the top leaders of the Chinese Communist Party used the phrase "demand-side reform" for the first time, confirming that policies geared toward allocating a greater share of national income to households will be a priority in the Five-Year Plan that runs from 2021 to 2025.

China's unbalanced coronavirus recovery has made tilting the economy toward consumers more difficult. During widespread shutdowns in the first quarter of 2020, the government provided relatively little direct support to households even as tens of millions lost their jobs, focusing instead on keeping businesses afloat. So while the economy as a whole grew 2.3% last year, per capita household spending declined 4%, according to official statistics.

As it did elsewhere, inequality spiked in China because of the pandemic. Higher-paid professionals able to work from home felt little impact in terms of income, and many saw their wealth increase as a result of a surge in home prices early in the year. One Chinese characteristic of the K-shaped recovery was that spending on everyday consumer goods fell 0.1% in the first three quarters of 2020, but sales of luxury goods were on course to rise 48% for 2020 as a whole, according to the consulting company Bain & Co. "The polarization trend in consumption mirrors the polarization of household incomes and is expected to continue even after Covid ends," it said in a report in December.

That the wonky term "demand-side reform" has been elevated to the status of buzzword raises expectations that China's ruling party will do more to tackle inequality. The leaders "see the consumption problem is more serious than before," says Gan Li, director of the Survey and Research Center for China Household Finance at China's Southwestern University of Finance & Economics. To fix that, he says, Beijing must enact policies to promote a more even distribution of income, such as increasing the tax on capital gains and channeling more public spending into health care and pensions.

But redistribution can be difficult, even in a country ruled by self-described communists. The government has delayed the implementation of a property tax for more than a decade in part because of a pushback from elites.

Chinese households accumulated assets equivalent to 6% of annual consumption in 2020, according to Morgan Stanley. Ernan Cui, an analyst at Gavekal Dragonomics in Beijing, says they might be more willing to spend down their savings now that the job market has largely recovered. "Chinese consumers can do better on their own partly because they have saved money," she says.

A crucial test for the consumer recovery will be the Lunar New Year in February. In normal times hundreds of millions travel cross-country and families fill up restaurants during the holiday period. Cui isn't holding out much hope that this one will be a blockbuster like Jan. 1 was for cinemas, because the appearance of new coronavirus clusters led northern Chinese cities to impose travel restrictions this month. "I think the consumption will still be lower than before the pandemic," she says. Ⓑ

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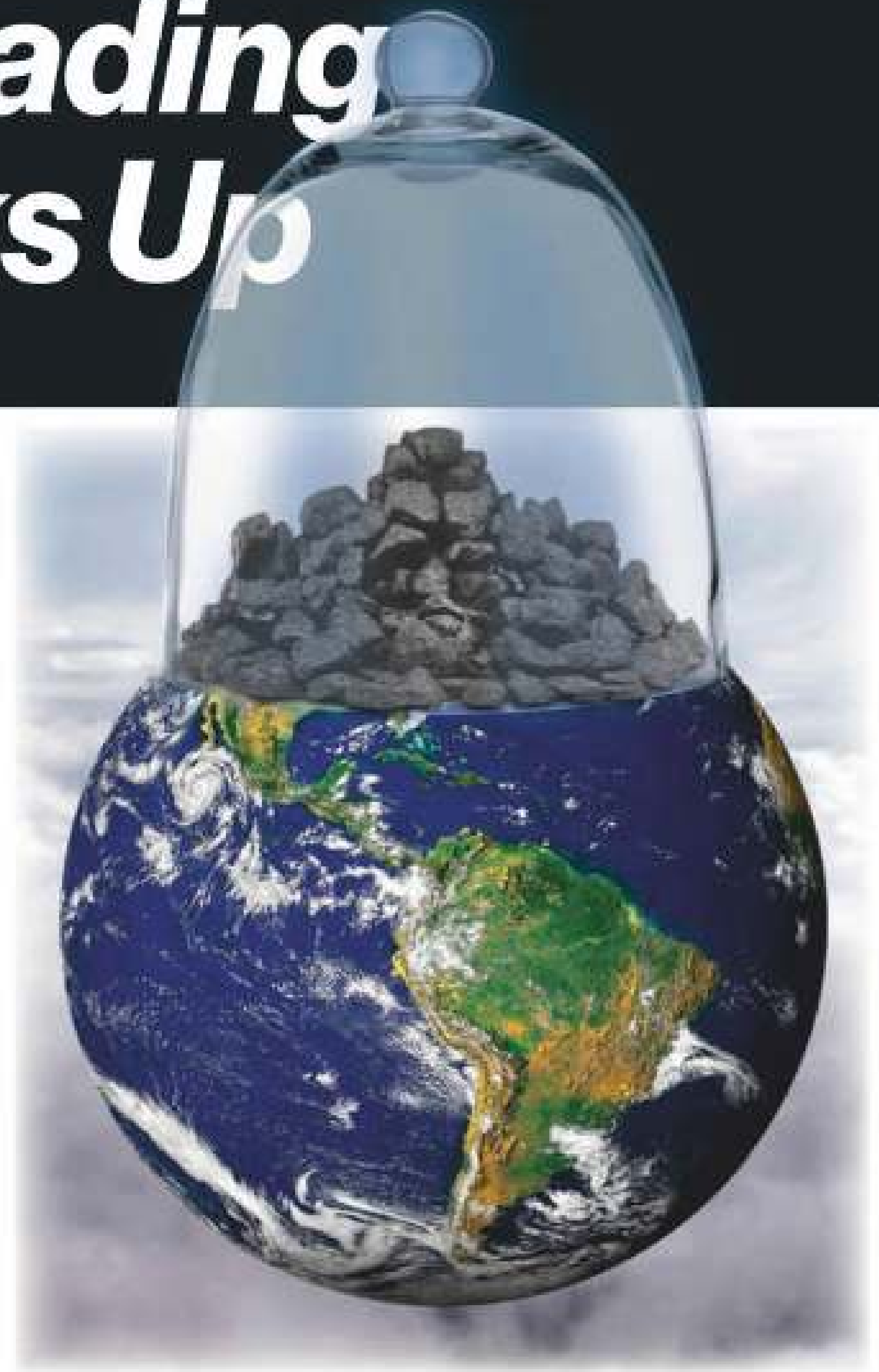
A Carbon Trading Market Perks Up

By Ewa Krukowska



Sixteen years ago, Europe introduced a market based on what was then a revolutionary notion: forcing companies to cut greenhouse gas emissions by issuing credits that allow them to pollute up to a certain level. If they spew out more, they have to buy allowances from other companies. If they pollute less, they can sell their extra permits and bank the cash.

This so-called cap-and-trade program, modeled after a U.S. effort to control acid rain, set carbon dioxide limits for more than 11,000 facilities in sectors such as power, paper, cement, and, later, aviation. It was a great idea that helped the European Union overcome a decade-long stalemate on a carbon tax, but it had a fundamental flaw: The permit levels were determined in prosperous times, and there was no plan for reducing supply in the event of a sharp fall in output.

When the global economy went into a funk in 2008, emissions plummeted, sending prices for permits into a tailspin. The problems were aggravated by imports of cheaper credits from outside the region issued under a carbon-reduction program overseen by the United Nations. By 2013 the cost of emitting a ton of carbon had tumbled from a pre-crisis high of €31 ($38) to just €2.50.

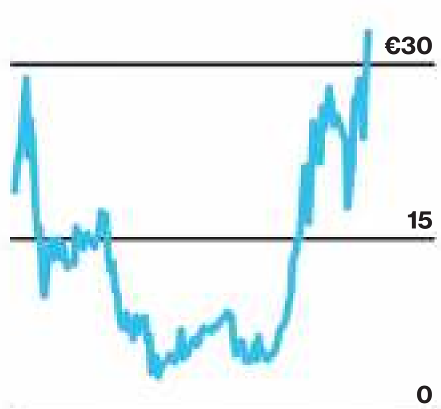
Now, after three reforms that reduced the number of available permits, Europe's Emissions Trading System (ETS) is back on track—even though production is lower because of the coronavirus pandemic. On Jan. 12 the cost of emitting a ton of CO_2 hit €35.42—a record—and consulting firm Energy Aspects predicts prices will reach €40 this year. "ETS has shown it's a resilient system, and it's now getting stronger," says EU climate chief Frans Timmermans. "This is one of the best instruments we have to influence the behavior of industry and the necessary reduction in the use of carbon."

The resuscitation of the ETS has come in response to the limits on permits and expectations that the supply will soon shrink even faster. From 2013 to 2020 the volume of permits issued was reduced 1.74% annually, and from this year it will drop 2.2%. In December, EU leaders endorsed a revised 2030 target of cutting pollution by at least 55% from 1990 levels, vs. an earlier goal of 40%, as part of the EU's so-called Green Deal, a sweeping environmental program aimed at making the region carbon neutral by 2050.

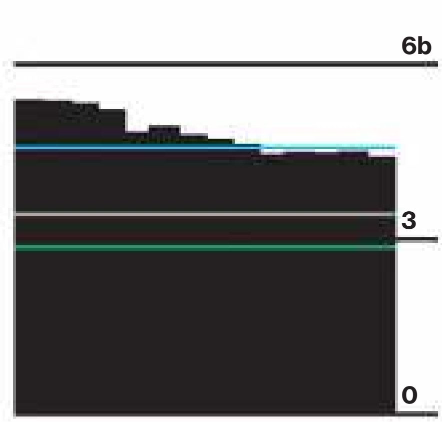
This summer the European Commission, the bloc's regulatory arm, is due to suggest measures designed to align the cap-and-trade program to the tighter emissions target. Proposals include a speedier reduction

After a decade in the doldrums, prices for European emissions permits are setting new records

Price of permit allowing emissions of 1 metric ton of CO_2 equivalent



EU emissions (metric tons of CO_2 equivalent)



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SCIENCE PHOTO LIBRARY/ALAMY. DATA: COMPILED BY BLOOMBERG, EUROPEAN ENVIRONMENT AGENCY in the volume of permits issued, a one-off reduction in the cap to better sync it with the 55% goal, and an expansion of the program to include the construction industry and maritime and road transportation. Given the dealmaking that will be required in the 27-nation EU, approval of any overhaul will take at least a year.

The most aggressive measures under consideration could push the cost of emissions to €80 per ton by 2024, according to BloombergNEF, Bloomberg LP's energy transition research service. But that scenario is unlikely, because European governments would resist putting their companies at a competitive disadvantage to rivals from places without carbon limits. Jahn Olsen, head of EU carbon at BNEF, predicts prices will remain below €50 per ton until the middle of the decade as the commission seeks to tighten emissions targets while discouraging companies from relocating production to places with laxer climate rules. "One thing is certain: Carbon prices are going from being merely a regulatory issue to a strategic risk for companies," Olsen says.

The EU carbon market has already driven significant emissions reductions in the power sector, where CO_2 pollution fell 15% in 2019 as electricity from renewables displaced fossil fuels. A bigger challenge is heavy industry, which registered a 2019 drop of just 2% in carbon emissions. Accelerating the shift would require a massive uptake of cheap, clean energy, with many member states backing new and unproven technologies such as fueling factories with hydrogen. With the pool of permits shrinking, companies will need to choose between investing in cleaner production—the real goal of the program—or buying more allowances, which will keep putting upward pressure on prices, says Ingo Ramming, a carbon expert at Commerzbank AG. "The increase in European carbon prices and public debate on climate change have moved sustainability from niche to mainstream," he says. "It has become part of corporate strategy." Ⓑ

Q&A
LETITIA JAMES

New York's AG talks about investigating Trump and suing big tech

By Erik Larson

New York Attorney General Letitia James, 62, is the first woman and Black person elected to her office. She's filed or joined lawsuits against the Trump administration on issues such as immigrants' rights and housing discrimination. She's also leading a group of states in an antitrust suit to force Facebook Inc. to unwind its acquisitions of Instagram and WhatsApp, which she claims were part of an illegal effort by Chief Executive Officer Mark Zuckerberg to kill his competition—and suing Alphabet Inc.'s Google as well.

Now, as President Biden takes office, James is in the midst of an investigation into whether Trump's real estate business falsely reported property values to get loans or tax benefits, as well as a fraud suit against the National Rifle Association.

What is your ideal resolution to the Facebook lawsuit?

We want Facebook to stop its anticompetitive conduct and undo the harm it's caused. Facebook's monopoly hurts consumers, it hurts the marketplace, it hurts advertisers. And Facebook users have nowhere else to go. Breaking up Facebook is one of the many remedies that are on the table, just as back in 2001 they focused on Microsoft and broke up AT&T back in the '80s.

Same question for Google.

Google is a sprawling monopolist, with tentacles in almost every part of our everyday online activities—search, search advertising, restrictive contracts, placement. They discriminate against companies like Yelp and TripAdvisor, and they starve general search. These companies are not too big to fail or to break up.

If Trump were criminally charged, it would create a firestorm. Is that a factor for you? Should it be?

The Biden administration wants to look forward, and I applaud that. My office is investigating potential civil claims. In the event we uncover any criminal activity, it will change the posture of our case. I took a solemn oath to follow the law.

What about backlash to the NRA suit?

If you read the complaint, you see it has nothing to do with the Second Amendment. It's all about our role in regulating not-for-profits in the state of New York. Wayne LaPierre and other executives diverted much-needed funds for their own personal use. I don't know what going on safaris in Africa has to do with the Second Amendment.

Are you glad 2020 is over?

I'm glad 2020 is behind us. It's been a year of several pandemics—Covid, racial reckoning, and economic downturn. What we need, now more than ever, is to heal the breach in our nation, restore our economy, and do it in a way that reminds Americans about the exceptionalism of our country.

Do you have any plans to run for governor?

[Laughs.] Ⓑ

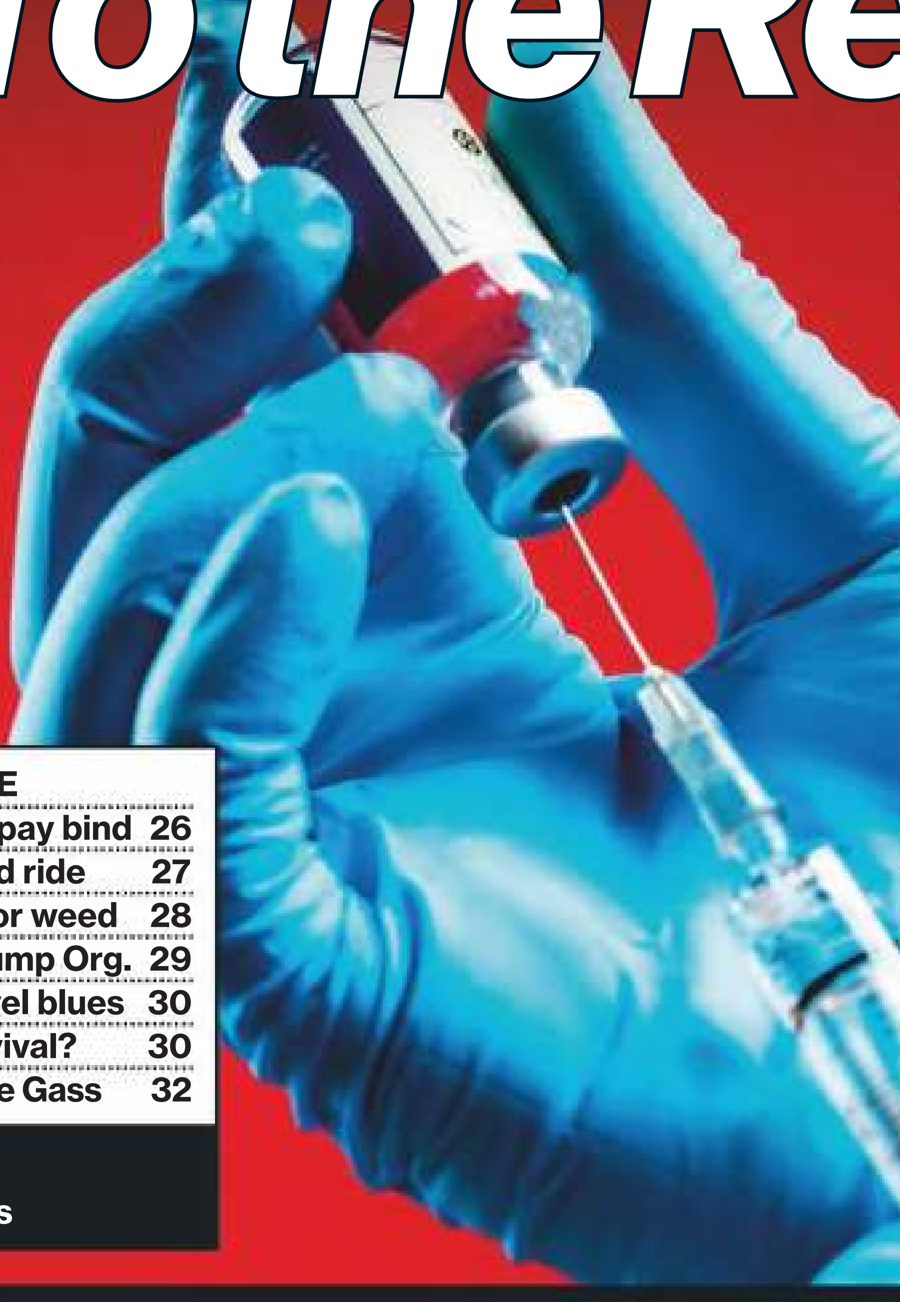
This interview has been edited for clarity and length.

JIM SPELLMAN/GETTY IMAGES

PLUS: Covid! Lockdowns! Vaccines!

CONSUMER

Drugstores To the Rescue



MORE INSIDE

Edited by
James E. Ellis

Pharmacy chains aim to boost the vaccine rollout—and their bottom lines

By Robert Langreth and Angelica LaVito

Vaccines from Pfizer Inc., Moderna Inc., and others will have the power to one day end the pandemic, or at least tame it—but only after 70% or more of the world's population gets inoculated against Covid-19. So far, the rollout has been anything but smooth: By mid-January just 13 million Americans had received a dose, far short of the Trump administration's projections. At that rate, it could take until 2022 before the country gets back to normal.

Big drugstores say they're ready to come to the rescue. They won't eliminate the need for stadiums and other mass inoculation sites, but chains such as CVS Health Corp. and Walgreens Boots Alliance Inc. have the advantage of being everywhere. There are 60,000 pharmacies spread across the U.S., including drugstores within big-box stores such as Walmart and major grocery chains as well as independents and local chains. Many have experience providing vaccines: U.S. pharmacies gave out about a third of adult flu shots in 2018, up from just 18% in 2012. President Joe Biden's ambitious $20 billion plan to reboot the troubled vaccine distribution rollout to deliver on his pledge of 100 million shots in 100 days will rely, in part, on drugstores. "We are going to fully activate the pharmacies across the country," Biden said on Jan. 15.

Last fall, the U.S. government created a partnership with about 40,000 pharmacies from 19 chains and networks to help administer the coronavirus vaccine. These include CVS, Walgreens, Rite Aid, Walmart, Costco, and most major grocery store chains. CVS, which has almost 10,000 locations, has been preparing for the rollout since the summer. "We are ready to go," says Chris Cox, CVS's senior vice president for pharmacy. The chain has hired 10,000 pharmacy technicians, pharmacists, and nurses to help with Covid vaccines and testing and so far has trained 12,000 technicians to administer shots.

Walgreens, meanwhile, has more than 9,000 stores and "will be ready to administer any and all" of the vaccines, says Rick Gates, senior vice president for pharmacy and health care. Getting a Covid vaccine will be "very similar to what you see from a flu clinic," says Gates, with the difference that shots will be scheduled in advance. CVS says it will be able to administer 30 million shots a month. Walgreens has the capacity to give up to 25 million.

Still, don't expect miracles. The two chains were tapped to vaccinate nursing home residents across the country. Some local officials have criticized the program for moving too slowly.

Excluding those unwilling to get shots, as well as health-care workers and nursing home residents who've already received them, about 170 million American adults need a vaccine, Jefferies Group LLC analyst Brian Tanquilut estimates. Retail pharmacies, he says, could capture as much as 50% of that business.

"We are going to fully activate the pharmacies across the country" to speed vaccinations, President Biden says

Independent community pharmacies will play an important part in the rollout as well. There are 21,000 mom and pop outlets and small chains, many of them in smaller towns and rural areas. In West Virginia, which has had one of the most successful vaccine rollouts, independent drugstores have been involved from the start. And in Louisiana, about half the pharmacies administering shots are independents, according to Joseph Kanter, a state public health official.

"Community pharmacies are a force multiplier," says Brian Caswell, president of the National Community Pharmacists Association.

To prevent crowding, most big pharmacies plan to use an appointment-only system for Covid shots, says Kathleen Jaeger, senior vice president for pharmacy care at the National Association of Chain Drug Stores, a trade association. The group estimates its members can administer 100 million vaccine doses a month, surpassing the Biden administration's goal. Pharmacy chains already have a well-developed network of websites and phone apps to manage online contact lists for their prescription drug business. CVS will have an app and a dedicated 800 number people can use to sign up for both their first and second vaccine shots at once.

Most Walgreens locations boast private rooms where pharmacists can inoculate customers, Gates says. CVS has exam rooms in almost 1,100 stores with MinuteClinics; elsewhere, it will use old photo labs or even fitting rooms inside the Target stores where it operates pharmacies, Cox says.

Originally, the plan was to wait until so-called Phase 2 of the vaccine rollout—mass vaccination of all adults—before turning to pharmacies on a huge scale. But drugstores have been pushing to open up the program sooner, and CVS and Walgreens say their programs could start by late January or early February. The program will be rolled out to a limited number of stores in each state at first, according to the Centers for Disease Control and Prevention, as there won't be enough vaccine supply to involve all pharmacies that have signed up from the get-go.

The chains have a financial incentive to get those supplies into people's arms. Under the federal Medicare program for older Americans, vaccine providers will receive $16.94 for the first dose of a two-shot regimen and $28.39 for the second shot. Even if pharmacies administered just 30% of the shots, CVS could earn $490 million in gross profit this year from Covid shots, while Walgreens could earn $445 million, Tanquilut says.

Pharmacies will have to develop backup plans and standby lists to deal with the inevitable glitches, such as no-shows or late-arriving vaccine shipments. Rite Aid Corp. Chief Executive Officer Heyward Donigan expects the rollout to remain messy for some time. "It's going to be pretty chaotic for the next few weeks," she says, "as people try to maneuver through this." Ⓑ

VACCINE: GETTY IMAGES. CVS: JOHNNY LOUIS/GETTY IMAGES

Hollywood Needs A New Pay Model

The rapid growth of streaming, quickened by stay-at-home Covid lockdowns, could end the massive paydays some actors and producers get from hit theatrical releases

By Lucas Shaw and Kelly Gilblom

When WarnerMedia announced on Dec. 3 that it would release a year's worth of movies on HBO Max, its new streaming service, cinephiles and critics bemoaned the demise of theaters. Yet many of the loudest voices were mourning the end of something else: their pathway to astronomical riches.

For decades, movie stars and A-list directors have earned both a salary and a share of a movie's profits, often bolstered by how well a film performs in theaters. Members of the crew, writers, and other actors have made money from residuals: Every time a movie is purchased on DVD or licensed to a TV network, they get a check.

But most new movies that stream don't get released in theaters. The services pay for them upfront, which means stars, producers, and filmmakers can't earn the windfalls that come from box-office smashes. "Broadly speaking, the streaming model does have the potential to transfer more of the long-term economic upside from the talent pool—the producers and talent—to the streamer," says Chris Spicer, head of Akin Gump Strauss Hauer & Feld LLP's entertainment and media law practice.

The stars of big hits can earn huge paydays. Robert Downey Jr. earned a reported $75 million for his salary and share of profits on *Avengers: Endgame*, the most profitable movie of 2019. Yet for every Downey Jr., there are many more producers or financiers who have lost a lot of money. Streaming services such as Netflix Inc. have offered producers in both TV and film a less volatile alternative. When the service buys a movie, it typically gets all the rights worldwide for a one-time fee, releasing the seller from having to suit the public tastes in scores of foreign markets.

The success of Netflix and the declining audience for theatrical films have forced every major media company to start making movies for streaming services, a shift that the pandemic has accelerated. But Warner's decision to put its 2021 slate on HBO Max and in theaters on the same day has upset the financiers and filmmakers who'd created those movies with the studio, and studio executives have been trying to placate them.

The revenue consequences can be dramatic: *Wonder Woman 1984*, released on Christmas Day in theaters and on HBO Max, made $16.7 million during its opening weekend in U.S. theaters. Its 2017 predecessor made $103 million on its U.S. opening weekend.

Warner has spent the past month negotiating new contracts with the producers, stars, and financiers of movies including *Dune*, *The Matrix 4*, and *In the Heights*, offering both guaranteed money upfront and accelerated bonuses for their theatrical runs. While WarnerMedia Chief Executive Officer Jason Kilar calls this release strategy a temporary response to the pandemic, many entertainment industry executives expect otherwise. "It's very hard to put the toothpaste back in the tube," producer Jason Blum says.

"The streaming model does have the potential to transfer more of the long-term economic upside from the ... producers and talent to the streamer"

PELOTON WANTS TO BE MORE THAN A PANDEMIC FAD

Covid-driven gym closures propelled the home-fitness company last year. But can it maintain its lead?

By Anders Melin and Jack Pitcher

In March, a couple of weeks after sweeping stay-at-home orders had brought much of the U.S. to a halt, William Lynch says he realized Peloton Interactive Inc. would fare really well in the year of the pandemic. Orders were flooding in from areas under lockdown at such a rate that Peloton halted all its marketing in the U.S. The customers kept coming. Covid-19 "changed everything for Peloton," says Lynch, the former Barnes & Noble Inc. chief executive who's been the company's president since 2017. "We saw what was already a rapidly growing business just explode."

It's awkward: booming growth while the novel coronavirus has ravaged families and caused economic upheaval. But Lynch says a broad shift to at-home workouts, which underpins Peloton's whole business model, was under way well before 2020; the pandemic just sped it up. Now he and his colleagues are working to convince the world that Peloton's momentum will continue once the virus eventually subsides.

Last year the company introduced a new bike and cut the price of its old model by 15% to $1,895 (not including the $39-a-month membership). It introduced programs tailored to people who don't have free weights or a Peloton bike, like barre and dance cardio, and added classes for pandemic-sheltering families with kids. And it's making a big push to sell treadmills, because there are far more runners than cyclists in the world.

Just a year ago, Peloton skeptics abounded, citing the many companies that have peddled a wide range of home workout equipment in recent decades but struggled to make anything stick. Peloton's shares fell 11% in their first day of trading in 2019. At the time, it was losing 21¢ on every dollar of sales. And last March, just as the country went into lockdown, short seller Citron Research, which bets that companies' stocks will fall, published a report saying, "the dream of Peloton becoming the official platform of home health will soon be a distant memory." It said Peloton was worth $1.4 billion, or about $5 a share.

On Jan. 14, Peloton shares closed at about $165, giving the company a market value of more than $48 billion. It has 3.6 million members and has sold more than 1 million bikes and treadmills, which retail for about $2,000 to $4,000. Users completed 90 million workouts in the three months ended Sept. 30. Revenue in that period more than tripled from a year earlier, and the company turned a profit in at least two quarters of 2020.

Across the country, gym chains have closed or gone bankrupt. Many fitness studios up and down the avenues of New York City sit almost empty. Flywheel Sports, a Peloton rival, went belly-up in September. Scores of fitness instructors lost the steady stream of clients gyms generated. Some have pivoted to online-only. Many have left the business.

The pandemic hasn't made the world of fitness a winner-take-all game, industry veterans say, but it's becoming winner-take-most—and Peloton has a clear lead. "Digital fitness was already a growing category, and the pandemic really put it at the forefront," says Claudia Lebenthal, founder of Style of Sport, a website focused on wellness. For many others, such as freelance yoga instructors or personal trainers who patch together jobs at multiple studios, "it's going to be very hard to sustain themselves unless something radically changes."

Peloton's success comes on the heels of the boom of boutique fitness studios that a decade ago firmly took hold in New York and beyond. Americans long used to the uninspiring experience of going to big-box gyms were served a different proposition: small, intimate classes with captivating music and a sense of exclusivity, led by someone who was part instructor, ▶

WONDER WOMAN: CLAY ENOS/EVERETT COLLECTION. MONEY: GETTY IMAGES. PELOTON: COURTESY PELOTON

◀ part spiritual adviser. The concept exploded, never mind per-class fees of $34 or more. In 2012, when Peloton founder John Foley and his team began laying the groundwork for the company, a New Yorker could indulge in mini-trampoline yoga in the Flatiron, underwater cycling in TriBeCa, and pole dancing in Chelsea. There was SoulCycle, promising sweat and spiritual fulfillment, and Flywheel for those with a more competitive bent. Collectively, they turned people who'd previously been little but paying patrons into members of a tight-knit community, underpinned by social media.

Foley, now a billionaire, saw the power of that equation—the music, the vibe, and the sense of camaraderie that can be built through shared physical exhaustion—and bet that it could be replicated even without riders and instructors ever meeting in person. Americans have for years bought millions of treadmills that always "became the cliché dust collector and clothes hanger because it just wasn't fun," he told investors in December. They lacked "all the sexy stuff that makes a Peloton experience and makes it so sticky."

Instructors are at the center of the new business model. Unlike most fitness companies, which hire instructors as contractors, Peloton hires them as full-time employees with a fixed salary and incentive compensation. Talent agents help find them. One instructor last year received a six-figure salary and bonus offer. More-senior instructors make upwards of $500,000 in total compensation, say people familiar with the company—not counting the money they can make from external sponsorships. Foley, a big believer in shared ownership, has also handed equity awards to people throughout the company's ranks. Regulatory filings show current and former employees as of Sept. 30, 2020, held stock options with several billion dollars of unrealized gains.

The driver of those gains is digital reach. A typical spin studio houses a few dozen bikes. Peloton's most-attended session, on Thanksgiving morning last year, drew more than 50,000 people. "The beautiful thing about our model is the scale," Foley told analysts in November, "where we go from 2,000 people consuming a class to 20,000 people consuming that same class and that same instructor."

With the pandemic hampering global supply chains, some customers have complained that they're waiting weeks or months to get their bikes. Peloton purchased fitness equipment company Precor for $420 million in late December to boost its U.S. manufacturing capacity to keep up with demand.

It's unclear if Peloton can stay ahead of rivals offering ostensibly similar products for less. Myx, Echelon, and NordicTrack all offer a lower-priced version of the Peloton. People who own workout equipment can buy Studio, a mirrorlike screen that offers classes for rowing, running, cycling, and boxing, while others can sign up for Obé Fitness and stream hip-hop dance or body sculpting classes on their TV. Each option comes with its own squads of upbeat instructors. Apple Inc. in December launched its own fitness platform. But according to Diana Kelter, a senior consumer trends analyst at Mintel, people who shelled out thousands of dollars on a piece of equipment are unlikely to switch platforms, especially if their friends are now on it, too. Ⓑ —*With Amanda Gordon*

Why Investors Are High on Cannabis This Year

By Tiffany Kary

For Kim Rivers, chief executive officer of Trulieve Cannabis Corp., the beginning of the year is usually busy with strategy reviews or fielding calls about the state of the nascent industry. But almost overnight on Jan. 6, as Democrats cemented their hold on both Congress and the White House, interest in her Florida company reached a new high. Suddenly the number of meetings lined up for her January investor conferences doubled, and the calls from investors and analysts skyrocketed.

"Now it's five people on the phone asking due diligence-type questions," Rivers says. While racing to keep up with investor relations, she's also making plans to replace Trulieve's state operations with regional hubs to manage legal weed's fast-expanding reach. "There have been a lot of good headlines," she says. "Now we have to dig into details."

Georgia's Jan. 5 election results, which flipped the Senate to Democratic control, have lit a fire under the cannabis industry. The market for legal U.S. product was already forecast to more than double, to $41.5 billion, by 2025, according to New Frontier Data. Now it's expected to do even better, with more states legalizing on a faster timeline, and full national decriminalization a distinct possibility.

Many institutional shareholders, who've watched for years from the sidelines for fear of reputational damage or legal repercussions, are jumping in. Companies are raising cash and reworking their strategies as the prospects grow that 2021 could be the year some of their regulatory dreams—from gaining access to banking to relief from a crushing

WEED MAN: GETTY IMAGES

federal tax burden—finally come true.

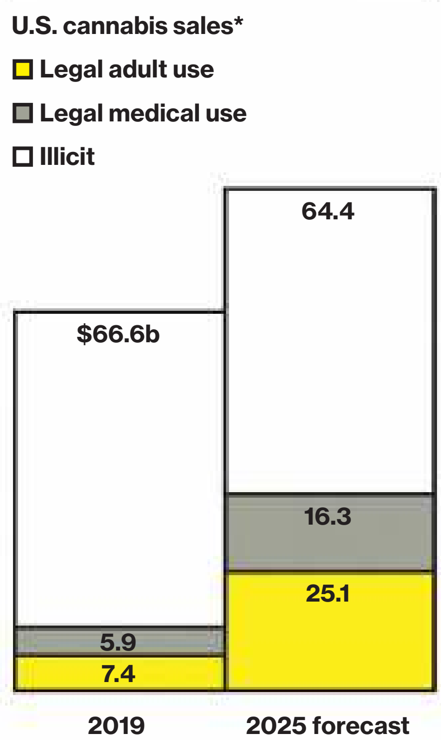
Since California legalized medical marijuana in 1996, there's been growing state-by-state acceptance of the plant and its derivatives, including hemp and CBD. Canada legalized pot in 2018, creating an industry dominated by companies that have listed on U.S. exchanges, enticing American investors.

Meanwhile, U.S. weed companies have grown into mature "multistate operators," while working within the confines of tax rates that can approach 70%, little ability to issue bonds or get loans, and a ban on transporting raw flower or finished products across state lines. Unlike Canadian pot businesses, U.S.-based companies that deal directly with marijuana can't list on U.S. exchanges due to federal law.

Legal concerns have also meant private investors and family offices have traditionally been the main stakeholders, with most keeping a low profile, wary of triggering their own legal issues or advertising that they've waded into an investment with so much regulatory risk.

More state legalizations and a Biden administration could portend more opportunities for weed businesses

Then came the coronavirus pandemic, in which marijuana dispensaries were declared an essential service by many states. More consumers turned to cannabis and CBD as a balm for anxiety and sleepless nights, or just something new to do. In November, when five states voted to legalize at least some type of marijuana use, the outlook grew even rosier. And with Democrats in control of Congress, there's hope that legislation such as the States Act (which leaves legalization up to individual states but would likely remove the rule that prohibits weed operations from deducting ordinary business expenses and allow access to capital markets and banking), the SAFE Banking Act (which would more narrowly permit banks to do business



with weed operations), and the MORE Act (which would federally decriminalize marijuana) will gain traction.

In the 24 hours after Georgia's results became clear, Curaleaf Holdings Inc., the largest U.S.-based multistate operator, announced that investors had pumped in more than $200 million in fresh capital. The investment, one of the biggest capital raises ever for a cannabis company, will help Curaleaf ramp up business in states such as New York, which recently announced a proposal to legalize recreational use, or fund acquisitions.

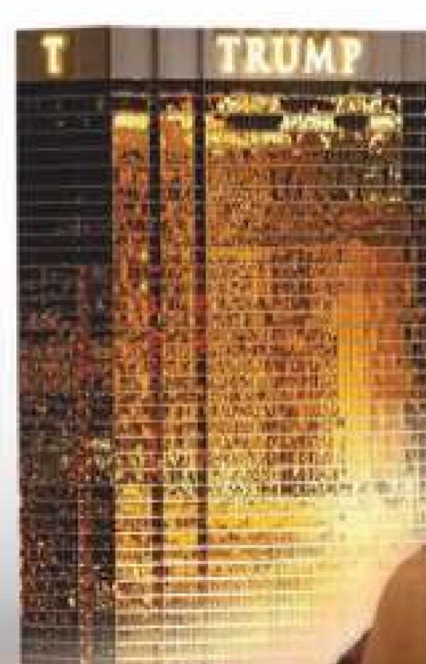
"With the election in Georgia, we think there will be faster movement in D.C.," says Boris Jordan, executive chairman of Curaleaf. "We wanted to be prepared to take advantage of that with more capital on our balance sheet."

In the following days the company also announced a debt deal. As with the share offering, different investors showed up. "They're all large institutional investors, and major sovereign wealth funds buying in," Jordan says. "That's a sea change for 2021. It shows the industry's maturity—and the acceptance." Ⓑ

HOT SEAT

Trump Organization

Donald Trump is returning to a business empire that's suffering in ways that were unimaginable when he entered the White House. The pandemic has ravaged some industries he's biggest in—apartments, commercial office space, hotels—and New York officials are looking into his past business dealings and taxes. Adding to the troubles is the blacklisting of Trump by much of the corporate world for inciting the Jan. 6 insurrection at the U.S. Capitol after he failed to win re-election. Favored lender Deutsche Bank won't work with him anymore. Golf's PGA of America nixed plans for its 2022 championship to be played at a Trump course. And New York City is ending its contracts with his Trump Organization.



Trump won the votes of more than 70 million Americans in 2020, so he's likely to have other post-White House options, such as a book deal or a tie-up with a TV channel. Having been U.S. president could help him win deals in some foreign countries, regardless of his clouded exit from Washington. But for a man who built a career around a persona of being a perennial winner, 2021 could be the year his famed ability to rebound is put to the test.
—Sophie Alexander

TRUMP HOTEL: ETHAN MILLER/GETTY IMAGES. *PROJECTIONS BASED ONLY ON LEGALIZATION AS OF NOVEMBER 2020. DATA: NEW FRONTIER DATA

European Airlines' Uncertain Summer

By Christopher Jasper, Siddharth Philip, and Richard Weiss

Airlines have for months been looking toward a rush of Covid-19 vaccine introductions in early 2021 to rescue their battered industry. But European carriers counting on a bumper summer season to restore revenue and rebuild balance sheets are becoming fearful that a recovery will arrive too late for the vital travel period.

While vaccine rollouts were stoking forecasts for a 90% rebound in Europe's leisure market just a month ago, fast-spreading new viral strains

Carriers, which depend on midyear travel for most of their business, need a Covid recovery

are prompting people to shelve vacation plans at what should be the busiest time for bookings.

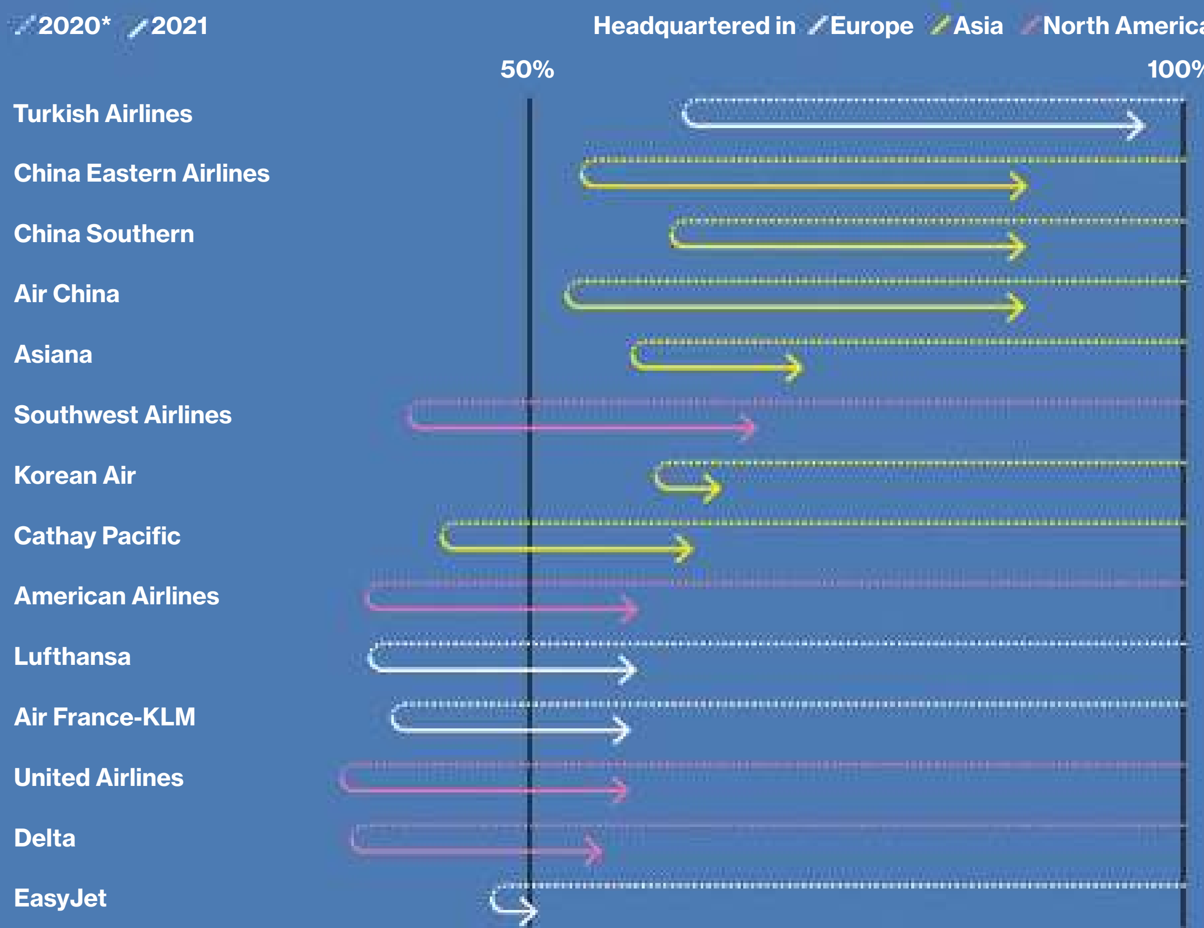
European carriers are already among the worst affected by Covid. With profits heavily dependent on April through September, another lost summer could reach beyond industry stragglers and strike at leading low-cost carriers and tour operators. It could also delay a rebound in the lucrative business markets on which the biggest network airlines depend.

"The problem with Europe is that there are so many borders and each country has its own requirements," says Mark Manduca, an analyst at Citigroup in London. "Passengers don't know what the restrictions are or what sort of tests are required, so it's much harder to fill up planes compared with large countries such as the U.S. or China."

The latest blow came when Britain in January responded to its detection of a mutant viral strain and the emergence of another in South Africa by imposing mandatory testing on top of quarantines. Seat capacity for U.K.-based airlines plunged 27% in a week, vs. declines of 10% in North America and 5% in the Asia-Pacific region over the same period, according to London-based aviation consulting firm Ishka Ltd.

The U.K. curbs were tightened further on Jan. 15, and other European nations have responded by strengthening their barriers. Alexandre de Juniac, director general of the International Air Transport Association, said on Jan. 12 that the measures threaten to "shut down flying" and scuttle any recovery in demand by Easter. ▶

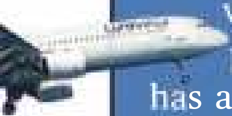
Forecast revenue as a share of 2019 revenue, by fiscal year



DATA: BLOOMBERG CONSENSUS ESTIMATES; *DELTA AND EASYJET REVENUE IS ACTUAL

ETIENNE TORBY/GETTY IMAGES

◀ Even with the vaccine rollout gathering steam, forward bookings are weaker worldwide than in late 2020, according to IATA. That's bad news for weaker European carriers such as Norwegian Air Shuttle ASA, which is seeking to restructure to survive after filing for bankruptcy protection last year. Europe has already suffered more airline failures than any other region since the start of the pandemic, and that number could climb, according to International Bureau of Aviation analyst Stuart Hatcher.



The wider concern, though, is that another blank summer for earnings will pinch even the healthiest operators. Ryanair Holdings Plc, Europe's biggest discount airline, has vowed to offer few flights until lockdowns in the U.K. and its home country of Ireland are lifted, while IAG SA's British Airways made a further 8% reduction to its already hugely depleted schedule, according to Ishka's analysis of data from flight-booking specialist OAG.

The uncertainty over the strength of summer revenue could create a scramble for cash, as carriers that borrowed money or were pumped up by state aid last year seek billions more to keep them aloft into 2022. Any extended financial pain for carriers in 2021 could also spread to plane makers Airbus SE and Boeing Co., which have so far avoided big order cancellations by persuading airlines to defer but not scrap deliveries during the pandemic. That might no longer be realistic for European carriers in the absence of even a recovery in short-haul travel. Ⓑ *—With William Wilkes and Tara Patel*

Q&A MICHELLE GASS

The Kohl's CEO on how Covid and Sephora will reshape its business in 2021

By Jordyn Holman

Michelle Gass, a former Starbucks marketing executive, has been chief executive officer of retailer Kohl's Corp. since 2018. She's turned her department stores into go-to destinations for shoppers, including opening Amazon return centers in more than 1,160 of them. Her latest partner: beauty giant Sephora.

This was an unusual holiday period for the industry. How did you cope?

I've never been so proud of our organization and how they delivered [the] holiday to our customers. Everything was different, yet everything was the same. Kohl's had all the protocols in place to protect the safety of our associates and customers. Our hours were different. We ran our promotions differently, like Black Friday started earlier. Marketing was different—it was a lot more digital than we've ever been, and we've been leaning into that quite heavily.

Covid is still raging. Do you plan to require employees to get vaccinated?

We definitely support our associates getting vaccines, [but] at this point we're not thinking about it as a mandate.

Another round of federal stimulus is expected. Do you see that trickling down to your sales?

Anything that puts money into the pockets of our consumers is a good thing. It's been a long strain over the last year, and we advocate for things that are good for the interest of our customers. We look forward to that.

Sephora this year will start opening shops inside Kohl's locations, ending its relationship with JCPenney. What's the attraction for Kohl's?

Beauty is something we've been working on for quite some time, and we've made good progress. Our beauty sales are up 40%, but still it's a relatively underdeveloped category for Kohl's. When I look at that, I see white space for our business and a whole new category that we can develop. Seventy percent of our customers are female. We've got 65 million customers. You can do the math; it's a big opportunity.

What will make this particular marriage so successful?

What we bring to Sephora is our tremendous omnichannel reach [including] 1,160 stores that are off-mall. The overlap with Sephora is very, very small. They are going to be reaching so many customers they couldn't get before.

What's the long-term strategic benefit of the combination?

I'm very confident that there is going to be a big halo in bringing the Sephora brand into Kohl's. It's going to evolve the store experience. We're going to attract a lot of new, younger customers that may be going to Kohl's for the first time. They're not only going to find great beauty but other great categories as well. Ⓑ *This interview has been edited for clarity and length.*

GASS: CHRIS RATCLIFFE/BLOOMBERG

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BATTERIES

CATL, Arnstadt, Germany

MORE INSIDE

Edited by Dimitra Kessenides and David Stringer

ASIA'S BATTERY GIANTS GO GLOBAL

Leaders of the electric-car era are moving to cement their dominance

By David Stringer and Akshat Rathi

In the Middle Ages, the city of Erfurt in central Germany was a key stop on a trading route linking the far-flung ends of Europe. It's about to take on a crucial new role as home to one of the world's largest battery makers.

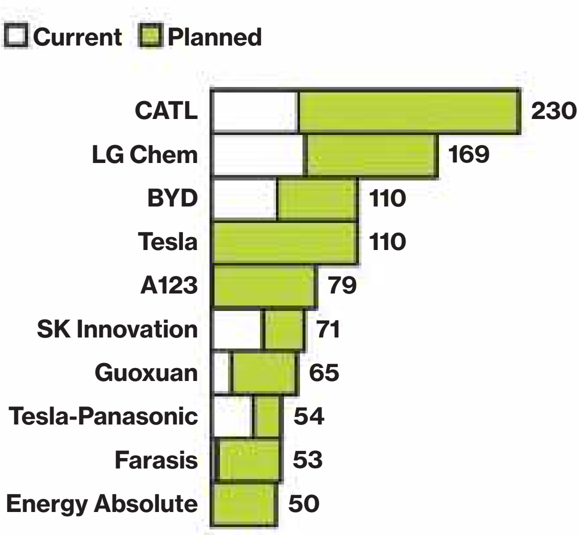
China-based Contemporary Amperex Technology Co. Ltd., the top global supplier of lithium-ion batteries for cars, storage systems, and power grids, will begin production at a factory at Arnstadt, near Erfurt, later in 2021. It's the first foreign plant for billionaire Zeng Yuqun's decade-old business.

CATL's plant represents a key point in the auto industry's shift to electric. Spurred by growing demand, Asia's dominant battery producers are expanding directly into Europe and the U.S.

Electric vehicle sales in Europe in 2020 exceeded those in China for the first time, according to BloombergNEF forecasts, and Europe's share of global battery manufacturing will rise to 17% by 2025, up from 6% in 2020. In the U.S., Joe Biden's presidency has raised expectations for faster EV adoption: BNEF forecasts a 30% increase in sales in the first half of 2021, compared with the same period in 2019.

LG Energy Solution, the battery unit of South Korea's LG Chem Ltd., is adding more capacity in Poland and, in a deal with General Motors Co., building a $2.3 billion plant in Ohio. SK Innovation Co., which has facilities in Hungary, will this year begin test-manufacturing at an initial production line at its site in the U.S. And Panasonic Corp. says it's considering a possible site for a factory in Norway. Tesla Inc. Chief Executive Officer Elon Musk says he'll produce battery cells at the company's new auto plant outside Berlin.

Top companies' battery manufacturing capacity through 2025, in gigawatt-hours



"Europe is going to see a huge surge in demand for EVs, and so the time is right in terms of building that capacity," says Mitalee Gupta, an energy storage analyst in Boston for Wood Mackenzie. Disruptions to global trade caused by the Covid-19 pandemic have boosted the case of automakers seeking to keep key suppliers nearby, she says.

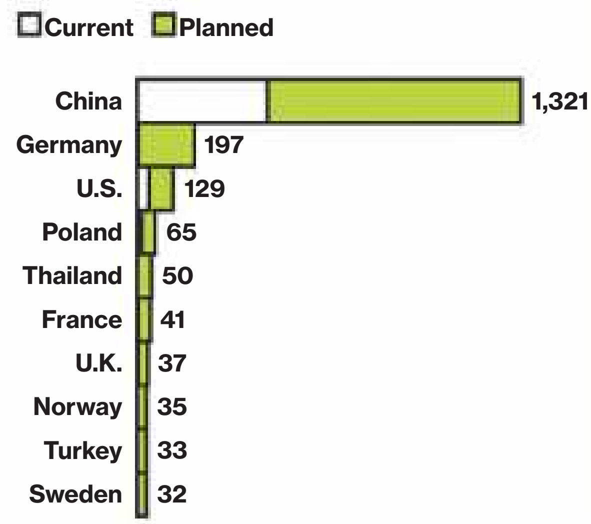
CATL and LG combined accounted for almost half of the 192.9 gigawatt-hours of electric-vehicle batteries sold last year, according to SNE Research. By 2023, CATL says it plans to quadruple its fully owned and joint-venture capacity to about 263GWh, and LG's production lines are on track to more than double, BNEF data show. SK Innovation says it's targeting 100GWh of global capacity by 2025.

The Brexit deal signed in the last days of 2020 is expected to pave the way for both the U.K. and European Union to focus on green initiatives, including developing homegrown battery companies. But new entrants will find it almost impossible to match the incumbents. Northvolt AB, founded by former Tesla executive Peter Carlsson, wants to carve out a niche as a European champion with plants in northern Sweden and Germany; it expects to have output closer to 56GWh by 2024.

"It could be very challenging, even for a relatively early mover like Northvolt," says Tim Bush, an analyst in Hong Kong for UBS Group AG. Top producers have easier access to financing and existing relationships with key customers, and they're adding expertise to manufacture key battery components themselves, lowering their costs, he says. The added push under the EU's Green Deal—which is set to increase public spending on local battery manufacturing and on battery recycling to ensure Europe's access to crucial materials—may not be enough to overcome those advantages.

Biden's election, along with the Democratic majority in the Senate, could accelerate EV sales in the U.S. In December, Biden made a commitment to EVs, saying the federal government will purchase more electric models. While campaigning last summer, he pledged to add 500,000 charging stations across the country over the next 10 years. The moves, if they come to pass, will incentivize growth in U.S. battery manufacturing, says James Frith, head of energy storage at BloombergNEF.

Top countries' battery manufacturing capacity through 2025, in gigawatt-hours



There are challenges ahead for Asia's large producers. Prolonged trade tensions between the U.S. and China could be an obstacle for the latter's manufacturers. SK Innovation is expected to learn in February whether it will face an import ban from a trade-secrets dispute with LG Chem brought before the U.S. International Trade Commission.

Another potential threat is a dramatic leap forward in technology. Breakthroughs, such as solid-state batteries that can pack in greater range and charge faster while being safer and cheaper, could leave the sector's key companies with vast production lines designed for outmoded technology, says Justin Mirro, chairman and CEO of Kensington Capital Partners LLC, which formed a blank-check company and last year agreed to a merger with solid-state battery maker QuantumScape Corp.

New entrants aren't "trying to compete with CATL by doing what CATL is doing," UBS's Bush says. "They need to have an advantage." —*With Kyunghee Park and Chunying Zhang*

DATA: BLOOMBERGNEF

Made in America?

By David R. Baker and Brian Eckhouse

The U.S. isn't just losing the battery race—it's barely in the running. But it doesn't have to be that way.

China dominates lithium-ion battery production and is building factories at breakneck speed. Europe, too, is adding battery plants as its power grid and car companies shift away from fossil fuels. Although a few factories are planned in the U.S., including Tesla Inc.'s Texas plant, BloombergNEF currently expects the country's share of worldwide battery production to fall from 8% today to 6% in 2025.

Yet the U.S. has most of the ingredients it needs for a battery-building industry. It has the raw materials, with three companies developing facilities to extract lithium from subsurface brine in the Southern California desert, while similar projects are under way in Arkansas and Nevada.

It also has the demand. Utilities are plugging big batteries into the electric grid to store renewable power and protect against blackouts. And U.S. automakers are ramping up production of EVs.

The government pushed for domestic battery factories once before, under President Obama. But demand for the devices wasn't high enough to support the factories, leading to embarrassing failures such as the 2012 bankruptcy of manufacturer A123 Systems after it received a $249 million federal grant. That's changed.

"If we want to have a domestic supply chain for batteries in North America, now is the time you have to press the accelerator," says Sam Jaffe, managing director of Cairn Energy Research Advisors, a consulting company in Boulder, Colo. "The conversation should be 'mine to car,' not just 'battery to car.'"

It's not a question of national bragging rights. Lithium-ion batteries have become a foundational technology of 21st century life, so critical that the federal government in 2018 put lithium on a list of 35 minerals essential to national security.

"It seems insane that the largest economy in the world should not be a participant in this," says Danny Kennedy, chief energy officer of New Energy Nexus, a cleantech nonprofit that recently issued a report on the possibility of creating a domestic battery industry. "We could be the champion of that future if we engage in it now and don't give it away."

For U.S. automakers, there's good reason to want batteries built here. In an era of trade turmoil, relying on imported batteries could be problematic, even if President Biden abandons his predecessor's use of tariffs. And with car companies worldwide shifting to electrics, Detroit will need an ample supply to keep car prices low.

Plus, EV battery packs are big and heavy, making them expensive to ship. The pack for a compact Chevrolet Bolt, for example, weighs about 950 pounds. U.S. battery factories feeding U.S. auto plants could reduce those costs. "Think about shipping a couple million battery packs from Asia—it's a nightmare," says Brett Smith, director of technology for the Center for Automotive Research. "It just becomes more logistically reasonable to build it here."

In addition to a General Motors-LG Chem battery plant under construction in Ohio and SK Innovation's two upcoming Georgia factories, the U.S. has plenty of startups nearing production. Solid Power Inc., a battery manufacturer in Colorado, expects to support vehicle production as early as late 2025. Chief Executive Officer Doug Campbell says the country has a demonstrated ability to innovate. "The risk, though, that we face is: Can we keep those innovations at home?" he asks. "Is it going to go the way that the solar cell went?" Ⓑ

BIGGER IS BIGGER

By Brian Eckhouse and David Stringer

The world's overloaded power grids are on the cusp of a megabattery boom. California, keen to avoid last year's blackouts, could add more than 2 gigawatts of energy storage, including from batteries, by summer. The frenzied rush to claim the title of "biggest battery" started in 2017, when Tesla Inc. and French renewable energy company Neoen SA installed the first 100-megawatt lithium-ion storage project in Australia. As systems get bigger, they can store and dispatch more energy. That's seen the titleholder changing frequently—leading to Vistra Corp.'s 300MW Moss Landing project in California claiming the current top spot.

● MOSS LANDING ENERGY STORAGE FACILITY
Monterey County, Calif.

Initial capacity:
300MW
1,200 megawatt-hours

After expansion:
400MW
1,600MWh

TODAY'S No. 1

The system, consisting of more than 4,500 stacked battery racks, each with 22 battery modules, began operating in December. It can power 225,000 homes during peak-electricity pricing periods for four hours. Moss Landing, developed by Vistra, captures excess electricity from the grid. An expansion should be complete by August.

● HORNSDALE POWER RESERVE
near Jamestown, South Australia

Initial capacity:
100MW
129MWh

After expansion:
150MW
193.5MWh

KEY PREDECESSOR

A 100MW-capacity first phase, installed in 2017, became the world's biggest battery, but was eclipsed by a larger site in San Diego County, Calif., last year. The facility, developed by French renewable energy company Neoen and using Tesla's Powerpack batteries, has helped to stabilize South Australia's renewables-heavy grid and to reduce the risks of blackouts.

● ANBARIC RENEWABLE ENERGY CENTER
Somerset, Mass.

Planned capacity:
400MW

POSSIBLE SUCCESSOR

One of the next big battery projects was announced in 2019 for a former coal-fired power plant site. Anbaric's project could be up and running as soon as 2024. The battery has an estimated cost of $400 million. Anbaric designs its projects with four hours of storage.

PHOTO ILLUSTRATION BY 731; PHOTO: ALAMY; INSET: MARTIN SCHUTT/DPA/ZUMA PRESS

‘Unmanufacturing’

By Kyle Stock

Electric vehicles have been coming for more than a decade; now they are starting to go as well.

Like wind turbines and nuclear fuel rods, car batteries don’t last forever. Today, 13 years after the 2008 Tesla Roadster made its debut, a first generation of EVs is nearing retirement. The cars, and their 1,000-pound battery packs, are creating a mountain of electronic scrap.

Several entrepreneurs have begun pulling those batteries out of the pile, cracking them open, and cooking them down to recover cobalt, lithium, nickel, and other raw ingredients that can be recycled almost endlessly. It’s an expensive and laborious endeavor—like building an EV was 20 years ago. It’s also on the cusp of massive growth.

J.B. Straubel, a co-founder of Tesla who now runs Redwood Materials, a battery recycling enterprise in Nevada, calls this “unmanufacturing.”

“This is a decidedly not very sexy business,” he says. “But it’s about to become incredibly relevant.”

Redwood, along with Canada startup Li-Cycle, is joining existing recyclers such as Belgian chemicals giant Umicore and China’s GEM, which has automated disassembly lines for spent packs. Battery warranties on EVs typically cover 8 to 10 years; on the first wave of models, they’re just expiring.

In 2030 the world’s drivers and fleets are expected to buy almost 26 million electric vehicles a year, and junkyards will take in almost 1.7 million metric tons in scrapped batteries, according to BloombergNEF. By then, recyclers should be producing tens of thousands of tons of metals to feed back into battery production, including 125,000 tons of nickel. Although that will be less than 10% of forecast battery sector demand for the metal, it could help ease automakers’ concerns over potential supply crunches.

Pressure also is building from consumers and investors who want producers to limit the environmental impact of car assembly and to curb their reliance on extractive industries, particularly in Congo, where some cobalt mines have been accused of using child labor.

Europe and China require battery producers or the auto sector to keep retired packs out of landfills, incentivizing efforts to recycle parts. These incentives—the U.S. could try a similar requirement—are spurring the development of the recycling sector.

For now, collecting, transporting, and stripping down EV packs to recover metals is mostly a money-losing endeavor, and it could be decades before the U.S. and Europe have enough used cells to challenge nations such as China. Raw materials account for only $2,000 to $3,000 of the cost of an average $14,000 battery pack, according to BNEF. And volatile commodity prices make it tough to predict recovered metals’ value.

Recyclers will face steady declines in the cost of making batteries as production scales up and cheaper options replace pricier metals, including cobalt. Battery prices fell 89% in the 10 years from 2010 to 2020 and will fall by more than half again by 2030, BNEF estimates.

Redwood is able to sell some materials at a profit now, Straubel says. Others are making money, too, such as Brunp, the recycling unit of Contemporary Amperex Technology Co. Ltd.

Batteries are quickly becoming the connective tissue of our collective energy use: They will be to transportation what the cardboard box has become to commerce. Li-Cycle, based in Ontario, is preparing for the complex logistics of that future. It’s building a system of facilities—dubbed “spokes”—that will take in batteries, break them down, and feed the smaller, lighter chunk of valuable material back to a central hub for final processing at the old Eastman Kodak plant in Rochester, N.Y. The process cuts about 60% of the shipping weight, according to Chief Commercial Officer Kunal Phalpher.

Rather than melting or dissolving battery cathodes—one of the two electrodes that store and release a charge—some scientists are working on how best to extract them intact, recondition them, and put them right back in new batteries. That’s the focus of one initiative from ReCell, an alliance of U.S. government labs working with universities.

Extract from Redwood Materials’ furnace, which melts down lithium batteries for recycling

“At the end of the day, battery recycling needs to be profitable,” says Jeff Spangenberger, director of the initiative. “Economies of scale are really going to help, but right now there are a lot of batteries out there that cost money to recycle.” B

MAX WHITTAKER (2)

Location, Location, Location

By Dimitra Kessenides
Photos by Rob Stephenson

Cities with inadequate and unstable power systems are housing microgrids of battery cells for a range of applications. In New York City, almost any unused space will do

As a coastal city that's seen several devastating weather events cripple its power grid, New York needs more reliable energy sources. MicroGrid Networks LLC, a clean-energy system developer, is building the infrastructure for a more resilient grid. To start, the company will bring eight projects in three boroughs online by the end of 2021, representing a $96 million investment. That covers all costs, from identifying and securing land in Brooklyn, Queens, and Staten Island, permits, and equipment for construction to operating the system and providing services. Chief Executive Officer Montgomery Bannerman says the project will deliver environmental and energy cost benefits and lots of jobs.

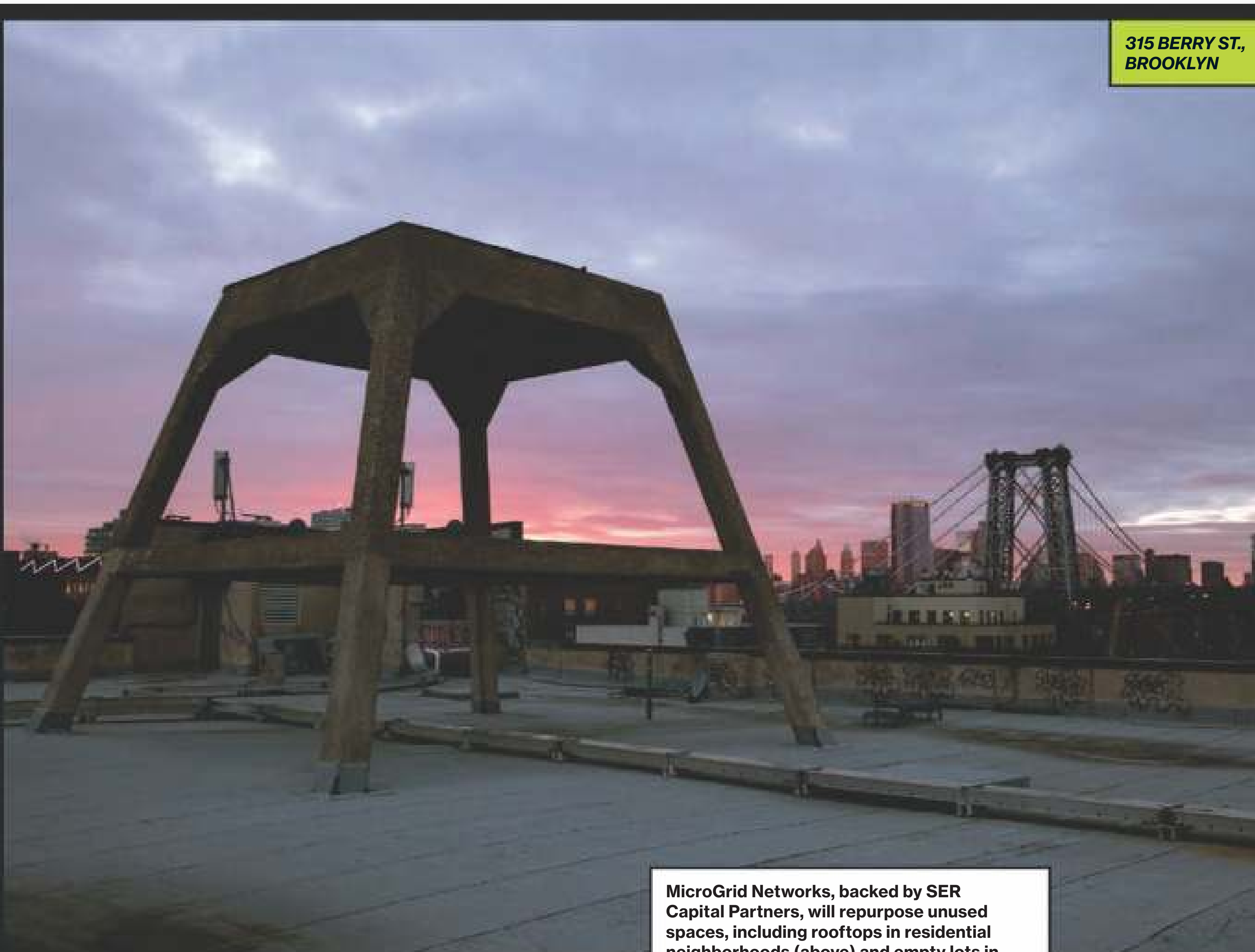
Stacks, comprising configurable battery cubes made by Fluence, will be used across the city sites.

A rendering of 12th Street, planned as a two-story structure with grid-connected batteries up top—to protect against floods—and EV charging stations at street level. Below, the same spot as it looks today, from a different angle.

42 12TH ST., BROOKLYN

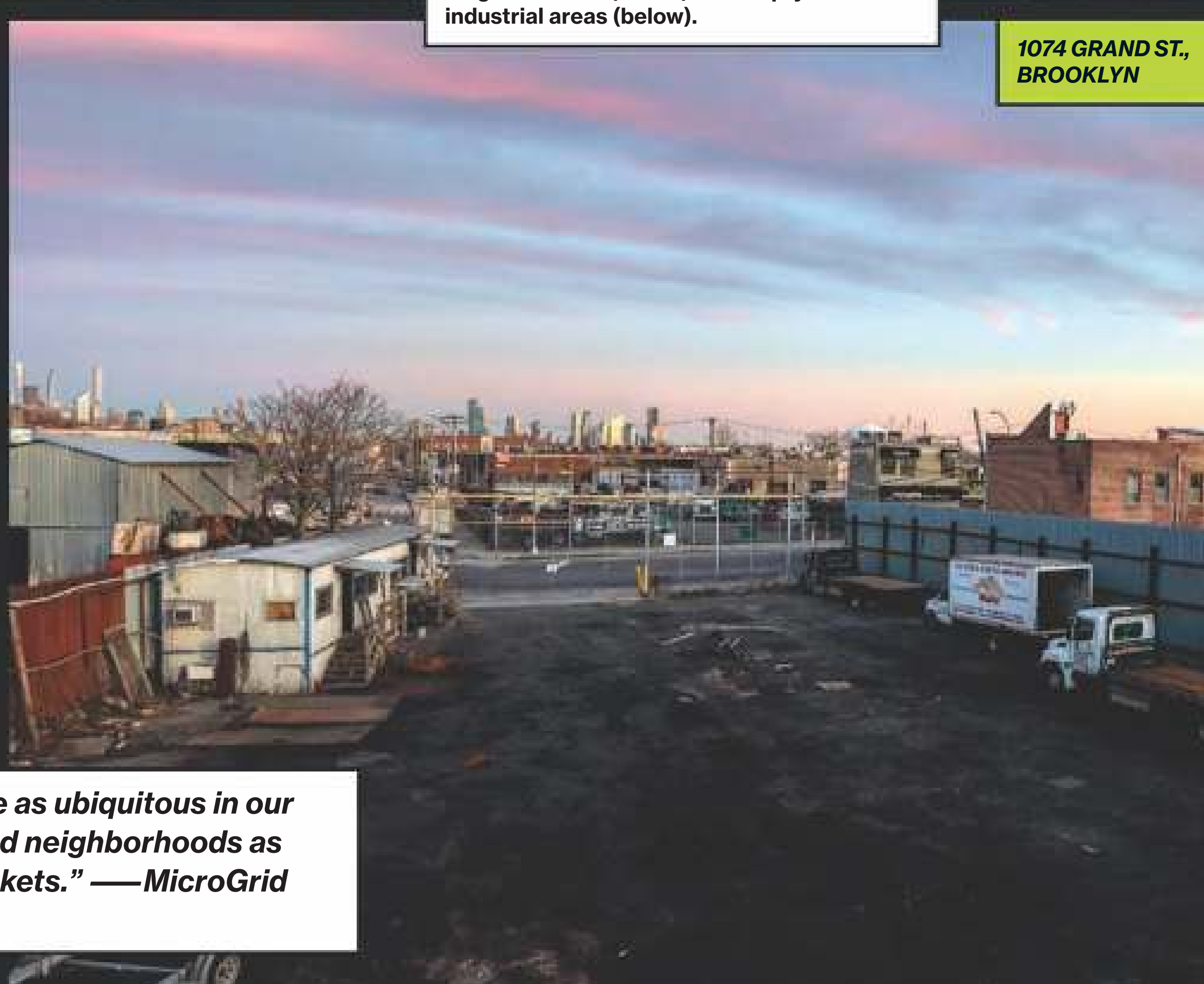
57-77 RUST ST., QUEENS

PHOTOGRAPHS BY ROB STEPHENSON FOR BLOOMBERG BUSINESSWEEK; CUBE: COURTESY FLUENCE; MICROGRID RENDERING: COURTESY MICROGRID NETWORKS/AGENCY RED



315 BERRY ST., BROOKLYN

MicroGrid Networks, backed by SER Capital Partners, will repurpose unused spaces, including rooftops in residential neighborhoods (above) and empty lots in industrial areas (below).



1074 GRAND ST., BROOKLYN

“Large batteries will become as ubiquitous in our buildings and businesses and neighborhoods as they currently are in our pockets.” —MicroGrid Networks CEO Bannerman

A Safer Bet

By Katrina Nicholas

Shares in RAC Electric Vehicles Inc., an electric-bus maker in Taiwan that has lost money for the past seven years, spiked 27% on Jan. 12. The jump was the latest example of the recent stock market mania surrounding the EV industry.

It's anybody's guess which vehicle makers will be around long enough to compete with the likes of Toyota Motor Corp. or Ford Motor Co. That's one reason an increasing number of investors are instead turning their gaze to electric-vehicle suppliers, especially battery and chipmakers. In fact, many investors say they're even more drawn to companies that aren't soaring at the levels of Tesla Inc. and Nio Inc.

"With Tesla, the price it is now, the safer bet might be EV battery makers," says Franklin Tang, an analyst at Shenzhen-based Excel Investment. "Tesla has exhausted much of its earnings expectations." Battery makers have lots of room for growth.

Tang likes China's Contemporary Amperex Technology Co. Ltd., which supplies batteries to Tesla, and BYD Co., the Warren Buffett-backed automaker that also produces rechargeable batteries and solar panels. "Batteries are the single largest factor limiting the capacity of EV makers, and companies enjoy good margins because of this," he says.

Lesser-known names may also emerge as the stars of tomorrow. UBS Group AG, in a recent report on EVs, offered a top 10 list of companies—and only four had auto manufacturing as a core business. Battery supplier EVE Energy Co. made the cut, largely because of its client list, which includes BMW, Daimler, and Xpeng. Two other battery startups on the list: Shanghai Putailai New Energy Technology Co. and Wuxi Lead Intelligent Equipment Co., whose shares in 2020 rose 32% and 87%, respectively—not quite as terrifying as Nio's 1,112%.

"A number of leading Chinese auto suppliers with strong R&D capabilities have been offering very competitive EV-dedicated parts, which helps bring down EV costs and boosts performance," UBS Group AG analyst Paul Gong wrote.

Belgium's Umicore, a key supplier of chemical compounds for battery cells, U.S. lithium producer Albemarle, Switzerland-based mining giant Glencore, and other companies also have drawn investor attention by spotlighting their key roles in battery supply chains.

Korean battery suppliers are attracting interest, too. LG Chem Ltd. split off its energy storage and EV battery business to form LG Energy Solution Co. on Dec. 1. LG Electronics on Dec. 23 announced plans to spin out some of its electric-car components business into a new joint venture with Canada's Magna International Inc. The news sent the South Korean company's stock up 30% in one day.

"LG Chem is our preferred holding in this space" over EV carmakers because it's one of the top five EV battery suppliers globally and pays good dividends, says Yoojeong Oh, investment director of Aberdeen Standard Investments' Asian Income Fund. Aberdeen has about $563 billion in global assets, and some of its funds have also invested in Samsung SDI Co., Bloomberg data show.

"It's hard to say when and how stocks will peak, and often wisdom only comes from looking in the rearview mirror, but I think it's safe to say share prices will deteriorate at some point," Zhang Jingshu, managing director for Dorfman Value Investments LLC, says of recent stock spikes. "Tesla has become something of a cult stock, and I think the same goes for Nio, Xpeng, and Li Auto. Those stocks are worth 10 times what they should be." B

—*With April Ma and Heejin Kim*

Startups To Watch

These companies promise faster and easier ways to power EVs and more

ZOONAR GMBH/ALAMY

BRITISHVOLT

Because of Brexit, the U.K.'s auto industry has little time to localize production of batteries. The deal reached late in 2020 requires 30% of the content of battery packs for U.K.-built cars to be sourced domestically; the regulation gets tougher in 2024. Britishvolt Ltd. is the only company so far to announce plans to start battery production in the country. —*Dimitra Kessenides*

FORM ENERGY INC.

The company is developing what it calls "long duration" batteries, storage that could last for weeks at a time. That could enable 100% carbon-free grids, ending the need for coal and gas. —*Brian Eckhouse*

INVISPOWER

This startup promises a wireless charging system that will allow you to park your car atop a "site" and watch the battery level rise. Founder Wang Zhe also imagines installing the equipment on highways so cars can charge while in motion. The company is also planning an initial public offering in Shanghai. —*Tian Ying*

QUANTUMSCAPE CORP.

QuantumScape has a 50-50 joint venture with Volkswagen, its largest shareholder, to start producing cells in 2024. A darling of the EV industry SPAC-boom, it's become a target of short sellers skeptical of its market value, which reached almost $50 billion in December. It's since tumbled by more than half. —*Gabrielle Coppola*

SILA NANOTECHNOLOGIES

Of battery startups operating today, experts say, this one in California is the likeliest to succeed. The maker of materials for car and device batteries has a supply agreement with Daimler AG. —*David R. Baker*

SOLID POWER

Spun out of the University of Colorado in 2014, this solid-state battery maker intends to use existing battery- or carmaking plants to produce its cells and to begin testing its auto batteries by early 2022. Investors include Ford Motor Co. and the venture arm of Hyundai Motor Co. —*G.C.*

STOREDOT

The Israeli company, backed by BP and Daimler, says it has designed a system that cuts EV charging times to five minutes. In December the company said it's on track to launch samples of its EV batteries by the end of 2021. —*Eddie Spence*

Q&A PETER CARLSSON

CEO, Northvolt

By Niclas Rolander

Carlsson, a former executive at Tesla Inc., founded Northvolt AB in October 2016 seeking to shift the balance of battery-making power from Asia to Europe. He spoke with *Bloomberg Businessweek* about the four-year effort to get his company up and running. Production at its main facility in Skelleftea in northern Sweden is expected to start at the end of 2021.

What does 2021 mean for Northvolt?

Last year we were able to recruit almost 500 new employees, raise a lot of capital, design product plans, and more. So we've created the conditions to really get started—2021-22 will be our execution years, when we will take what we've developed and scale up production significantly.

What are the biggest tasks you face?

In addition to installing equipment in our Skelleftea factory, we're developing battery systems and ramping up the industrial business. We're rolling out applications for everything from mining machines to electrified cranes. We're also working on a rather large buildup of capacity for energy storage solutions, a market that is growing considerably. We've received a number of important orders. That means we're looking at a large expansion in Gdansk, Poland, where we assemble battery modules. At the same time we have the team in Germany that will build Northvolt Zwei, a joint venture with VW—it's now more than 80 people and growing, and a lot of their work is about the final design and environmental assessment.

Tesla will start production in Germany this year. How will that affect you?

Near term, it will mean increased competition when recruiting in Northern Germany. Other than that, I see it as very positive that there are investments being made and that Tesla is making a strong commitment to Europe. We are not in any way competitors. We have basically the same level of ambition, but Tesla is building batteries for their own cars.

What should we expect to see from the battery industry at large in 2021?

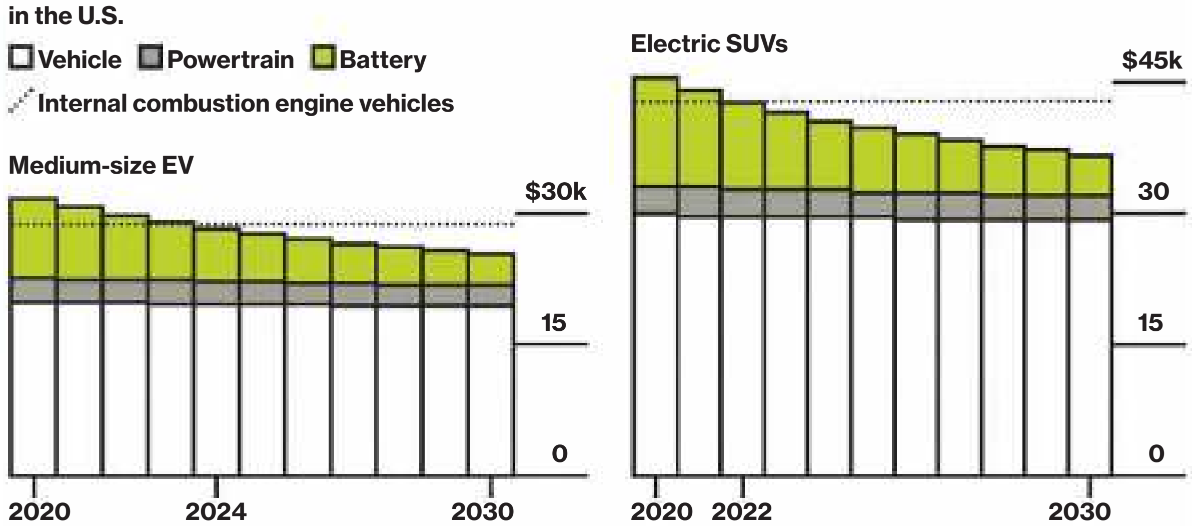
A continued trend along the same line as 2020. Even if car sales declined quite a lot, the EV trend has remained very strong. For example, almost half of cars sold in Sweden in December were electrified. That underlying demand will only be accentuated in 2021. You'll also see more effects of big stimulus packages such as the EU's green deal. That package is a lot about driving investments toward a green transition, and when those funds enter the system, it will work as a lubricant. I also think the demand for transparency on sustainability will be strengthened this year. The financial markets as well as the media will demand it.

How will Europe fare in its ambitions to build a battery industry?

The dynamics have definitely changed, from Chinese dominance with Europe paling in comparison to a situation where there is actually more investment in Europe than in China. I think the biggest near-term bottleneck will be access to competence for these initiatives. It's incredibly hard to get a hold of great cell designers and people with extensive experience in building these kinds of factories. That will be more of a limiting factor than access to capital, ambitions, and other things. It's natural in the beginning of a transition like this, but it's very important, and we've said that Sweden should be graduating 1,000 battery engineers a year. Europe needs a strong ecosystem with everything from innovation to production and recycling. We are slightly behind, but we are beginning to build the foundation for that as well. Ⓑ *This interview has been edited for clarity and length.*

Cheaper Than Combustion

Estimated electric-vehicle price breakdown in the U.S.



DATA: BLOOMBERGNEF

ERIKA GERDEMARK/BLOOMBERG

Thank you

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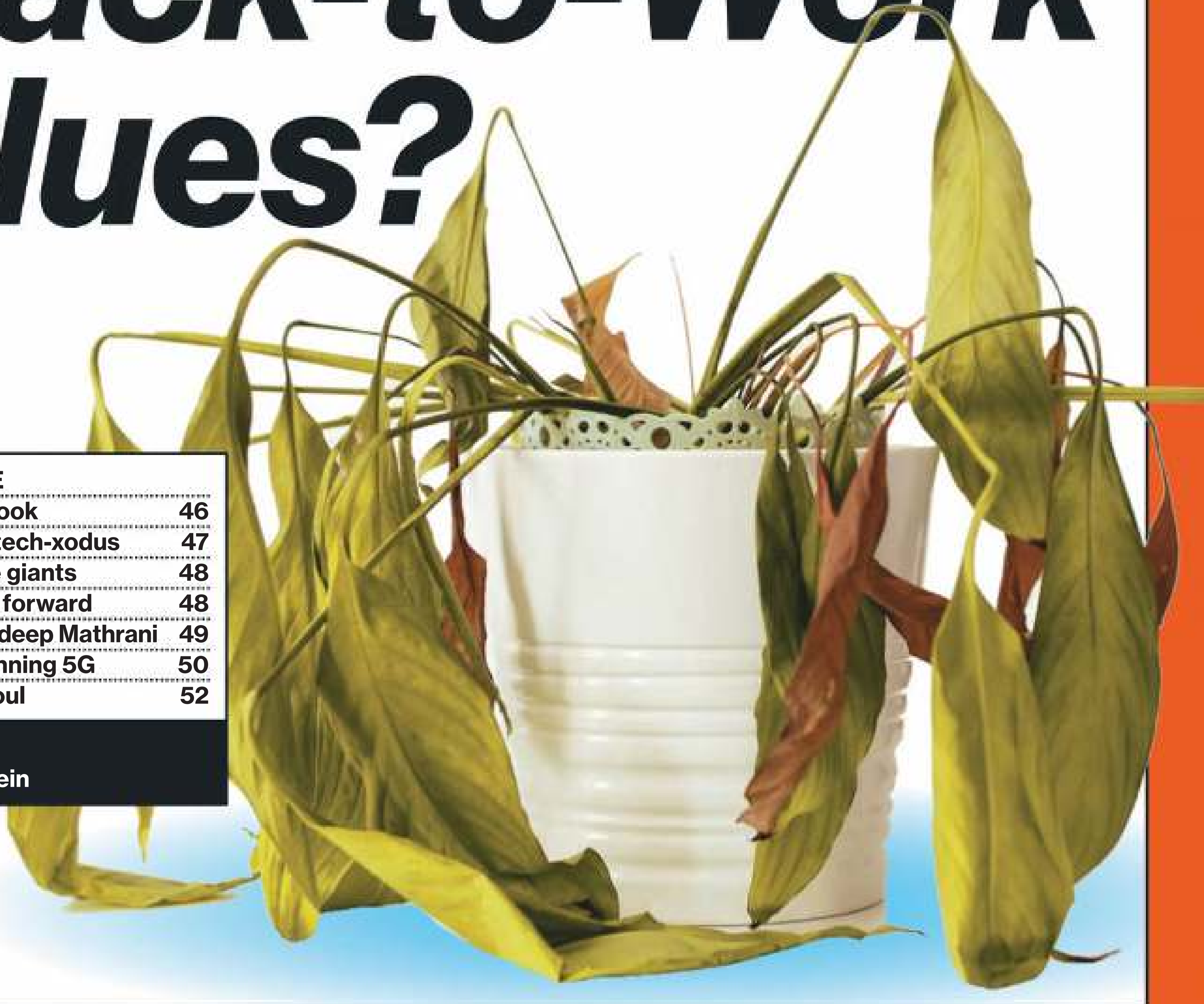
TECHNOLOGY

Back-to-Work Blues?



MORE INSIDE

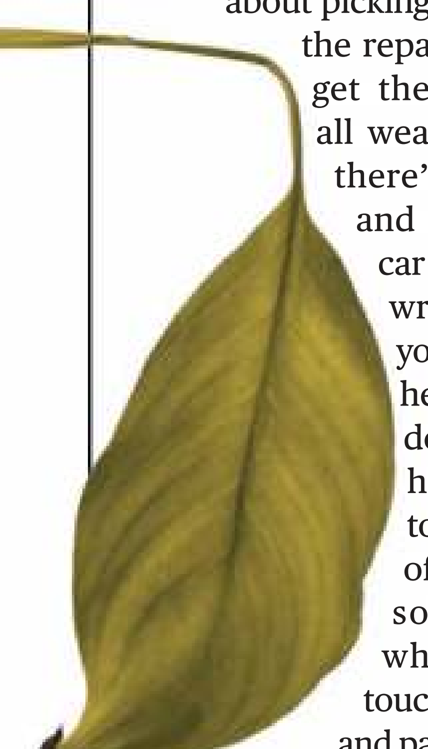
Edited by
Joshua Brustein

Tech boomed during the pandemic. It may not last

By Drake Bennett

The past year has been grim, solitary, and deeply traumatic. For the tech industry it's been all those things, plus hugely lucrative. Silicon Valley has long specialized in technologies that compete with face-to-face social interaction, and this year the competition disappeared. "The pandemic has allowed us to test hypotheses that we were considering but have never dared testing fully," says Diego Comin, a professor of economics at Dartmouth University who studies technology adoption. "Remote learning, massive virtual conferencing, leisure that has a large digital component. Because we don't have any other alternative now, we had to try them with a positive attitude." The companies behind those technologies—Zoom, Slack, DoorDash, Netflix, and Amazon, to name a few—have seen business go nuts amid a broader economic meltdown. But at some point, maybe even this year, things will start going back to normal. What happens then is an enormous unknown for the industry. Which of these new tools will keep their value when human contact is no longer freighted with contagion and death? Here are a few hypotheses.

Transaction tools: Asked which pandemic-friendly technologies will prove particularly sticky, Patrick Walravens, a technology analyst at JMP Securities, mentions DocuSign, the leading software company for signing electronic contracts. Then he tells a story about picking up his Jeep from the repair shop: "So you get there, and they're all wearing masks, and there's great signage, and they cover your car seats with plastic wrap and disinfect your car." But just as he's almost out the door, Walravens is handed a pen and told to sign a piece of paper. "There's so many places where we're still touching grubby pens and pads and contracts," he says, with evident disgust.



The rapid growth of DocuSign suggests that the coronavirus is finally undermining the wet ink signature—even Walravens's mechanic is purportedly looking into it. But digital contracts aren't just more sanitary than paper ones; they're also easier to customize and transmit and store and find. Those things will continue to be true long after Covid-19.

Walravens contrasts that with videoconferencing and business communication platforms such as Zoom or Slack. We've learned that we can do much more on those platforms than we previously thought, but months of purely remote work have also revealed their limits: In an office, someone who doesn't know how to do something can simply stand up, go over to a more experienced colleague, and ask them to come over and see what they're doing wrong. It's hard to replicate that via videoconference. Zoom was a fast-growing platform even before the pandemic, but as social distancing eases, it could lose many of its newer and less natural users, such as schools and smaller businesses without far-flung offices. To Walravens, the relevant distinction is between transaction and dialogue. A DocuSign contract merely memorializes the results of a conversation; Zoom has the much harder task of carrying the conversation itself.

A DocuSign contract merely memorializes the results of a conversation; Zoom has the much harder task of carrying the conversation itself

Network effects: Figma is a cloud-based design tool that replaces the balky process of sending PDFs back and forth or saving and resaving files on a shared drive. Instead, it allows everyone involved to work together in real time via a web browser on a single shared digital canvas. "The nature of multiple people working on it has made the workflow process actually better," says Mike Volpi, a partner at Index Ventures, one of Figma's investors.

To Volpi, the tool isn't just a better way to do remote design work, it's a better way to do design work, period. And in theory, the more people who use such tools, the more powerful they become. "There are some of these services that took advantage of the advent of Covid to kick off their own virality, no pun intended," Volpi says. "And those will likely be less tempered by Covid being gone."

A food delivery service such as DoorDash, on the other hand, has less of this dynamic. Having more restaurants to choose from makes it more appealing to more customers, and vice versa, but at the end of the day each customer is acting alone. "It's not like because my neighbor's using it, I'm more likely to use it," Volpi says.

Work, not play: There's another explanation that might affect the relative post-pandemic fates of workplace collaboration tools and food delivery apps. Comin, the economist, argues that the lessons we've learned about the power of technology differ starkly depending on whether we're talking about work or play. Before Covid there was already a significant demand for more flexible work arrangements. There wasn't, however, a lot of clamoring for Zoom happy hours or concerts that you could attend only through a laptop.

People have spent their leisure time doing those things because they had no choice. "We have experienced, overall, a decline in the quality of leisure," says Comin. He says he's been reduced to streaming movies set in faraway places to sate his wanderlust—for a taste of Bangkok, he recently sat through *The Hangover Part II*. He plans to remedy that as soon as humanly possible. "If I could travel for vacation, I would do it now, like I wouldn't even take a jacket," he says. "I would go straight to the airport." Ⓑ

GETTY IMAGES

Are Apple and Amazon Off the Hook?

By David McLaughlin

The attempts to curb allegedly anticompetitive behavior by large technology companies got serious in 2020, when federal and state agencies filed five separate antitrust lawsuits against Alphabet Inc.'s Google and Facebook Inc.

The other two companies at the center of the storm—Apple Inc. and Amazon.com Inc.—have yet to face legal action, and with officials dedicating significant resources to existing litigation, it's possible to imagine them skirting lawsuits. But that's unlikely, some antitrust experts say, especially now that Democrats control the White House and federal enforcement agencies.

"The fact that cases were filed against Google and Facebook doesn't mean Apple and Amazon are off the hook," says Sally Hubbard, the director of enforcement strategy at Open Markets Institute, an anti-monopoly group based in Washington that's played a key role in reviving enthusiasm for antitrust enforcement.

Amazon's critics can certainly point to its dominance. Almost 40¢ of every dollar spent online in the U.S. last year went to the company, which controls more of the online retail market than its nine closest competitors (including Walmart Inc. and EBay Inc.) combined, according to EMarketer Inc.

"Amazon expanded its market power by avoiding taxes, extracting state subsidies, and engaging in anticompetitive conduct—tactics that have given the company an unfair advantage over actual and potential competitors," wrote the authors of a sweeping congressional antitrust report published in October.

State and federal agencies investigating Amazon are focused in part on its enormous third-party marketplace. Outside vendors use the platform to sell directly to consumers, but Amazon also sells its own competing products, and Congress's antitrust report alleges that the company has used data it holds about merchants who use its platform to outmaneuver them.

Amazon has rejected the idea that it harms competition. It says it doesn't hold a dominant market position, because e-commerce is a relatively small segment of the overall retail market.

"Amazon expanded its market power by avoiding taxes, extracting state subsidies, and engaging in anticompetitive conduct"

The scrutiny of Apple also centers on its control of a vast online marketplace, this one for mobile applications for Apple devices. The company charges fees of as much as 30% on app downloads and purchases made within apps, leading to clashes with Spotify Technology SA and Epic Games Inc. In November, Apple announced it would cut in half the commission charged to most developers—those who make $1 million or less in annual sales from their apps. The change isn't likely to threaten Apple's profits: Sensor Tower Inc., a data analytics company, estimates that just 5% of Apple's App Store revenue in 2019 came from developers who would be eligible for the lower commissions.

If the move bought any goodwill with enforcers, it didn't damp their interest entirely. The Justice Department has interviewed at least one developer for the investigation as recently as January, according to a person familiar with the matter who wasn't authorized to speak publicly and asked not to be named.

Another potential area of trouble for Apple could be its multibillion-dollar agreement to make Google the default search engine on iPhones, iPads, and the Safari internet browser. That deal is already a focus of the federal antitrust case against Google, and while Apple wasn't named as a defendant, a case could be made that it has illegally agreed to divide Google's monopoly profits and prevent competitors from gaining ground, says John Newman, a former lawyer with the department's antitrust division.

In a Jan. 5 securities filing, Apple disclosed to investors for the first time that its board and management regularly discuss antitrust risks. It says that it doesn't have a dominant market share in any category and that it's never raised the revenue share it takes from developers.

Decisions about new federal lawsuits will fall to Merrick Garland—President Biden's nominee for attorney general—and the head of the Federal Trade Commission.

Antitrust enforcers are more likely to pursue Apple than Amazon, Newman says, because courts have made it difficult to win cases targeting unilateral conduct by a company, such as favoring its own products. Mergers and agreements between competitors, the heart of the Google and Facebook cases, are more straightforward, and the government knows whatever action it takes is going to be protracted and expensive.

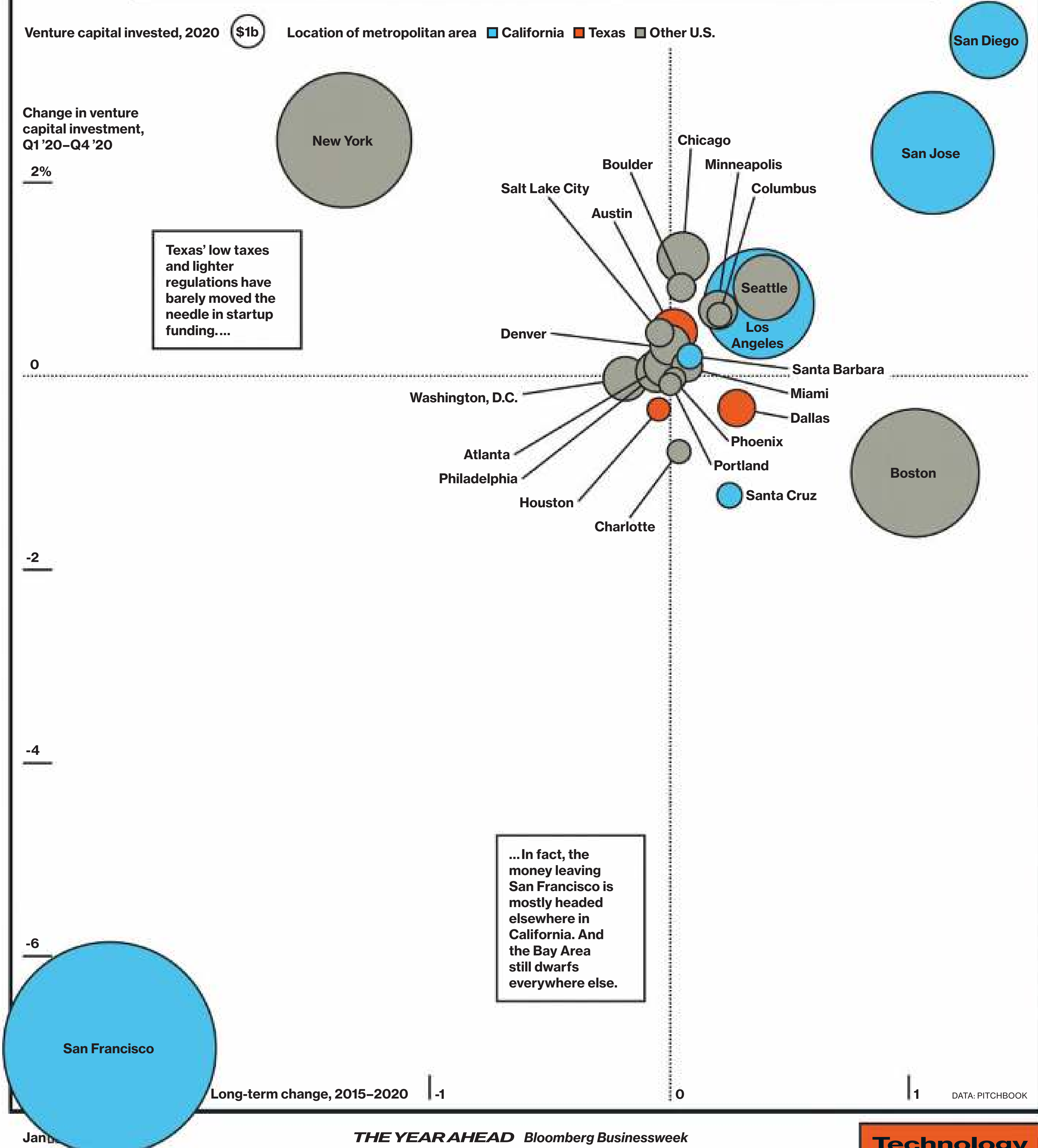
"Going up against just one of these companies will be a massive war of attrition," Newman says. Ⓑ *—With Mark Gurman and Spencer Soper*

GETTY IMAGES

Tech Money Trickles Out Of San Francisco

By Dorothy Gambrell

Countless cities have spent years trying to sprout their own Silicon Valleys. Talk of a so-called tech-xodus from California has increased during the coronavirus pandemic, but trends in venture capital investment show only a modest geographical realignment.



China Comes For Its Tech Giants

PHOTO ILLUSTRATION BY 731; PHOTO: GETTY IMAGES

By Coco Liu and Zheping Huang

The Chinese government's crackdown on the country's largest technology companies has raised fears that the industry could be paralyzed or cast into disarray as the economy enters a delicate moment. But one contingent within the tech sector is privately cheering on a broad set of anti-monopoly edicts: startups and their investors.

"The introduction of antitrust rules will indeed create more space for startups to grow," says Zhou Xiang, a managing director at China Renaissance Group who oversees its early-stage investments. "Previously we had witnessed venture capitalists dropping a deal just because of concerns that the tech giants may one day step into the same area in which the startup operates. The antitrust law has eased such concerns moving forward."

China has been experiencing a massive tech boom, led by Alibaba Group Holding Ltd. and Tencent Holdings Ltd.—which are worth about $1.6 trillion combined—and their various offshoots. The era of unfettered expansion hit a snag, though, when Beijing went after Alibaba co-founder Jack Ma, the industry's ambassador, and his internet empire. Affiliate Ant Group Co. called off its $35 billion initial public offering in November. That same month, Beijing proposed an antitrust regime that would give the government sweeping powers to rein in the most powerful corporations. In December it launched an investigation into Alibaba.

The new approach could lead to significant fines or even a move to split up the largest companies. More immediately it could chill the acquisitions the biggest Chinese tech companies have relied on to buy their way into leading positions in emerging aspects of the industry. Many startups rely on Alibaba and Tencent for investment capital—or angle to be bought outright.

The Chinese giants control the industry through a labyrinthine network of investment that encompasses the vast majority of the country's most successful startups in artificial intelligence (SenseTime, Megvii), digital finance (Ant), and other arenas. Their patronage has also groomed a new generation of titans, including food and travel giant Meituan and Didi Chuxing Technology Co., China's version of Uber.

There have been some notable independent tech startups, such as TikTok owner ByteDance, the drone maker SZ DJI Technology, and gaming company NetEase. Beijing's shifting approach could inspire global investors to bet on more independent companies, knowing they won't be crushed or swallowed by dominant firms.

The Communist Party seems interested in ushering in a generation of challengers and galvanizing startups in the deep sciences, which take longer to develop. Chinese leader Xi Jinping has made clear he wants the country to prioritize supercomputing and semiconductors over smartphone games and grocery deliveries.

"China will continue to push mightily on the high-tech front and is gaining in many important sectors, such as AI, robotics, 5G," says Rebecca Fannin, founder of Silicon Dragon Ventures. Many developments "come from the emerging companies, not from the tech titans," she says.

Startups hoping to benefit from Beijing's interventions may find themselves imperiled, too, says Angela Zhang, director of the Centre for Chinese Law at the University of Hong Kong. The government's enthusiasm for control could soon extend to smaller firms as well. But startups have so far been consigned to one of two fates up to this point, Zhang says. "Either a company can't survive, or if they did well, they would be bought by Alibaba or Tencent. This crackdown does give them a third route." Ⓑ

Waymo's Got A Ways to Go

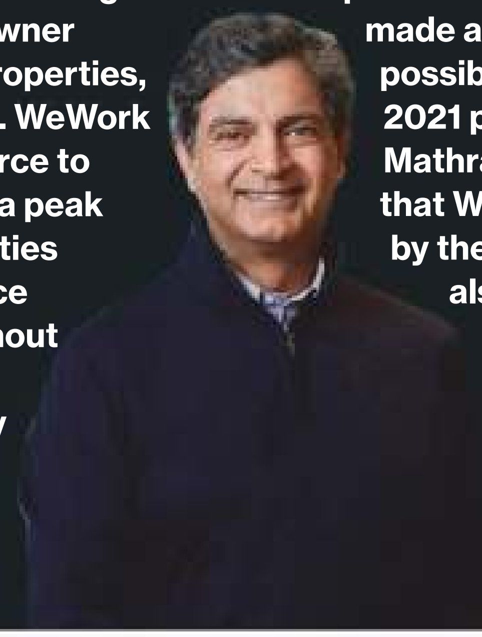
By Ira Boudway

Last October, Waymo announced that anybody who hailed one of its rides in the suburbs southeast of Phoenix would be picked up by a truly driverless vehicle—no human sitting behind the wheel. It was a major milestone for Alphabet Inc.'s self-driving-car unit, the culmination of more than a decade of work begun as part of Google's skunk works, X.

It was also the realization of a technological vision almost as old as the automobile itself—a vision pursued for decades by engineers from Stuttgart to Detroit to Mountain View. "It's a really, really big deal, we think, for us, and for the world," Waymo Chief Executive Officer John Krafcik said at the time.

HOT SEAT

Sandeep Mathrani



A year ago, Sandeep Mathrani inherited a high-profile but unenviable job: running WeWork Cos. after its former chief executive officer, Adam Neumann, had been ousted in a blaze of infamy and its initial public offering collapsed. The coworking company was bleeding $2 billion a year even before the pandemic made the idea of mingling in a communal office seem reckless. Mathrani, a real estate veteran known for turning around ailing mall mega-owner General Growth Properties, has moved quickly. WeWork slashed its workforce to 4,800, down from a peak of 14,500, and cut ties with 100 of its office locations. Throughout the pandemic, Mathrani has rosily maintained that once the virus is quelled, newfound interest in semi-remote work will make companies seek WeWork's flexible office spaces. Now that vaccines have made a return to the office seem possible, he'll have to spend 2021 proving that he was right. Mathrani recently promised that WeWork will be profitable by the end of the year. But he also seems to know getting there will be stressful, saying at a conference in January that the one habit he's picked up during the pandemic has been meditation. —*Ellen Huet*

Yet Waymo's breakthrough was mostly met with a public shrug. To be fair, there was a lot of other stuff going on. The U.S. presidential election was less than a month away, and the coronavirus pandemic was out of control. Plenty of momentous news items got buried last fall. Since then the company has provided thousands of driverless rides without incident or fanfare.

The muted response wasn't simply a matter of Waymo getting bumped off the front page. Ever since Google launched its self-driving-car project in 2009, the industry had followed up on abundant hype and easy financing with blown deadlines, catastrophic mistakes, and underwhelming products. "The reason the industry feels depressed today is of its own making," Oliver Cameron, co-founder and CEO of the robotaxi startup Voyage, said shortly before Waymo's announcement. "It's been a mismatch of expectations that the industry has brought upon itself." When the sci-fi future finally arrived, it felt way behind schedule.

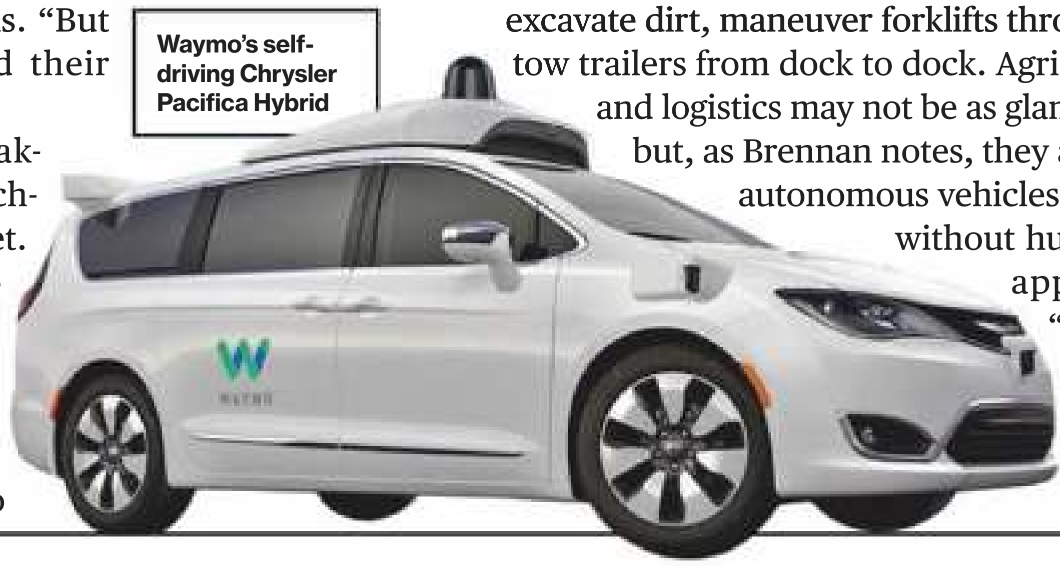
"For years, people mismanaged their optimism," says Reilly Brennan, founding partner at the San Francisco venture capital fund Trucks. "But in 2020 they mismanaged their pessimism."

Now comes the painstaking work of bringing the technology to the broader market. Waymo's progress seems to have spurred the competition. In December, General Motors Co.'s self-driving-car unit, Cruise, said some of its test fleet in San Francisco would begin running without a safety driver at the wheel—albeit with a human on the passenger side to intervene in case of emergency. And Apple Inc. has decided it, too, wants to build self-driving cars, though it doesn't expect to produce a vehicle for at least five years.

"For years, people mismanaged their optimism. But in 2020 they mismanaged their pessimism"

Over the next 12 months, Waymo and other autonomous-vehicle developers are poised to begin offering robotaxi services in more places, most likely on sunny, spacious streets in carefully chosen parts of California, Florida, or Nevada. Eventually, long-haul trucks and advanced cruise-control systems capable of handling highway miles without human intervention will begin to connect these "islands of autonomy," creating a network of robot roadways.

In the near term, most Americans will have to keep their hands on the wheel, even if some Tesla owners choose to pretend otherwise. But robot drivers will harvest crops, excavate dirt, maneuver forklifts through warehouses, and tow trailers from dock to dock. Agriculture, construction, and logistics may not be as glamorous as ride-hailing, but, as Brennan notes, they are big markets where autonomous vehicles can do valuable work without hurting anybody or disappointing customers. "You never have passengers on board complaining that they're not getting there fast enough," he says. Ⓑ



Waymo's self-driving Chrysler Pacifica Hybrid

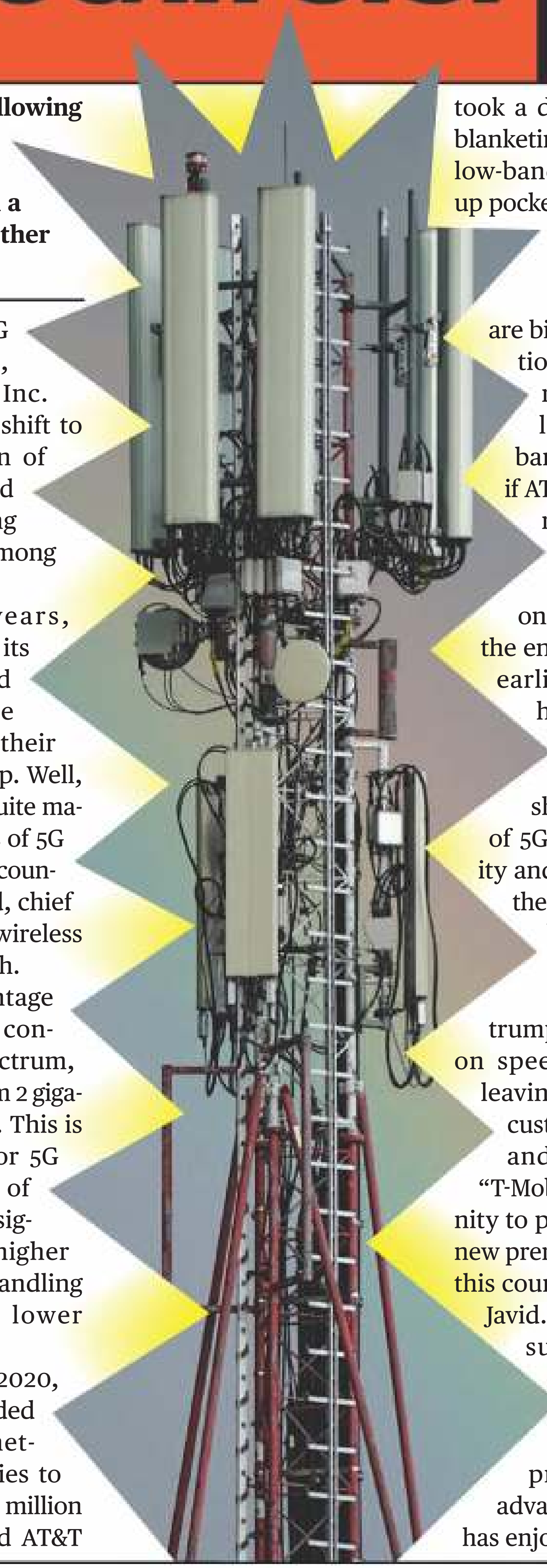
CAR: COURTESY WAYMO. FLAMES: GETTY IMAGES. MATHRANI: COURTESY WEWORK

T-Mobile Races Ahead on 5G in U.S.

The also-rans of U.S. wireless have combined into a company with a key advantage

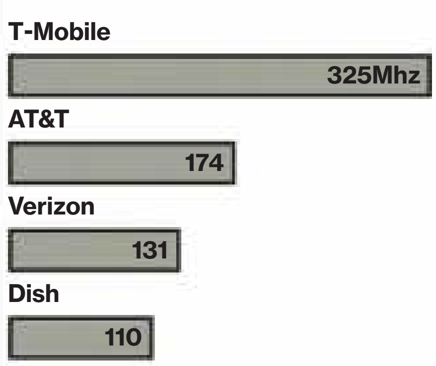
By Scott Moritz

T-Mobile's turnaround started eight years ago, following a failed takeover by AT&T. It had lost 1.7 million customers the previous year and was a distant fourth among wireless carriers in the U.S., with a network so dinky that Apple Inc. didn't even bother making a version of the iPhone for it.



Recasting itself as an irreverent, pink-hued underdog, T-Mobile US Inc. has not only caught up with larger rivals, but actually begins 2021 with a significant lead building out a 5G network in the U.S. Last April, T-Mobile purchased Sprint Corp. for $26.5 billion. The deal, which followed multiple unsuccessful attempts at consolidation among carriers in the last decade, created a company with a vast

Total low-band and midband holdings by carrier



spectrum on which to build its next-generation network.

T-Mobile is now second only to Verizon Communications Inc. in phone subscribers, a result of both its marketing blitz and the Sprint deal. And T-Mobile, led by its president of technology, Neville Ray, has aggressively expanded its network. The company is on the cusp of offering the first truly national 5G network in the U.S., outrunning AT&T Inc. and Verizon in the shift to the next generation of wireless networks and effectively upending the pecking order among U.S. carriers.

"For many years, Verizon hammered its competitors time and time again with 'the best network' and their big red coverage map. Well, the map is looking quite magenta today in terms of 5G coverage around the country," says Sasha Javid, chief operating officer of wireless data company BitPath.

T-Mobile's advantage in 5G relies on its control of midband spectrum, with frequencies from 2 gigahertz to 6 gigahertz. This is prime real estate for 5G networks, because of its ability to carry signals farther than higher frequencies while handling more data than lower frequencies.

By the end of 2020, T-Mobile had expanded its midband 5G network in enough cities to reach more than 100 million people. Verizon and AT&T took a different approach, blanketing the country with low-band 5G while setting up pockets of superfast high-frequency 5G in several cities.

All three companies are bidding in a new auction for the rights to more than $80 billion worth of midband spectrum. Even if AT&T and Verizon win most of the licenses, the frequencies won't be available on the networks until the end of the year at the earliest. But T-Mobile holds enough existing spectrum to get started now. It should enjoy a year of 5G network superiority and is aiming to cover the country with a midband 5G network by the end of 2021.

Verizon has long trumpeted its advantage on speed and reliability, leaving T-Mobile to offer customers lower prices and more flexibility. "T-Mobile has an opportunity to position itself as the new premium 5G network in this country," says BitPath's Javid. "That means more subscribers, lower churn, higher-value customers, and premium prices. These were advantages that Verizon has enjoyed for years." Ⓑ

PHOTO ILLUSTRATION BY 731; PHOTO: GETTY IMAGES. DATA: COWEN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Account Summary
Watchlist
LSSE
Add to Watchlist
Sell
Buy
All Account Positions

Q&A
PARUL KOUL

A labor activist on how her union can disrupt Google

By Josh Eidelson

Parul Koul, a software engineer at Alphabet Inc.'s Google, is the executive chair of the recently formed Alphabet Workers Union, which isn't recognized by the company but counts about 750 employees and contract workers as members. Koul, based in New York City, discusses with *Bloomberg Businessweek* her union's plans to tackle what she sees as Google's complicity in spreading disinformation, exacerbating climate change, and automating away jobs.

There's been years of activism at Google around sexual harassment, the treatment of contract workers, a plan for a censored search engine in China, and military contracts. How does having a union help?

We've seen the cost that activism has had on employees, like the firing of organizers, that has made things very difficult to sustain. The structure of a union and pooling our resources together to build an organization for workers will hopefully be able to sustain that fight for the long term.

Was it a hard decision to have the union be open to everybody, including people working there who don't have legal collective-bargaining rights, such as managers and independent contractors?

There was no question in our minds that we wanted it to be a union for everybody in the workplace, especially when some of the hardest aspects of the working conditions are experienced by contractors. Many of us feel like line managers at Google are really not that different from the average employee. And we have really positive relationships with our managers, so it didn't make sense to us to exclude any of those people.

Some people would say that a software engineer doesn't have very much in common with a contract worker cleaning a building or testing a self-driving car.

I think the union is going to be a hugely important tool to bridge the divide between well-paid tech workers and contractors who don't make as much. Certainly the conditions of our work differ. But even the well-paid software engineers face the feeling that you don't have any control over how your work is ultimately used. Also, for a subset of the highly paid tech workforce, 10 years from now, those jobs may not even exist. Wherever the logics of profit in the tech industry make sense, more of these jobs with paid benefits are going to be consumed by this model of contractization.

How are you able to make Alphabet executives do anything they don't want to without the power of collective bargaining?

Most unions today began the way we have, workers just coming together to organize for better working conditions, before they received formal recognition. A contract is one tool in this very large toolbox that the history of labor organizing offers us. There are also publicity campaigns and political pressure. Sometimes it just takes a small group of workers coming together and talking to the right 10 people in management or spreading the right email.

Have you heard from Google management yet?

We haven't been able to have a formal conversation. Their response in various media outlets has tended to talk about directly engaging with employees rather than through the union, to which I would say, you know, the union is us. By refusing to engage with us, they are really sidelining the workers themselves.

Have you been hearing from workers at other companies?

Yeah, dozens have been messaging our union, and we're having really great conversations with workers at other tech companies. I think that having a concrete example of an organization of this sort at a large tech company like this is huge.

Your union's mission statement says, "We are responsible for the technology that we bring into the world." What does it mean to take that view seriously?

It's not lost on many of us that our work is being used to fuel right-wing radicalization on YouTube or further climate change. Take an issue like automation, which is a direct threat to the livelihoods of millions of people around the world. A lot of that is being driven by research or technology that's being put out by companies like Google.

So that statement means acting in solidarity with the rest of the world. I know this is a difficult thing for a lot of people—including a lot of tech workers—to swallow, but I believe we have to see ourselves as a part of the working class. Otherwise we're going to end up being wealthy people that are just fighting for their own betterment. Ⓑ *This interview has been edited for clarity and length.*

COURTESY PARUL KOUL

PLUS: Tesla! Leverage! Satoshi!

FINANCE

MORE INSIDE

Edited by
Pat Regnier

How to Survive A Bubble

No one can be sure if markets are too high—but your emotions probably are

By Suzanne Woolley

Signs of bubbly markets are everywhere. Commission-free apps have encouraged home-bound speculators to try their hand at trading tech stocks and options. Bitcoin soars—and plunges—on a daily basis. Gen Z and millennial investors have turned to the viral video app TikTok, where the hashtag #stocktok has 351 million views and everybody seems to be on the verge of becoming a "Teslanaire."

Initial public offerings set a record last year. On Dec. 10, Airbnb Inc. rallied 113% above its offering price in one of the biggest one-day pops on record for a U.S. IPO. Just two days earlier, DoorDash Inc. went public and saw its stock rise 86%. Wall Street is offering customers ever more creative ways to amp up their exposure to hot investments: JPMorgan Chase & Co. is pitching to investment advisers structured notes that provide a leveraged bet on three popular exchange-traded funds from Ark Investment Management. Two of those ETFs are in turn heavily invested in Tesla Inc., whose stock rose more than 743% in 2020 and trades at 1,309 times it's trailing 12-month earnings.

Jeremy Grantham, co-founder of asset management firm GMO, is warning of not just a bubble, but a "fully fledged epic bubble" fueled by "hysterically speculative" investor behavior. Byron Wien, vice chairman of Blackstone Group Inc.'s private wealth solutions business, recently predicted that the S&P 500 will fall almost 20% in 2021's first half—but then advance to 4,500, up 19% from the start of the year. Against the backdrop of a pandemic-ravaged world, with millions out of work and living under lockdown, it all seems a bit out of sync. Dan Egan, managing director of behavioral finance and investing for robo-adviser Betterment LLC, sees a belief among some retail traders that "the Federal Reserve is not going to let the market, is not going to let companies, go bust."

Now, it's one thing to say prices look frothy and quite another to know when the market will turn. Grantham was famously prescient about the dot-com bubble, but his firm's flagship fund had a tough 2020 because it was positioned so defensively. Whether or not 2021 turns out to be the year the market corrects, it's clear that the question, "Is this a bubble?" is going to loom large on investors' minds. With so much fear and greed swirling in the markets—and so much uncertainty looming over many people's personal and professional lives—maintaining perspective requires concerted effort.

"Most of the battle is going to be mental, not financial," says Juan Ros, a financial adviser with Forum Financial Management in Thousand Oaks, Calif. "You're dealing with stress and anxiety, and with not letting emotions take over in a way that leads to poor financial decision-making."

When emotions dictate financial decisions, returns suffer. As financial planner Carl Richards puts it in *The Behavior Gap: Simple Ways to Stop Doing Dumb Things with Money*, there's often a big difference between the gains investments earn on paper and the typically lower returns people realize after trading. "It's clear that buying even an average mutual fund and holding onto it for a long time has been a pretty decent strategy," Richards wrote in his 2012 book. "But real people don't invest that way. We trade, we watch CNBC, and listen to Jim Cramer yell. We buy what's up and sell what's down. In other words, we do exactly what we all know we shouldn't do."

"It's more when we're rushed, when we think we have the inside scoop, when we think we know where the market is going, that we get into trouble"

If you missed the five best days of S&P performance in 2020, you'd be looking at a -12% return, rather than a return of 16%. A Morningstar Inc. study found that over the past 10 years some of the biggest gaps between funds' reported returns and the average returns of investors who used them were in equity-sector funds, which tend to see investors pile in after gangbuster returns are posted and bail out when performance sputters.

Financial planners and behavioral finance experts have an arsenal of strategies to help investors maintain their cool and focus on the long-term picture. Here are a few of their tips for clients who fall into three common categories.

For those gripped by the fear of missing out. Just as Instagram can make it seem like everyone else's life is brighter and shinier than yours, social media can make it seem like everyone is getting rich day trading. And that may push you into riskier investments.

When clients with a severe case of FOMO come to Roger Ma, a financial planner and founder of Lifelaidout, he asks them why they need big returns, aside from the bragging rights. "If achieving your financial goals is reliant on you making 30% to 40% per year, it may be time to revisit your financial plan to make it a little more feasible," he says. "It's like the person whose whole financial plan is reliant on them becoming CEO of a Fortune 500 company. It might happen, but probably not." A more realistic plan doesn't necessarily mean lowering your goals—it could also mean adding to your regular savings if you can afford to. Watching your extra contributions build up over a few months can take some of the edge off any regret you may feel about missing the latest melt-up in Bitcoin.

Ma says FOMO is also showing up in clients who don't like keeping their emergency fund in cash. After years of rising stock prices, it's all too easy to do the math and imagine how much bigger that pile would be if you'd put it in Apple Inc. or even an index fund. Keeping the money safe but on the sidelines feels like a waste. "I say, 'No, it's not really,' and remind them that the money is here to help in emergencies and give them some life flexibility," Ma says. Remember, when the pandemic first hit the U.S. and the uncertainty about how many people would lose their jobs was at its highest, the stock market briefly lost about a third of its value. That would have been a terrible time to be selling stocks to help pay the mortgage.

For those stuck in analysis paralysis. All the news and data flying around about the markets can be overwhelming, ▶

PHOTO ILLUSTRATION BY 731. PHOTOS: GETTY IMAGES (8), SHUTTERSTOCK (3), ALAMY (1) and staying on the market sidelines while you figure out what to do can have a big cost. Ma's way of dealing with that is to ask clients to look up a chart of the S&P 500 online and click to see its performance for one day, where you see every tick up or down. Then he says to go out five days, a month, a year, and then five years or longer. Clients see that a lot of the movements that felt so jarring at the moment don't even register.

On the other hand, if you've already set up regular contributions into an account and you or your adviser have an automated process for rebalancing, inertia isn't such a terrible thing, says Stephen Wendel, head of behavioral science at Morningstar. In this case, doing nothing means you're still investing–and sticking to a long-term plan you put together in a less emotional time.

"It's more when we're rushed, when we think we have the inside scoop, when we think we know where the market is going, that we get into trouble," Wendel says. It's only human–in Wendel's field, it's called "recency bias." Projecting the near future based on the recent past can work in everyday life, he says, but not in investing.

For those who are a bundle of nerves right now. When Covid-19 started breaking out in the U.S., Thomas Yorke, managing director of Oceanic Capital Management, heard from a client who'd had someone she respects say that the pandemic would be a lot worse than most people thought and she should get out of the market. "I said, 'I understand your concern, and I'm not here to tell you that markets will not go down,'" Yorke says. "'But the problem with that strategy is that the markets won't call us and tell us when it's time to get back in.'"

There's nothing wrong with looking at your financial plan when markets are highly valued and considering whether you need to rebalance so you aren't taking more risk than you expected to. But once you have a plan you're comfortable

"You're dealing with stress and anxiety, and with not letting emotions take over in a way that leads to poor financial decision-making"

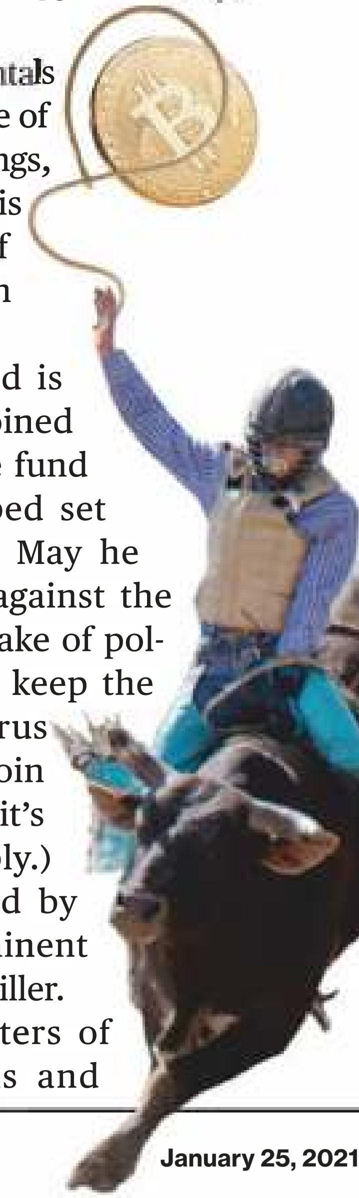
with, one way to guard against being reactive is to set up written safeguards before you're in the thick of a volatile market or an emerging crisis. That might mean writing out the specific situations that would lead you to consider changing your asset allocation, Wendel says. "Write out what you're trying to accomplish, and what the specific thresholds are for making changes," he says. "You want to get your expertise on paper, so you can look at it and revise it over time." When you really need it, you'll have it set down clearly "and it's not just all soup in your head," he says. Another way to make it harder to make rapid portfolio decisions is to set up a rule with your adviser or partner that says you must wait three days before making a move. The way the news is moving lately, a lot could change in that time. Ⓑ

Wall Street Runs Bitcoin. For Now

By Vildana Hajric

Professional investors are getting into crypto, but they're likely to have a wild ride ahead. So will anyone who follows their lead

A lot of investments have gone berserk lately, but none stand out quite like Bitcoin. Its price quadrupled in a matter of months to touch a record high of more than $41,900 in early January, propelling the cryptocurrency back into the limelight less than three years after a spectacular 75% crash. (It traded at around $36,400 on Jan. 19.)



Nothing about Bitcoin's fundamentals has changed. A Bitcoin is just a piece of digital code that produces no earnings, pays no dividend or interest, and is backed by nothing but the belief of other people that it might be worth something.

One big thing that's happened is that some on Wall Street have joined the crypto believers' club. Hedge fund manager Paul Tudor Jones helped set off the frenzy when he said in May he was buying Bitcoin as a hedge against the inflation he sees coming in the wake of policymakers' aggressive actions to keep the economy alive in the coronavirus pandemic. (The idea is that Bitcoin could be inflation-proof, because it's designed to have a limited supply.) His announcement was followed by proclamations from other prominent investors, including Stan Druckenmiller.

"When you have a few quarters of people delivering good returns and

PHOTO ILLUSTRATIONS BY 731. COWBOY: GETTY IMAGES. BITCOIN: SHUTTERSTOCK saying, ‘Oh, it’s because I have Bitcoin in my portfolio,’ which we’re starting to see evidence of, then I think the pressure will really heat up to be adding Bitcoin,” says James Butterfill, investment strategist at digital asset manager CoinShares.

Funds investing in cryptocurrencies have flourished in recent months. A popular trust from Grayscale took in $4.7 billion in 2020, more than almost 99% of exchange-traded products listed in the U.S., according to Bloomberg Intelligence. Fidelity Investments introduced a Bitcoin fund for wealthy investors. And Bitwise Asset Management, a crypto index funds provider, recently surpassed $500 million in assets under management, a fivefold increase from the end of October.

Whether the inflation that Bitcoin investors worry about will materialize is a big question—consumer price increases have been muted for years, despite more than a decade of rock-bottom interest rates. Another question is whether an asset that often sees steep declines will really prove a reliable store of value. Bitcoin is still a relatively thinly traded asset, and its price can be dramatically affected by a handful of large holders known as whales. Although platforms such as Robinhood and PayPal are making it easier for individuals to use and trade Bitcoin, about 2% of the anonymous accounts that can be tracked on digital ledgers own 95% of the tokens, according to researcher Flipside Crypto.

Wall Streeters’ interest in Bitcoin may say as much about their professional incentives as the investment case. Cryptos can look like a chance, albeit a risky one, to generate some outsize returns in a world where opportunities seem scarce. “There’s just a ton of money looking for somewhere to invest and not wanting to go invest more into negative real yields and equity markets that are at record highs and that seem to be starting to reach valuation limits,” says Chris Gaffney, president of world markets at TIAA Bank.

Asset managers, and especially the hedge fund impresarios known in the trade as macro investors, need to stand out from their peers. “You think about how these macro players view the world, and they all have a different edge, but significantly, they’re trying to figure out what is the item that is going to capture the most mind share, the most wallet share, and the most momentum of the entire world,” says Catherine Coley, chief executive officer at the crypto trading platform Binance US. Coley thinks this can continue for a while. “Right now at current levels, there’s the least amount of people that we’re going to see invested in this,” she says. “Starting tomorrow there will be more; starting the next day there will be more.”

There’s a domino effect, says Gaffney, when a handful of institutional investors move into a market that then sees a tremendous runup. Others start to take an interest because it can be too risky—for their careers—not to at least buy a little. “So, ‘Oh my goodness, my competitors and the people I’m going to be compared with are invested, and they’ve beat me to it’—if you will—‘so I better get invested too,’ ” he says. “That creates momentum in an investment—and especially an investment that has a relatively small market and not the normal liquidity figures.” The tricky thing about momentum, as Bitcoin’s past crashes have shown, is that the pendulum can very suddenly swing the other way. Ⓑ

Crypto Is a Faith-Based Asset

By Joe Weisenthal

Bitcoin has been around for more than a decade, and the total value of all outstanding coins recently broke $700 billion for the first time. Yet there’s still no consensus as to what precisely it is. It’s called a cryptocurrency, but it doesn’t exactly behave like a currency. These days it’s trendy to call it “digital gold”—but it’s not a commodity exactly. Some think of it more like a startup, or a company like Facebook Inc. or PayPal Holdings Inc. Others call it a Ponzi scheme and think it’s a matter of time before it hits what they consider its true value ($0).

Financial metaphors aside, perhaps the best way to think of Bitcoin is as a kind of religious movement. I’m not suggesting that’s a bad thing—it’s for others to decide if crypto fans’ beliefs are justified. It just so happens, however, that many characteristics of a religion—from holidays to prophets—are found in Bitcoin.

Bitcoin was developed by a mystical figure, with no known corporeal presence, called Satoshi Nakamoto. His true name is unknown. At some point, Nakamoto stopped posting online altogether, departing the earthly plane. He’s never once sold a coin, either, creating this thing of massive value with no clear indication of having cashed in. A selfless figure.

Nakamoto’s writings are sacred texts. There’s the Bitcoin white paper and his early message board postings at Bitcointalk.com, where he corresponded with fellow cypherpunks interested in creating digital money. Those early correspondees are the Bitcoin saints. One is Hal Finney, the first known recipient of a Bitcoin transaction.

Finney died in 2014, but one day he might come back to life. He was cryogenically frozen at a facility in Scottsdale, Ariz., in the hopes of someday waking up to a rejuvenated body. All religions have metaphysics and implicit promises of eternal life. As Finn Bruton lays out in his book *Digital Dash: The Unknown History of the Anarchists, Utopians, and Technologists Who Created Cryptocurrency*, the prehistory of Bitcoin had a high overlap with the Extropian movement, which believed in eternal life through technology.

Bitcoin’s worldview has other religious features. There are devils (bankers and central bankers), implicit promises of riches for the true believers who HODL (hold without selling), and damnation for the no-coiners who reject the way (“Have fun staying poor” is a popular Bitcoin incantation).

There’s a Bitcoin diet (carnivory). There are holidays, such as Bitcoin Pizza Day, and the Halving, which occurs every four years, when the pace of new Bitcoin issuance is cut in half. And there are sects and schisms. In 2017 a group that had a different vision for scaling Bitcoin forked off into Bitcoin Cash. Then within that community, another group forked off and created Bitcoin SV (for Satoshi’s Vision).

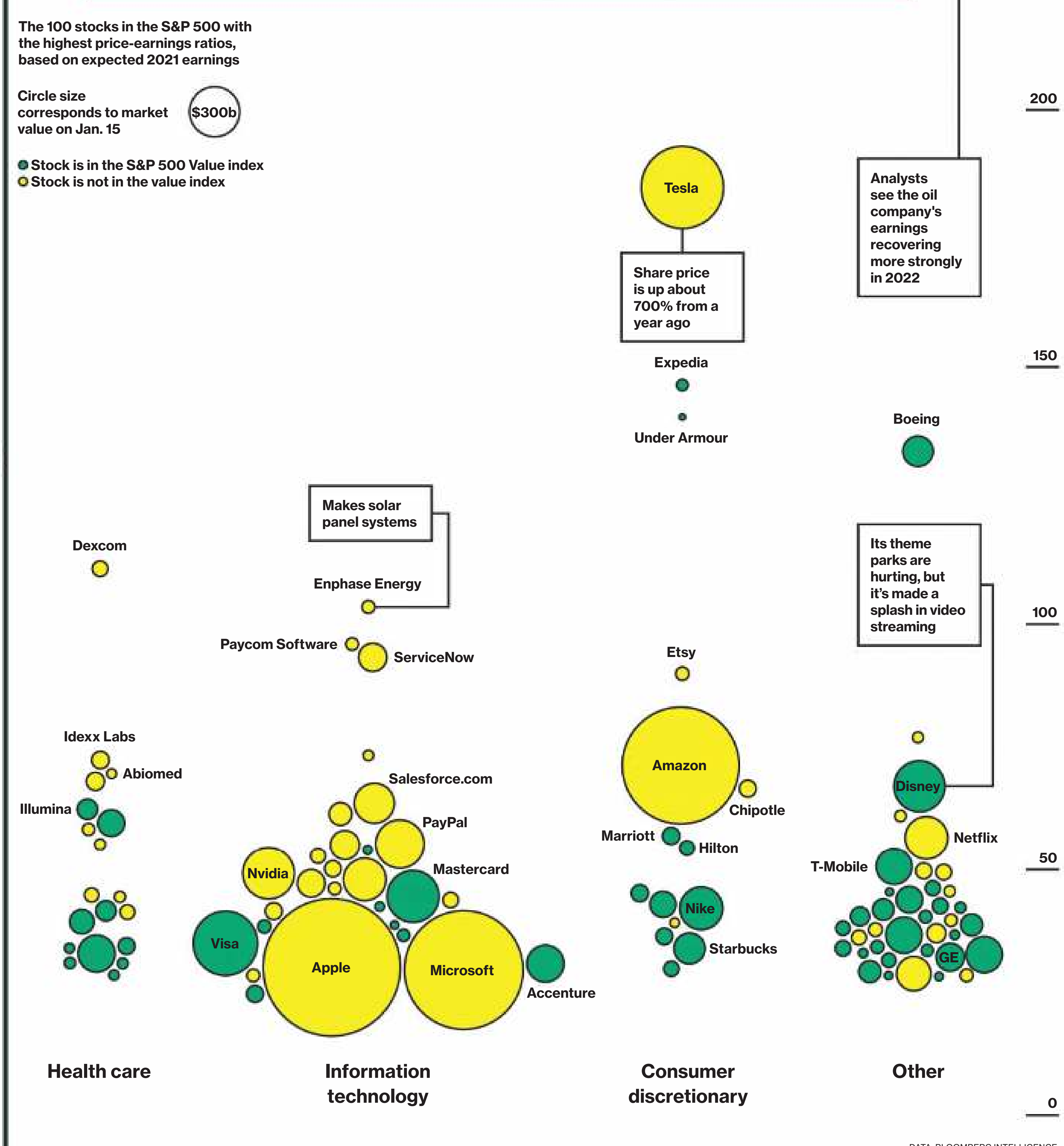
Of course, not everyone who’s into Bitcoin cares about this stuff. Most are in it for the money and will bail the next time it goes through a big drop. But so far the big winners have been the adherents who’ve never wavered in their commitment to HODL. So if someone in your life bought Bitcoin and won’t stop talking about it and proselytizing it, now you know why: They’ve converted.

PHOTO ILLUSTRATIONS BY 731. COLLAR: GETTY IMAGES. BITCOIN: SHUTTERSTOCK

Greater Expectations

By Mark Glassman

The stocks with the highest prices relative to expected earnings include the usual suspects: those of tech-driven companies with potential for fast growth. But some are included in the S&P 500 Value index, traditionally home for low-priced stocks. In many cases, earnings are depressed because of the coronavirus pandemic—some are in travel-related businesses—but investors are betting they will bounce back when it ends.



DATA: BLOOMBERG INTELLIGENCE

ETFs Aren't Just for Indexes Anymore

By Claire Ballentine

This is the year that investors will have to stop using the words "index funds" and "exchange-traded funds" interchangeably. That was never quite accurate, but for most of their history ETFs' main appeal was that they delivered very low-cost exposure to broad market indexes such as the S&P 500 and the Russell 2000. And then along came Cathie Wood.

The head of Ark Investment Management has shaken up the $5.6 trillion ETF industry with her slate of actively managed funds. As with all ETFs, the funds' shares can be bought and sold instantly just like stocks. Wood made bets on the bullish themes of 2020–Tesla Inc., tech stocks, biotech, and Bitcoin–and got the returns to match. In the past year alone, Wood's Ark Innovation ETF took in almost $12 billion from investors, as it rose 176%. "It does demonstrate clearly there is a market for actively managed ETF products," says Ben Slavin, head of ETFs for BNY Mellon Asset Servicing.

The spectacular performance of tech-heavy active ETFs revives investor interest in stockpickers—and asset managers' hopes for higher fees

Wood is in many ways a throwback to the glory days of conventional mutual funds in the 1980s and '90s. There are TikToks with Wood's image alongside young investors espousing the benefits of Ark products. "You just don't see those kinds of videos for IWM," says Eric Balchunas, ETF analyst for Bloomberg Intelligence, referring to the iShares Russell 2000 ETF. "Cathie has completely revitalized the rock star portfolio manager, which we thought was a dead concept. She proved it can kind of happen again."

Other asset managers–from T. Rowe Price Group Inc. to Invesco Ltd.–have been piling into the active ETF game. The appeal is fees. A big, broad index ETF might charge just 0.05% of assets per year. The average active equity ETF has an expense ratio of 0.72%. Active funds generate 8% of the ETF industry's revenue despite making up only about 3% of the assets.

Of course, the appetite for active funds will depend on their returns and ability to stay ahead of indexes. Stockpickers could once gain an edge over the broad market by including shares of Tesla, but now that the company has joined the S&P 500, that advantage has disappeared. "Active ETFs offer some structural benefits, but they are still extremely reliant on that manager's strategy and how they execute on it," says Ryan Sullivan, senior vice president of Brown Brothers Harriman's global ETF services. It's worth remembering why index ETFs are popular: Over the decade through June 2020 (the most recent data available), about 82% of large-cap stock funds lagged the S&P 500, according to S&P Dow Jones Indices. Ⓑ

HOT SEAT

Vlad Tenev

This could be a spectacular year for Robinhood Markets Inc.'s chief executive officer. The zero-commission online brokerage he started with Baiju Bhatt helped ignite a retail trading boom, and an initial public offering is widely anticipated. The company is considering selling some of its shares directly to its users.

But Robinhood's name has become shorthand for everything worrisome about this market: an influx of inexperienced investors, lots of trading, and more risk-taking. Other brokers have embraced Robinhood's free-trades model, but its fast growth and mission to "democratize finance" keep the company in the spotlight.

Tenev, who was named sole CEO in November, has vowed to address technical glitches that have frustrated some users. Robinhood says it tripled the size of its customer support team in 2020 and invested in making its systems more resilient. The company also faces criticism for making trading on its phone app feel too much like a game. That's the subject of a complaint by Massachusetts regulators, who point to one novice who made 12,700 trades in about six months. The company says it disagrees with the complaint's allegations and plans to defend itself. —*Misyrlena Egkolfopoulou*

WOOD: ALEX FLYNN/BLOOMBERG. TENEV: PHOTO ILLUSTRATION BY 731. TENEV: GETTY IMAGES. HOT TUB: SHUTTERSTOCK

China Tightens Its Grip on Fintech

By Bloomberg News

In late 2020, as Jack Ma's Ant Group Co. prepared for a $35 billion initial public offering, many outside China wondered if the country's financial technology giants were becoming a global competitive threat to U.S. and European banks and payments companies. Ant's Alipay app, used for everything from hailing cabs to investing, had already rewired financial services in the world's second-largest economy. There was just one problem: Inside China, policymakers were growing uneasy about the sudden dominance of their homegrown superstars.

Ant's IPO was suspended at the last minute on Nov. 3 after Ma was summoned to speak with regulators. The sudden focus on Ant was a surprise to a lot of investors, but since early 2017, Beijing has been on a campaign to defuse risks in China's $53 trillion financial system. (It's also wary of executives who get very rich, powerful, and outspoken. Ma has been all three.) Regulators have already clamped down on peer-to-peer lenders, overleveraged conglomerates, and embattled regional banks. The Ant episode was a sign that they've trained their sights on the fast-evolving world of fintech companies, which until recently have benefited from a light regulatory touch.

The upstarts are now rushing to shore up their capital, mulling how to restructure their businesses, and bracing for more turbulence as industry watchdogs examine everything from lending practices to banking partnerships to data privacy. The call for tightened oversight comes from the very top. President Xi Jinping urged financial regulators to "dare to" master their supervisory role, according to a commentary by an official at the China Banking and Insurance Regulatory Commission, published in November in the Communist Party mouthpiece *People's Daily*.

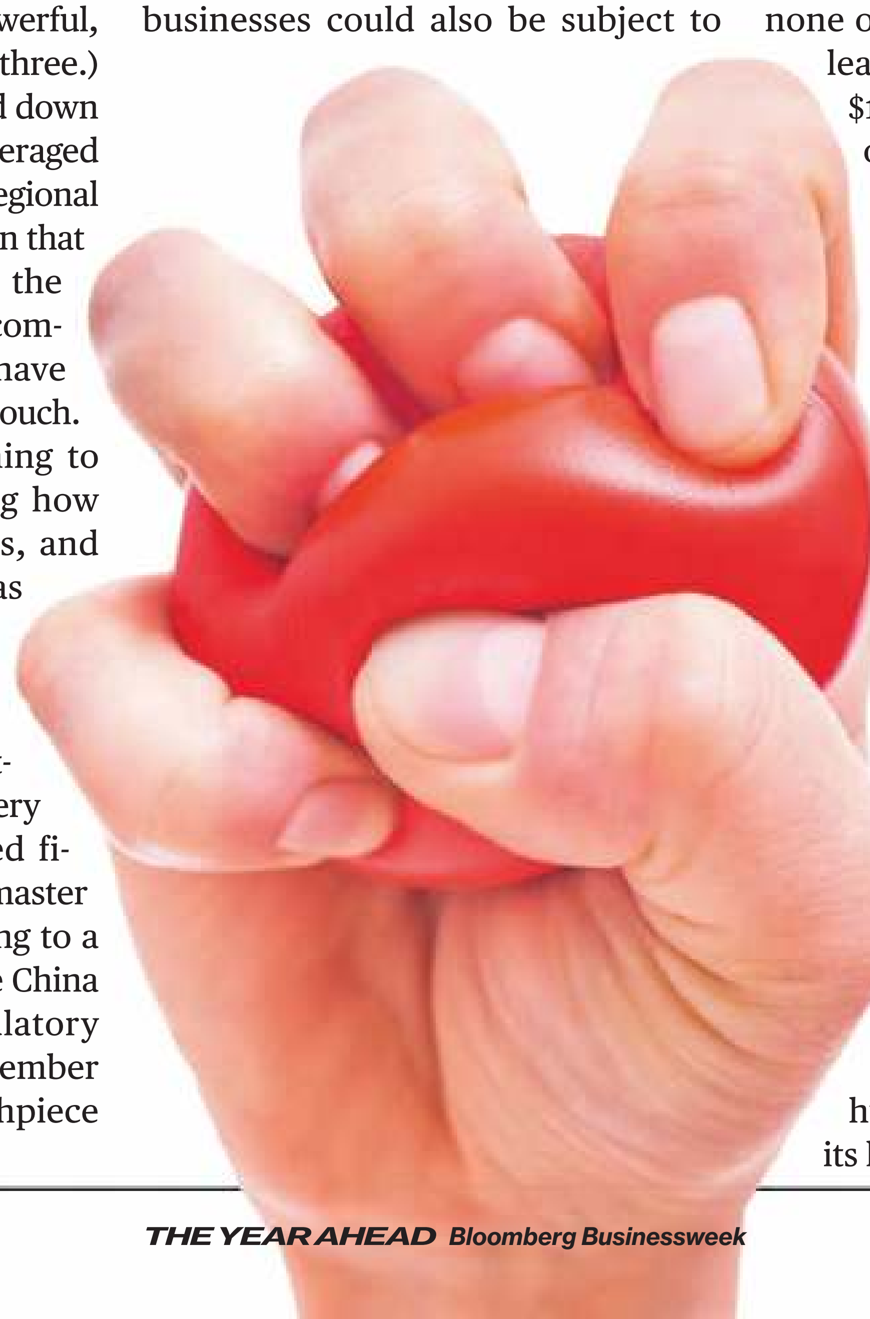
The government seems particularly focused on the online lending industry, where Ant was the biggest player and issued 2.1 trillion yuan ($324 billion) of loans as of June. Ant has now been told to overhaul its business. People familiar with the situation have said it's planning to fold its financial business—wealth management, payments, insurance, and lending—into a holding company that will be supervised more like a traditional bank. Ant's businesses could also be subject to more stringent capital requirements, potentially curbing its ability to expand at the pace of the past few years.

The crackdown on the parent company of Alipay has put one of the country's most successful industries on warning

Anyone who's skeptical of authorities' determination should look no further than China's peer-to-peer sector. Once touted as an innovative way to match savers with cash-strapped borrowers, the industry prospered with more than 5,000 lending platforms at its peak, attracting upwards of 50 million users and processing 3 trillion yuan of transactions a year. The industry became plagued with fraud and defaults. Regulators swooped in starting in 2018. By November 2020, none of the platforms were running, leaving investors with more than $122 billion in unpaid debt. Some of the companies behind the platforms managed to reposition themselves to focus on consumer lending.

The peer-to-peer debacle was a painful lesson for regulators not to wait too long. Ma, who never dabbled in peer-to-peer, attempted to draw a line between the sector and his empire during his famous speech at the Bund Summit in Shanghai in November. "We cannot dismiss internet technology's contribution to financial innovation simply because of what happened to P2Ps," he said.

Regulators moved ahead with crackdowns anyway. Part of the reason could be because of Ant's huge user numbers, the scale of its loans, and the influence it holds



GETTY IMAGES

over China's money flows and financial plumbing. In its IPO prospectus, Ant said it was No. 1 in most of the sectors it set its eyes on, making itself an easy target. Before the stock sale was suspended, the company's estimated value was four times larger than Goldman Sachs Group Inc.'s.

Regulators have said they will increase scrutiny on monopolistic practices, particularly in online payments, triggering concerns about potential forced breakups of companies that have used their access to consumers' phones and data to push into finance. Similar to Ant, platforms backed by technology giants such as Tencent Holdings Ltd. and JD.com could also need to increase their capital based on draft rules. If something went awry, regulators worry it could undermine financial and social stability. "Fintech is a winner-takes-all industry," Guo Shuqing, China's top banking regulator and party secretary of the central bank, said at a December conference. "With the advantage of data monopoly, big tech firms tend to hinder fair competition and seek excess profits." That's about as clear as a warning can get for fintech to trim its sails. Ⓑ

Q&A DAVID McCORMICK

A U.S.-official-turned-finance-executive looks ahead to the comeback from the pandemic

By Erik Schatzker

David McCormick, the chief executive officer of Bridgewater Associates, isn't a typical hedge fund honcho. He's a former Army Ranger who cleared minefields in the first Gulf War and a Princeton Ph.D. who served as President George W. Bush's undersecretary of the Treasury. He now runs the company Ray Dalio founded, which manages $140 billion, much of that for pension funds.

How do you reconcile the political situation with the state of financial markets?

We're in a unique moment, a paradigm shift that has been accelerated by the pandemic. There's an enormous amount of uncertainty, more polarization than at any point in my lifetime, and growing tensions between the U.S. and China. How that's managed and how that plays out has huge implications for markets and for the economy.

What are the most critical considerations in the U.S.-China relationship?

Artificial intelligence, quantum science, 5G—those are winner-take-all technologies. They have geopolitical and military significance. Having leadership in those areas really matters.

Does it feel to you like a time to be taking risks?

You could imagine a Japan-like recession/depression for the next 20 years or a 1970s stagflation [low growth with high inflation], and those very divergent outcomes have implications for how different assets perform. **This is one of the most challenging times ever for policymakers. Should we be thinking about unintended consequences?**

Absolutely. That was one of the lessons of 2007 to 2009, when I left the government. With all that stimulus, assets were the beneficiaries of liquidity, and in the decade that followed, that was one of the contributing factors to growing inequality.

Is corporate America doing a good enough job responding to the challenges facing the country?

There are times when silence just isn't an option—I believe this is one of those times. CEOs have to speak out on what's right. But when CEOs speak on all things, it minimizes the message. On what issues are they most credible? Are they speaking because of their economic interest or on behalf of the country? It has to be done with caution and humility.

What do you worry about the most?

The opportunity gap. We need to ensure that people in the bottom quartile of the economy have as much opportunity to achieve their dreams—through education, through health care. What we saw in the pandemic is those who were most disadvantaged were hurt the most. That's contributing to the polarization.

If you could refocus the national conversation on one thing, what would it be?

That sense of common purpose. I grew up in a small town in Pennsylvania, all White kids in my high school. When I got to the Army, it was a melting pot of different backgrounds. Your prejudices, your preconceived notions, they just fade away. I think some form of national service, where rich kids and poor kids, urban kids and rural kids come together, would be an important step. It doesn't have to be the military.

Do you feel optimistic about the future?

As crazy as it sounds after watching TV over the past few weeks, I do. I'm a guy who went to West Point and who thinks about duty to country. I'm horrified by the violence in our Capitol. But I think the steps needed to get our country on the right path are clear. It's not about politics, it's more about leadership. Ⓑ *This interview has been edited for clarity and length.*

MCCORMICK: BRIDGEWATER ASSOCIATES

PLUS: Adventure! Glamour! Bieber!

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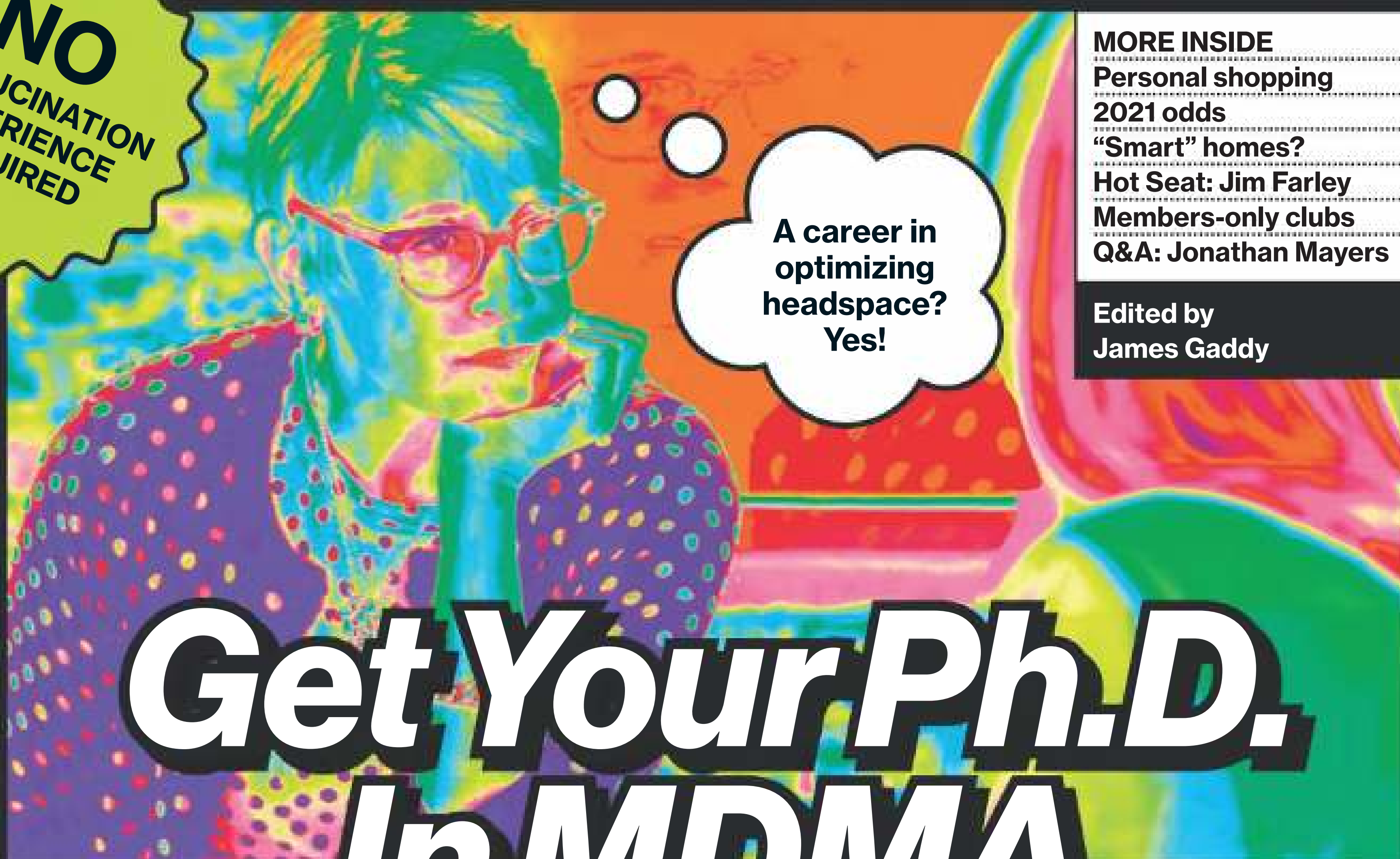

MORE INSIDE

Edited by James Gaddy

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Schools that teach psychedelic therapies are popping up like mushrooms

By Michelle Lhooq

Even before Oregon and Washington, D.C., decriminalized medical psilocybin, the active ingredient in "magic mushrooms," in November, a market was emerging for schools that teach mental and medical health professionals how to use psychedelics in their treatment. The vanguard industry is booming despite a host of regulatory unknowns, as practitioners educate themselves on the therapeutic potential of psilocybin—and other drugs such as cannabis and methylenedioxymethamphetamine (MDMA)—while betting on imminent federal legalization.

There are dozens of these schools, including the California Institute of Integral Studies, which offers a certificate in psychedelic-assisted therapies and research. Naropa, a Buddhist university in Boulder, Colo., began offering a course in MDMA-assisted psychotherapy last year. Compass Pathways Plc, which received a "breakthrough therapy" designation from the U.S. Food and Drug Administration, also offers a core training curriculum.

These virtual and in-person courses can range in length, from several weeks to months, and cost several hundred dollars or thousands, with some companies developing their own proprietary and trademarked programs. The classes have names like "Foundations in MDMA and Psilocybin Safety" and "Psychedelics and Social Justice," and some schools offer retreats featuring flotation tanks, sweat lodges, and holotropic breathwork sessions.

"It's like a gold rush," says Julie Holland, psychiatrist and author of *Good Chemistry: The Science of Connection, From Soul to Psychedelics*. "The green rush for cannabis happened over decades. But for psychedelics it's happening over a few months." For risk-happy investors, they're an edgy favorite for disrupting the $70 billion mental health market: Peter Thiel-backed Compass has surged more than 150% since its trading debut in September.

Because no legal opportunities exist—yet—for U.S. health-care workers to administer psychedelics beyond cannabis and ketamine, most programs focus on teaching professionals how to support their patients before and after their trips, a practice known as psychedelic integration. "Clinicians are not recommending psychedelics but rather supporting the autonomy of patients who might, for example, go to Peru for an *ayahuasca* ceremony," says Ingmar Gorman, who co-founded the psychedelic school Fluence in 2019.

Gorman declines to discuss Fluence's revenue, though he does say it increased sevenfold over the course of 2020. It currently hosts dozens of virtual courses ranging from $550 to $1,200, as well as a $7,450 certificate program that includes an in-person retreat in New York's Catskill Mountains. He estimates that the school has enrolled more than 640 students, with 60% being social workers or psychologists, 30% therapists or medical providers, and 10% coaches or miscellaneous professionals, such as engineers, lawyers, and clergy. "Psychedelics put people in a very vulnerable state, and that's why this training is so important," he says. "A big lesson from current clinical trials is that clinicians should not insert their own perspectives too much and instead support the patients' own intuition and healing intelligence."

Perhaps the most well-known of these centers is the MDMA Therapy Training Program at the Multidisciplinary Association for Psychedelic Studies (MAPS). Since beginning in 2012, the $7,500 program has enrolled 920 students; the institution recently raised $30 million from donors such as lifestyle guru Tim Ferriss to fund the training of future MDMA therapists. This year it will roll out a 100-hour program that includes virtual retreats and online coursework. Enrollment opens in February.

There's no standard-setting body for psychedelic training. Some clinicians worry that the lack of governance can make it difficult for prospective students to choose reliable programs; some self-identified experts' main qualifications are simply having done a lot of psychedelics. "There are tremendous disparities between programs," Holland says. "Everyone is reinventing the wheel and doing it their own way. On the other hand, you also have a lot of innovation and options."

Another question is whether it's important, or even necessary, for trainees to use psychedelics themselves. Although the Johns Hopkins Psychedelic Research Unit and other research centers don't require scientists to have personal experience with mind-altering substances, schools such as the Psychedelic Somatic Institute say the experiences are essential for aspiring practitioners. "Psychedelics are such nonrational experiences," says PSI co-founder Saj Razvi. "As a therapist, there's no way to know what that's like unless you go in yourself."

> ***"It's kind of a free-for-all, which is scary. There are training spaces on the West Coast where everyone and their mother is a shaman"***

PSI opened its doors in fall 2020, with five-day, in-person courses in Los Angeles and Minneapolis, followed by eight-month online sessions, for a total cost of $6,200. Incoming students who wish to self-administer psychedelics are usually prescribed ketamine by a psychiatrist or bring their own cannabis from a legal dispensary, then participate in therapeutic sessions with other students. "This particular training model is where you can get a lot of your own work done," Razvi says.

He also cautions prospective students to do their research before selecting a school. "The market is huge, and it's kind of a free-for-all, which is scary," he says. "There are training spaces on the West Coast where everyone and their mother is a shaman. They've had powerful experiences in psychedelics and assume their process is the same as others, but it's not." Ⓑ

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THE NEW BREED OF LAZY SHOPPERS

By Kim Bhasin

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The gatekeepers of luxury retail have long tried to convince customers that personal shopping isn't just for those who can afford to drop $10,000 on a handbag. After all, they're more likely to buy something and spend more on that visit, on average, than traditional buyers. Shoppers have resisted for that same reason. Its reputation as a haughty, gilded oasis where you're handed Champagne and hidden from the commoners, while a stylist pulls a carefully curated set of items for you to try on, hasn't helped.

"We've spent a generation trying to get more people to engage with us on private shopping," says Marc Metrick, president and chief executive officer of Saks Fifth Avenue.

But Metrick says the pandemic has forever changed that dynamic and predicts this level of attention is a scalable option now. More customers are using the service, including those who may not have in the past because of the misconception that they had to spend a ton to do so.

Retailers are trying to take advantage of this newfound willingness, both on- and offline. Signet Jewelers Ltd., owner of Kay Jewelers, Jared, and Zales, hurried out a one-on-one virtual platform last year that allowed customers to book a video chat with an associate, who offers advice and provides the hand-holding expected when buying such big-ticket items as engagement rings and diamond necklaces. CEO Gina Drosos says these consultations will become mainstays after the pandemic and could change her workforce as staffers shift between guiding shoppers online and in stores.

At Neiman Marcus Group Inc., CEO Geoffroy van Raemdonck is encouraging private interactions as well. Fresh out of bankruptcy, the retail chain had 65 in-store and digital sellers before the pandemic but now plans to increase that number to 200 over the next year. "We are a relationship business," Van Raemdonck says. "Now it's about creating that role for customers who want to be digital."

During pandemic lockdowns, people have gotten more used to others helping them make purchases for even basic items. Walmart Inc. more than doubled its number of personal shoppers, to almost 160,000, this past holiday season to grab groceries or stocking stuffers for curbside pickup and delivery.

Buyers having their carts put together for them is the next step. Saks, which is owned by Canadian retail group Hudson's Bay Co., started its personal shopping department in Boston in the 1980s, then took the concept to other locations. Of the 40 Saks stores, 31 now have these clubs. There are no minimum spends or fees; the only costs are the actual merchandise, alterations, and shipping. In New York, the flagship has almost 13,000 square feet and 33 private rooms devoted to personal shopping. The most recent expansion in 2016 was part of a $250 million renovation.

Many of the 30 consultants on staff have been trekking to clients' homes in the Hamptons and Connecticut, with a fitter tagging along. For the highest-end customers, they'll travel all over the world together, going to fashion shows and meeting with designers and tailors.

That's mostly virtual now: They send a bottle of Champagne and have everyone hop on Zoom. Lisa Bruni Vene, managing director for luxury services at Saks, who's worked at the retailer for more than two decades, says business has doubled in the past 10 years. She's doing a lot more virtual selling these days, though the physical suites, like little versions of living rooms you'd find at a five-star hotel, have also been filling up.

"Four out of five times, a new appointment is for special occasions, but not in this environment," Bruni Vene says. "The majority of our business comes from clients doing new wardrobes."

The retailer's average shoppers aren't billionaires or celebrities, though it gets its fair share. They're fashion-conscious regulars or businesspeople looking for help and guidance. These customers prefer it because of that personal advice and direction, not to mention the sheer convenience of getting someone else to arrange your shopping for you, rather than searching for the things you like on your own.

"Like any luxury that people have, they don't think they need it, and then once they have it, they can't live without it," Metrick says. "They're never going to go back." Ⓑ

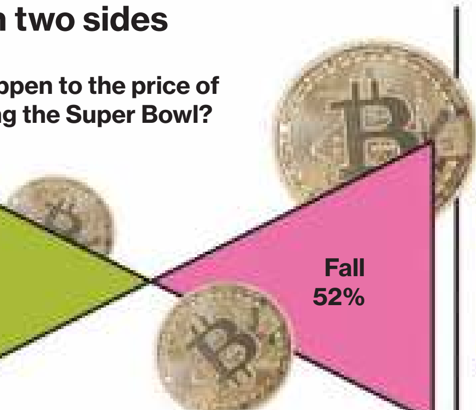
What Are the Odds?

No one knows for sure what will happen this year—you can bet on that. To help get a grasp on the uncertainty, *Bloomberg Businessweek* asked the sports gambling news source Odds Shark for help in framing the next year or so as betting markets. Below are the implied probabilities of events happening based on the odds listed by Bovada, a sportsbook Odds Shark works with.

Probability of event occurring* ◀Underdog

Bets with two sides

What will happen to the price of Bitcoin during the Super Bowl?



Rise 57% — Fall 52%

Will Justin Bieber play the first date of his rescheduled tour on June 2 in San Diego?

No 69% — Yes 39%

Which will be released to the public first, the Tesla Cybertruck or the Ford F-150 electric truck?

Tesla 69% — Ford 39%

Will Macy's Inc. declare bankruptcy in 2021?

No 80% — Yes 29%

Will the Tokyo Olympics take place with spectators?

Yes 86% — No 22%

Bets with more than two options**

Who will win the 2021 World Series?

Dodgers 20% — Yankees 15% — Padres 11% — Pirates 1%

A $100 bet on Pittsburgh would win $15k

Who will be elected the next mayor of New York City?

Andrew Yang 40% — Scott Stringer 22% — Eric Adams 21% — Carlos Menchaca 1%

Who will be the next James Bond after Daniel Craig?

Tom Hardy 32% — James Norton 24% — Idris Elba 17% — Aidan Turner 5%

Who will win the Golden Globe for best actor in a film comedy or musical?

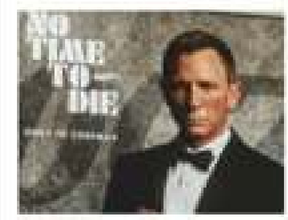
Sacha Baron Cohen 50% — Andy Samberg 17% — Dev Patel 15% — Keanu Reeves† 5%

For playing Ted in the new *Bill & Ted* movie

Where will Samantha Jones be in the first episode of the new *Sex and the City* on HBO Max?

Dead 43% — Moved out of NYC 29% — Still in NYC†† 18% — In prison or an institution 12%

Over/unders for movies' domestic gross on opening weekend in 2021



No Time to Die
April 2
$25.6m

Black Widow
May 7
$28.5m

Top Gun: Maverick
July 2
$18.5m

Dune
Oct. 1
$69m

*BASED ON BETTING MARKET AS OF JAN. 15. **THE THREE MOST LIKELY OUTCOMES AND THE UNDERDOG ARE SHOWN. †TIED WITH JAMIE DORNAN. ††TIED WITH THE CHARACTER NOT BEING MENTIONED. DATA: ODDS SHARK, BOVADA

COHEN, BITCOIN, BIEBER, MACY'S, OLYMPICS, STATUE OF LIBERTY, CATTRALL, CRAIG: GETTY IMAGES. YANG: ADAM GLANZMAN/BLOOMBERG. BLACK WIDOW: COURTESY DISNEY. TOP GUN: COURTESY PARAMOUNT PICTURES. DUNE: COURTESY WARNER BROS.

This Old, DUMB House

By James Tarmy

The pandemic has been a catalyst for home improvement, and one throughline in almost every update planned for 2021, architects and decorators say, is a sharp demarcation between work and relaxation spaces.

"People want their offices to be offices, and their playrooms to be playrooms," says Damian Samora, a principal at Ferguson & Shamamian Architects in New York. "The make-or-break post-Covid is people being able to spiritually and mentally survive by having their personal life and unplugging."

That can mean leaving tech in the home office, though it runs counter to trends companies have been flogging for years. Smart appliances have become omnipresent: Miele makes a Wi-Fi-enabled dishwasher; a line of LG washing machines comes with an app that lets you do laundry remotely; Samsung's new app-connected AI-powered vacuum cleaner has sensors that can distinguish between a chair leg and a toy.

But Enrique Vela, the director of interiors at Olson Kundig Architects in Seattle, hasn't seen his homebound clients clamoring for more technology. "Before, everyone wanted the Nest thermostat, or to be able to lower your blinds, and open your door, and unlock everything" with your phone, he says. But "in the last couple of projects we've been working on, integration of tech hasn't come up as something that's in the foreground. What's come up most is accessibility and approachability."

Utility and ease—and any excuse to avoid looking at your phone even more—could outpace novelty this year. "People are more aware and more interested in their environment," says Annabelle Selldorf, the founder of New York's Selldorf Architects. "You can have the most beautiful kitchen in the world, but if you don't know how to operate the steam oven, or what have you, it doesn't matter."

Once the Wi-Fi is set up, even the focus of a home office is rarely about the technology itself. Interior designer Steven Gambrel recounts that, during a recent renovation of a house in East Hampton, N.Y., one owner was preoccupied by the wall behind his desk—what people on Zoom calls would see. After dismissing a big polished paneled room (too stodgy), an important painting (too garish), and family portraits (too invasive), he settled on a bookshelf.

Concerns such as videoconference backgrounds might feel temporary, but architects say the changes we see in 2021, dictated by the habits formed in 2020, will stick for years. "This experience is going to stay in people's memories for a long time," says Ron Radziner, a design partner at Marmol Radziner, which has offices on both coasts. "There's a little bit of this fear that 'Hey, this can happen again, and I want to be ready.' " Ⓑ

HOT SEAT

FARLEY: DAVID PAUL MORRIS/BLOOMBERG/GETTY IMAGES. TIRES, SMOKE: GETTY IMAGES

Jim Farley

The newly installed president and chief executive officer of Ford Motor Co., Farley, 58, finds himself squarely in the bull's-eye during a critical year for Detroit's beloved blue-oval brand.

On the positive side, Ford's F-Series line of pickup trucks has been America's bestselling vehicle for more than 40 years; its money-minting light trucks (pickups and SUVs) have done so well, the company is exiting sedans to focus on reinvigorating icons such as the Bronco.

But massive headaches await. U.S. sales fell 10% in the final quarter of 2020, plagued by low inventory of a redesigned F-150 and a complicated factory changeover. The brand announced on Jan. 11 that it's closing three factories in Brazil and cutting 5,000 workers in South America; in China, the world's largest auto market and best opportunity for selling electric vehicles, it has only a nominal presence. Meanwhile, Ford is spending $11.5 billion to electrify its lineup, starting with the battery-powered Mustang Mach-E that just went on sale and an electric F-150 coming in 2022. —*Hannah Elliott*

Charging DUES, Making DO

By Jen Murphy and Kate Krader

> **“Booking a trip usually came with an overwhelming feeling of ‘Where do I start?’ but now it’s like a shopping spree”**

Phil and Erin Lockwood never imagined their family would be traveling more during the coronavirus pandemic. But since joining the vacation club Inspirato last September, the parents of three have swapped one annual trip to a Disney theme park for villa rentals in Cabo San Lucas and Costa Rica.

Inspirato LLC’s new subscription model, starting at $2,500 a month, made it an easy decision for the Lockwoods, who split time between Denver and Coronado, Calif. “Booking a trip usually came with an overwhelming feeling of ‘Where do I start?’ but now it’s like a shopping spree,” says Phil, a 47-year-old marketing agency owner.

While the rest of the tourism industry hangs on for dear life, private travel clubs are on the rise. Booking activity at Inspirato is 30% higher year over year. Its competitors, Exclusive Resorts LLC and the Essentialist, reported record-breaking membership sales in 2020.

Some clubs charge smaller fees for planning services, and others cost more to secure discounted or even free trips. Either way, accessibility, not exclusivity, has become an undercurrent. Two-year-old Prior Inc. recently dropped its annual membership fee from $2,500 to $249. AllCall, which began in 2019, introduced a model in December that focuses on guided trips in 50 cities and starts at $24 a month.

For these purveyors, locking in clients with a recurring fee brings much-needed cash flow and stability in uncertain times, while consumers get a trustworthy partner in a familiar business model. “We budget our lifestyles around subscriptions to gyms, Amazon Prime, Netflix,” says Sean O’Neill, an editor at the travel industry trade site Skift. “People want to travel. Give them a subscription and help plan it, and it’s very appealing.”

Members of Manifest pay $2,500 a year for a service that’s half private jet subscription, half travel agency. Trips average between $3,500 and $8,000 per person and include air travel, accommodations at, say, Amangiri resort in Utah, and adventures curated by partners such as MT Sobek. Guides and activities, most meals, and black-car service to and from the airport are also covered.

Restaurants are recognizing the benefits of membership, too. The Table22 platform, a Patreon for dining, started in May 2020 to help places diversify income during the pandemic. It has about 100 clients including Il Buco in New York and Chicago’s Lost Lake bar, whose at-home Cocktail Club subscriptions start at $32 a month.

Members only: a trip on the Middle Fork Salmon River, a glass of Champagne from Quince & Co., a ride in a Manifest private jet

Lindsay and Michael Tusk, owners of the Michelin three-star restaurant Quince in San Francisco, have started Quince & Co., which, for an annual buy-in of $5,000, gets you a $1,000 dining credit as well as bimonthly boxes with provisions from their Fresh Run Farm in Bolinas, Calif. “We need to create a new, stable model. It’s predictive income we can count on,” Lindsay says.

When restaurants in California are allowed to reopen, Quince will restart as a space for members and those they refer. In addition to being a benefit for people who have bought in, “we’ll be better able to ensure the safety of guests and staff,” Tusk says. Backers will also be given priority reservations at her other restaurants, Cotogna and Verjus.

“We see this as an opportunity to be invested in the restaurant,” she says. “You have a membership at your gym. Why wouldn’t you have one at a restaurant you love?” B

RAFTING: MT SOBEK. CHAMPAGNE: MAREN CARUSO. PLANE: COURTESY MANIFEST

Q&A
JONATHAN MAYERS

A co-founder of Bonnaroo discusses the uncertainty around live events

By Lucas Shaw

In early 2020, Mayers and his three partners at concert promoter Superfly made a well-timed sale of their stake in Bonnaroo, the Tennessee music festival they'd founded in 2002. The proceeds helped the company to weather the worst year for live music since at least World War II, and also to invest in a new project: in-person experiences set in the worlds of popular movies and TV shows. Following test runs with shows including *Seinfeld* and *The Office*, Superfly will open the Friends Experience in Manhattan's Gramercy Park neighborhood in March, charging fans $49.50 for a 45-minute trip through re-creations of the sitcom's two main apartment sets and more. The company plans to expand into fantasy and other genres, combining flagship operations in cities such as New York and London with 60- to 90-day pop-up stints elsewhere.

Mayers spoke with *Bloomberg Businessweek* about the past and future of live entertainment.

How would you describe the last 10 months in live music?

It's been a s--- show. It's come to a standstill. I'm hopeful we'll see some in late 2021.

When did you know the pandemic would be a total freeze, as opposed to a brief shutdown?

In the second week of March, I had no understanding of what the next 10 months would look like. I thought we'd work from home for a couple weeks. The universe speaks, and you have to adapt. It's been a challenging but productive and fruitful period for me and my team.

What's been your hardest decision?

We were planning on opening our flagship of the Friends Experience in May. We were 90% done with construction and a couple weeks away from announcing it. We had to pause. We couldn't even continue construction.

What is the Friends Experience?

In 2019, with Warner Brothers, we did a proof-of-concept licensing of *Friends* for its 25th anniversary. We dropped a 30-day pop-up shop in New York; we sold out 50,000 tickets in two hours with one social media post. It was $30. We re-created Joey and Chandler's apartment, Monica and Rachel's apartment. We had props and costumes. And you exit through the gift shop. I took it to Boston in 2019. We crushed it—we sold 65,000 tickets. Then I retreated. I knew we had something.

COURTESY SUPERFLY

How do you make it Covid-safe?

You take a temperature check as you enter. You have to wear a mask. It's small groups of people. We have social distance markers and hand sanitizing stations throughout. Monica from *Friends* is a clean freak. We call it our Monica rules.

Are you still comfortable going ahead in March?

Right now we are, but you monitor every day. If you are booking a festival with 100 bands, it's tough to move. This show isn't going out of style.

You started Superfly in 1996 with some friends from college. What was your vision?

I was a New York kid. I interned at the New Orleans Jazz Fest and fell in love. I was an entrepreneur and liked organizing. I did the first show under the name Superfly at Tipitina's. My first job out of college was booking that venue.

When did you start to realize the market for music festivals was too crowded?

At least five years ago. We saw a lot of festivals with great lineups springing up. Fifteen years ago it was Bonnaroo, Coachella, Lollapalooza. Jazz Fest was the grandfather. At the beginning, Bonnaroo was successful because people traveled from all over the country and the world. But that's changed.

Are these entertainment-based experiences the main way you're rethinking your business?

This is the direction. It's one I've been focused on for years. I'm going to license top-tier intellectual property in TV and film and expand into music and gaming. After the Bonnaroo deal, I did some soul-searching and went out into the world and saw experiential products out there. I went to [art collectives] TeamLab in Japan and Meow Wolf [in Santa Fe, N.M.]. I visited all the different theme parks. I wanted to step back from working year-round for a three-day event. I wanted to be in business 365 days and go into a more controlled environment.

Did you see any of the virtual concerts that popped up in the past year?

[The Belgian electronic music festival] Tomorrowland—I liked the user experience. It felt like a show as you navigate between stages. Others have felt like what I've seen before. Streamed festivals, we've been doing it for years. It's cool, but it's not the same. Ⓑ *This interview has been edited for clarity and length.*

Research! Analysis! Forecasts!

50 COMPANIES TO WATCH

Experts Weighed In!

The analysts at Bloomberg Intelligence—who track about 2,000 companies in fields including finance, retail, energy, and technology—have identified 50 worth watching carefully in the year ahead. When building the list, the analysts considered factors including company size and growth opportunities, management changes, scheduled releases of noteworthy products and services, and, of course, the impact of the Covid-19 pandemic and other sweeping economic forces.

Consumer Staples

AB InBev

Market value, in billions of USD	$139.4
3-year annualized total return	▼13.8%
12-month sales, in billions of USD	$47.1
Sales growth, 2019	▼1%
Female board membership	33%
CEO	Carlos Alves de Brito ♂

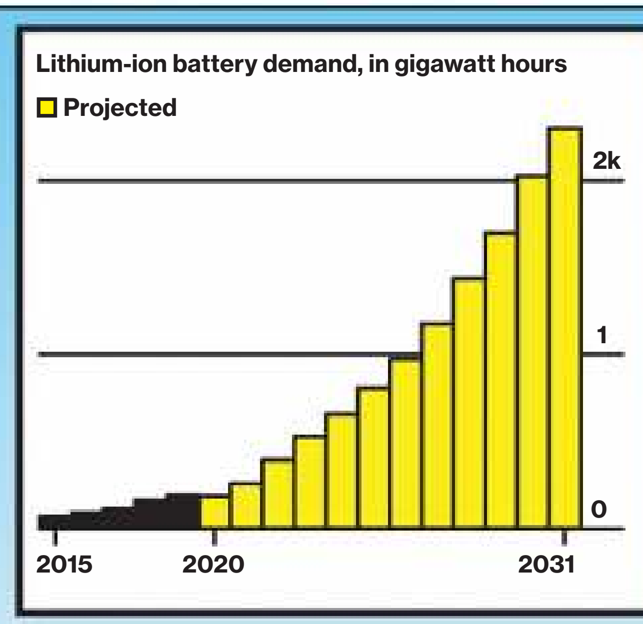
Anheuser-Busch InBev SA remains dogged by the $85 billion in net debt it accrued in an acquisition binge of smaller rivals over the past decade. But the brewing giant has managed obligations well, paying only 4% interest on its loans to 2033, and it's focused on maximizing the profitability of existing assets. —*Duncan Fox*

Materials

Albemarle

Market value, in billions of USD	$18.9
3-year annualized total return	▲12.1%
12-month sales, in billions of USD	$3.2
Sales growth, 2019	▲6%
Female board membership	23%
CEO	J. Kent Masters ♂

As a leading supplier of lithium—a key ingredient in batteries—Albemarle Corp. will benefit from surging investment in electric vehicles, which will likely triple demand for the mineral by 2025. The company already controls about 30% of a market worth more than $3 billion annually, and in 2021 it will wrap up multiyear expansion projects in Australia and Chile, setting the stage for profitable growth over the next decade. As the pandemic tapers off, prices are bound to recover and supply-chain disruptions should dissipate. Albemarle's long-term contracts mean the company is on course to reap substantial benefits in 2022 and beyond. It can tap its ample resources in the U.S. and Australia as demand accelerates, while redirecting cash generated by its units that make bromine (found in flame retardants and tires) and refinery catalysts (used to transform crude oil into fuels and plastics) toward higher-return lithium projects. —*Christopher Perrella*



Health Care

Alibaba Health

Market value, in billions of USD	$39.5
3-year annualized total return	▲78.4%
12-month sales, in billions of USD	$1.8
Sales growth, 2019	▲88%
Female board membership	13%
CEO	Zhu Shunyan ♂

The health arm of Chinese tech giant Alibaba is well positioned to dominate online drug sales in China. The country's push to separate drug dispensaries from hospitals and improve reimbursements will unlock major potential in a market projected to expand at least 30% a year through 2024. —*Nikkie Lu*

Financials

Aon

Market value, in billions of USD	$46.2
3-year annualized total return	▲15.2%
12-month sales, in billions of USD	$11
Sales growth, 2019	▲2%
Female board membership	27%
CEO	Gregory "Greg" Case ♂

Aon Plc should be able to endure an antitrust probe of its deal to acquire rival Willis Towers Watson Plc, creating the world's largest insurance broker. Profit margins at the combined company stand to benefit from Aon's own operational improvements and cost-cutting acumen. —*Matthew Palazola*

PHOTOS: ALAMY (3); BLOOMBERG (2); GETTY IMAGES (3); DATA: BLOOMBERGNEF

Materials

ArcelorMittal

Market value, in billions of USD	$27.3
3-year annualized total return	▼12.3%
12-month sales, in billions of USD	$54.6
Sales growth, 2019	▼7%
Female board membership	33%
CEO	Lakshmi Mittal ♂

Increasing numbers of steel-intensive wind turbines make ArcelorMittal SA one of the more intriguing 2021 plays on the European Green Deal. A cleaner balance sheet after debt reduction and the divestiture of low-margin, high-carbon-emitting U.S. assets should improve the Luxembourg-based steelmaker's cash returns and stabilize its dividend. —*Grant Sporre*

Industrials

Boeing

Market value, in billions of USD	$116.7
3-year annualized total return	▼13.3%
12-month sales, in billions of USD	$60.8
Sales growth, 2019	▼24%
Female board membership	31%
CEO	David "Dave" Calhoun ♂

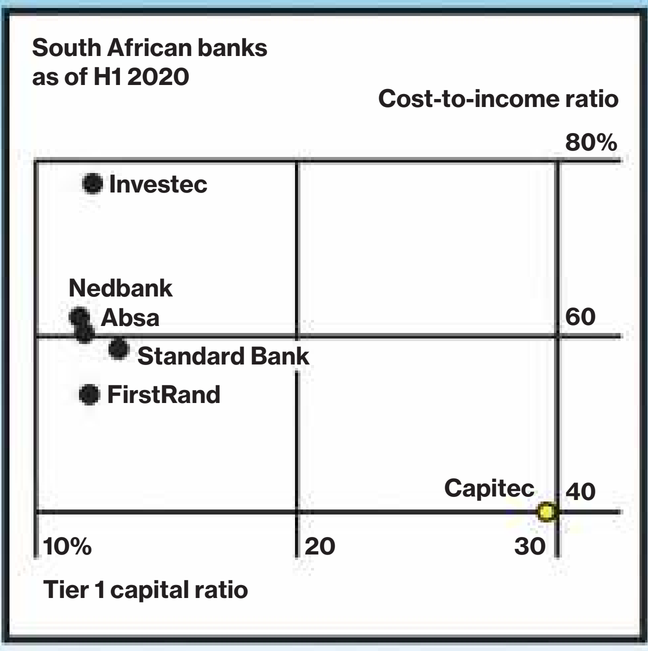
Recertification of Boeing's 737 Max sets the stage for better profits in 2021 as the company begins to deliver its 450 waiting Maxes and production rates rise. Orders will be weak at first, but increased air travel driven by Covid vaccinations should improve demand for more planes. —*George Ferguson*

Financials

Capitec

Market value, in billions of USD	$10.6
3-year annualized total return	▲12.9%
12-month sales, in billions of USD	$1.9
Sales growth, 2019	▲15%
Female board membership	9%
CEO	Gerhardus "Gerrie" Metselaar Fourie ♂

Founded in 2001, Capitec Bank Holdings Ltd. has led a low-cost, high-growth assault on the South African banking system with innovations such as its all-inclusive, technologically advanced Global One platform. Like its global peers, Capitec grappled with rising bad debts in 2020 as the pandemic hit household income. But its profitability is on the verge of bouncing back as the bank wins new markets, namely business lending. The 2019 acquisition of Mercantile Bank, a specialist in business banking, is helping the company replicate its retail successes in small-business loans and rapidly gain market share. As a relative newcomer, Capitec has a nimble, custom-built branch network and isn't saddled with outdated systems and an expensive head office, giving it a significant cost advantage over FirstRand, Standard Bank, and other large rivals. Capitec uses that edge to pursue a high-growth strategy through discount pricing, positioning it to outperform peers on revenue, cost-to-income ratios, and earnings. New insurance products, such as funeral finance, and a focus on higher-income customers through discounted pricing complement Capitec's growth opportunities. —*Philip Richards*



Industrials

Cathay Pacific

Market value, in billions of USD	$6
3-year annualized total return	▼12.4%
12-month sales, in billions of USD	$10.4
Sales growth, 2019	▼4%
Female board membership	6%
CEO	Tang "Augustus" Kin Wing ♂

Sure, air travel is likely to rebound now that vaccines are becoming available, but Cathay Pacific Airways Ltd.'s heavy reliance on premium corporate traffic makes it a riskier 2021 story than other Asian carriers. A full international-flight recovery isn't expected until 2024, and the continuing political turmoil in Hong Kong has made the carrier's hub a less attractive destination. —*James Teo*

DATA: BLOOMBERG INTELLIGENCE

Industrials

Central Japan Railway

Market value, in billions of USD	$28.3
3-year annualized total return	▼11.2%
12-month sales, in billions of USD	$11.4
Sales growth, 2019	▼2%
Female board membership	n/a
CEO	Shin Kaneko ♂

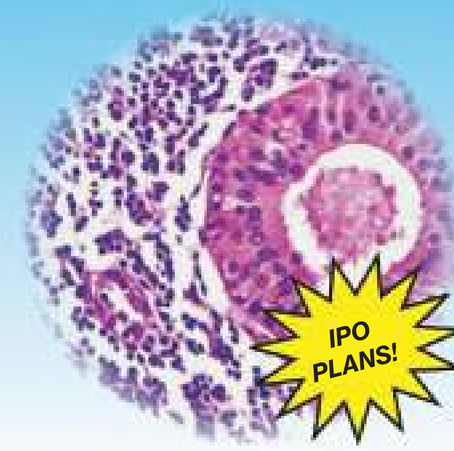
With business travelers increasingly accustomed to virtual meetings, social distancing will remain a threat to Central Japan Railway Co. even as the Covid pandemic eases. Weaker passenger flow between Nagoya, Osaka, and Tokyo could cap the recovery for its mainstay Tokaido bullet train and cloud the outlook for its 9 trillion-yen ($87 billion) Chuo Maglev rail project. —*Denise Wong*

Health Care

Chi-Med

Market value, in billions of USD	$5.3
3-year annualized total return	▼2.7%
12-month sales, in billions of USD	$0.2
Sales growth, 2019	▼4%
Female board membership	20%
CEO	Christian Hogg ♂

Hutchison China MediTech Ltd.'s ambitions for oncology are gaining momentum with a growing portfolio of cancer treatments. Colorectal cancer drug Elunate has already been added to China's national reimbursement listing; and two more drugs, one for neuroendocrine tumors and the other for lung cancer, are on target for 2021 launches. A planned Hong Kong IPO would strengthen Chi-Med's balance sheet and capital access. —*Cinney Zhang*



Consumer Staples

China Feihe

Market value, in billions of USD	$25.8
3-year annualized total return	n/a
12-month sales, in billions of USD	$2.4
Sales growth, 2019	▲32%
Female board membership	n/a
CEO	Leng Youbin ♂

Upscale products, sprawling distribution, and stable sourcing of high-quality raw milk are propelling China Feihe Ltd., already the nation's leading seller of infant formula, toward its goal of winning 30% of that market by 2023. The coronavirus pandemic has helped Feihe capitalize on Chinese consumers' embrace of domestic brands over those of Danone, Nestlé, and other foreign rivals. —*Kevin Kim*

Consumer Discretionary

China Tourism Group Duty Free

Market value, in billions of USD	$96.3
3-year annualized total return	▲91.9%
12-month sales, in billions of USD	$6.8
Sales growth, 2019	▲2%
Female board membership	17%
CEO	Chen Guoqiang ♂

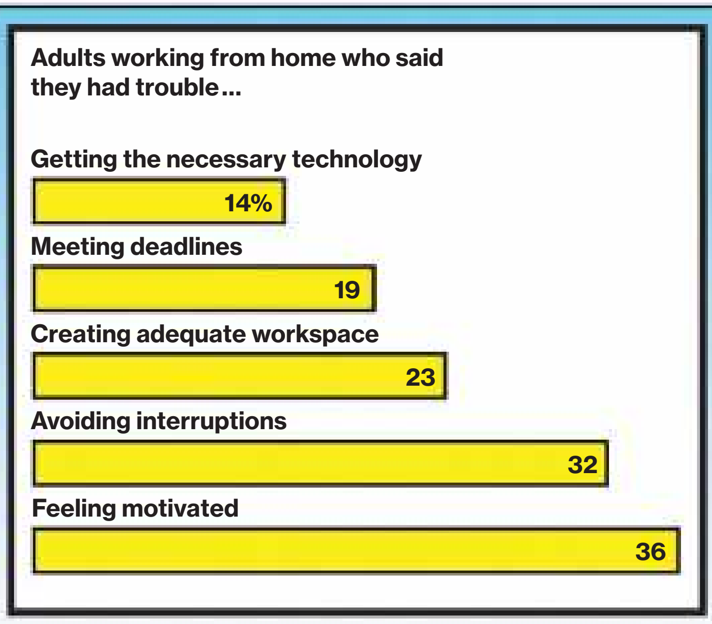
With 90% of China's duty-free retail sales, China Tourism Group Duty Free Corp. offers investors a chance to tap into the rapid growth of travel and tourism in the country. It holds licenses for stores at airports, border crossings, and downtown locations, giving it a strong position as the government seeks to encourage citizens to buy luxury goods at home rather than on vacation. Hainan, an island in southern China, is CTG's top profit generator; the popularity of the booming duty-free shopping destination has only increased during the pandemic, as it's been harder for mainlanders to travel abroad. In July, China more than tripled the annual duty-free shopping quota for visitors to Hainan, to 100,000 yuan ($15,289) per person. A duty-free limit of 8,000 yuan for any single product was also removed, which should boost sales of high-margin luxury goods. In the Hainan city of Sanya, the world's largest duty-free shopping mall is also poised to benefit CTG after its owners doubled its size and added museums, restaurants, and other leisure offerings, lengthening the time visitors typically spend there. —*Angela Hanlee*

PHOTOS: ALAMY (1); BLOOMBERG (1); GETTY IMAGES (6)

TMT

Cisco Systems

Market value, in billions of USD	$191.7
3-year annualized total return	▲6.8%
12-month sales, in billions of USD	$48.1
Sales growth, 2019	▼5%
Female board membership	20%
CEO	Charles “Chuck” Robbins ♂



Years spent beefing up its software have positioned Cisco Systems Inc. to capitalize on the migration to next-generation networks and to weather the changing dynamics of the corporate office. Broader acceptance of flexible workplaces increases the allure of the company’s WebEx Collaboration, Wi-Fi, and remote access connectivity and security tools. —*Woo Jin Ho*

Industrials

CNH Industrial

Market value, in billions of USD	$18.3
3-year annualized total return	▼2.2%
12-month sales, in billions of USD	$25.2
Sales growth, 2019	▼5%
Female board membership	33%
CEO	Scott Wine ♂

After last year’s surprise executive departures at the industrial-equipment conglomerate CNH Industrial NV, Wine must navigate the company’s breakup, starting with the spinoff of its commercial and specialty vehicles and powertrain segments. —*Christopher Ciolino*

Financials

Credicorp

Market value, in billions of USD	$15.6
3-year annualized total return	▼5.8%
12-month sales, in billions of USD	$5.5
Sales growth, 2019	▲10%
Female board membership	13%
CEO	Walter Bayly Llona ♂

Progress on Covid vaccines makes midyear profits look probable for Peru’s largest financial holding company. Credicorp Ltd. is likely to benefit significantly from the most aggressive government stimulus underway in Latin America, as well as an expected GDP increase of 8% to 10%. —*Nathan Dean*

TMT

CrowdStrike

Market value, in billions of USD	$51.4
3-year annualized total return	n/a
12-month sales, in billions of USD	$0.8
Sales growth, 2019	▲93%
Female board membership	11%
CEO	George Kurtz ♂

Momentum for CrowdStrike Holdings Inc. in the cloud security business is building as the company adds customers and sells existing clients on new products. While Cisco, Palo Alto, and other peers are trying to catch up with acquisitions, CrowdStrike remains an investor favorite thanks to its broad product offerings and ease of deployment. —*Mandeep Singh*

Consumer Staples

Delivery Hero

Market value, in billions of USD	$33.5
3-year annualized total return	▲60.2%
12-month sales, in billions of USD	$1.9
Sales growth, 2019	▲86%
Female board membership	33%
CEO	Niklas Oestberg ♂

Delivery Hero SE’s acquisition of South Korean online food delivery leader Woowa, expected to close in early 2021, will further consolidate the sector and fulfill the company’s ambition to expand beyond meals and groceries into delivering merchandise and ingredients. That expansion should enhance Delivery Hero’s appeal to restaurants vs. rivals such as Just Eat Takeaway. —*Diana Gomes*

DATA: PEW RESEARCH

Financials

Deutsche Wohnen

Market value, in billions of USD	$18.2
3-year annualized total return	▲6.7%
12-month sales, in billions of USD	$1.7
Sales growth, 2019	▲17%
Female board membership	n/a
CEO	Michael Zahn ♂

After Berlin imposed a five-year rent freeze in February 2020, many shareholders soured on Deutsche Wohnen SE, Germany's No. 2 residential property owner. But Berlin property owners have turned to judges in an effort to overturn the law, and the country's high court is expected to render a ruling in the second quarter. A favorable decision could restore confidence in the home-rental market and the value of the company's properties. ——*Iwona Hovenko*

Energy/Utilities

Energy Transfer

Market value, in billions of USD	$18.4
3-year annualized total return	▼19.3%
12-month sales, in billions of USD	$42.6
Sales growth, 2019	n/a
Female board membership	n/a
CEOs	Tom Long, Mackie McCrea ♂

With capital markets closed to high-debt oil and gas pipeline operators, Energy Transfer LP is at a crossroads between aggressive growth plans and dividend cuts. The controversial Dakota Access Pipeline faces renewed legal challenges, and investors remain at odds over majority holder Kelcy Warren's reluctance to abandon ET's partnership structure. ——*Michael Kay*

Financials

ESR Cayman

Market value, in billions of USD	$10.7
3-year annualized total return	n/a
12-month sales, in billions of USD	$0.4
Sales growth, 2019	▲41%
Female board membership	n/a
CEOs	Stuart Gibson, Jinchu "Jeffrey" Shen ♂

Hong Kong's leading warehouse developer has aggressively bought properties in China, Japan, and South Korea in recent years, putting ESR Cayman Ltd. in a strong position as e-commerce companies bulk up and need distribution infrastructure. The company's business managing these assets provides income stability even if demand for new development slackens. ——*Mohsen Crofts*

Consumer Discretionary

EssilorLuxottica

Market value, in billions of USD	$69.1
3-year annualized total return	▲6.1%
12-month sales, in billions of USD	$16.4
Sales growth, 2019	▲61%
Female board membership	44%
CEO	Francesco Milleri ♂

The eyeglass giant recently settled on Milleri to be its single interim CEO, easing one of the biggest problems dating from the 2018 merger that created EssilorLuxottica SA. But he'll hold the job only until May, when the company needs a permanent CEO to help it integrate faster and overcome legal and regulatory hurdles for its €7 billion-plus ($8.5 billion) bid for optical retailer GrandVision. ——*Diana Gomes*

Industrials

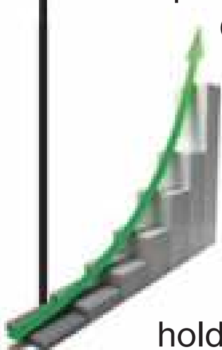
GFL Environmental

Market value, in billions of USD	$9.6
3-year annualized total return	n/a
12-month sales, in billions of USD	$2.9
Sales growth, 2019	▲81%
Female board membership	n/a
CEO	Patrick Dovigi ♂

GFL Environmental Inc.'s rapid expansion—it's now the fourth-largest North American waste company—shows no sign of slowing. The company has leveraged itself to acquire more businesses, but if it can integrate them properly, it can expect growth of 30% or more. ——*Scott Levine*

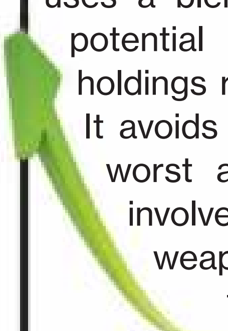
PHOTOS: ALAMY (2); BLOOMBERG (1); GETTY IMAGES (7)

Five ETFs to Watch

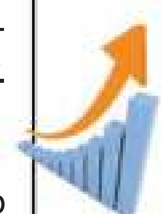


Goldman Sachs Active Beta U.S. Large Cap Equity ETF (GSLC US Equity)
Goldman Sachs checks all the boxes with GSLC, its ActiveBeta U.S. Large Cap Equity exchange-traded fund. GSLC is low-cost and sophisticated, and it's overseen by a major Wall Street brand. GSLC is a "smart beta" ETF with the look and feel of an actively managed investment vehicle, but it's packaged as a passively run product. The fund was set up to produce a low tracking error, so its composition and returns should mimic the S&P 500's yet give it room to outperform its U.S. large-cap benchmark. GSLC screens out weaker-performing stocks, enhancing its viability as a core portfolio holding. GSLC packs a lot of punch at just a 0.09% expense fee, targeting undervalued companies with high-quality earnings. Other financial houses have been quick to follow the template for this $10 billion fund; JPMorgan Chase & Co. and newcomer Dimensional Fund Advisors also seek to provide ETFs with active characteristics at little additional cost. ——*Athanasios Psarofagis*

Vanguard Total Stock Market (VTI US Equity)
Boring is so, so beautiful with the Vanguard Total Stock Market ETF (VTI), which tracks all U.S. equities for a mere 0.03% expense fee. The ultimate "set it and forget it" exchange-traded fund has the potential to overtake the SPDR S&P 500 ETF Trust (SPY) as the biggest on the planet. And because it owns small pieces of more than 3,500 securities, holders never need to wonder whether this ETF includes a stock or not—an issue raised last year after Tesla's late entrance into the S&P 500. VTI, after all, has owned Tesla Inc. shares for a decade, allowing it to participate in the stock's 10,500% return. ——*Eric Balchunas*



Xtrackers S&P 500 ESG ETF (SNPE Equity)
Environmental, social, and governance (ESG) strategies are subjective, as some investors may care more about a company's fossil fuel emissions while others want stocks of businesses that are diverse and support equal pay. The Xtrackers S&P 500 ESG exchange-traded fund (SNPE) flips the industry's most frequently employed script on its head, offering a "sleep well at night" approach for retail investors fearful of deviating from the broader stock market. Instead of buying the greenest or most socially responsible companies in a given sector, SNPE uses a blended approach that cuts down on potential volatility from highly concentrated holdings relative to other ESG-oriented ETFs. It avoids S&P 500 companies it sees as the worst actors from each sector or those involved in controversial industries, such as weapons or tobacco. This fund's potential to outperform peers could get a lift if governments and regulators come down heavier on companies that ignore core ESG tenets. A low fee of only 0.10% also makes SNPE one to watch in 2021. ——*James Seyffart*



ARK Innovation ETF (ARKK US Equity)
The actively managed fund business isn't dead; it just needed a good kick in the pants, which is what Cathie Wood has given it as CEO and chief investment officer of the ARK Innovation ETF. The transparent, highly concentrated portfolio of world-changing companies from a variety of sectors has defied all laws of ETF flows, growing to $13 billion thanks to a return of 500% since inception on big bets such as Tesla, Zillow, and Swiss gene therapy company Crispr Therapeutics. But the same things that make ARKK successful could mean tough sledding if there's a market downturn or preferences shift away from more volatile stocks in favor of ones that trade at lower prices relative to dividend, sales, or earnings potential. ——*E.B.*

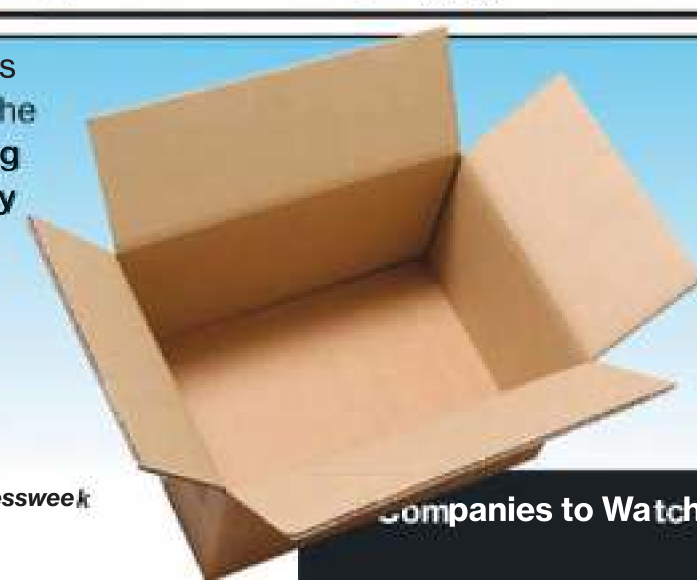
Invesco Nasdaq Next Gen 100 ETF (QQQJ US Equity)
Invesco Ltd. introduced the Nasdaq Next Generation 100 ETF (QQQJ) in October to track the nonfinancial securities ranked 101 to 200 on the Nasdaq exchange. This ETF, which has impressively gathered more than $500 million in its brief existence, could be thought of as an on-deck circle for companies with reasonable chances of making it into the big leagues of the Nasdaq-100. The fund's notable crossover with popular thematic investing categories can be encapsulated in its top three holdings: Trade Desk (advertising software), Roku (on-demand entertainment streaming), and CrowdStrike (cybersecurity). ——*Morgan Barna*

Materials

Graphic Packaging

Market value, in billions of USD	$4.9
3-year annualized total return	▲5.1%
12-month sales, in billions of USD	$6.4
Sales growth, 2019	▲2%
Female board membership	22%
CEO	Michael Doss ♂

Graphic Packaging Holding Co. is one of the big winners so far in the shift away from plastic packaging toward more ecologically friendly paperboard. Investors are also on the brink of benefiting from gains in productivity, resulting partly from recent acquisitions. ——*Joshua Zaret*



Consumer Staples

Henkel

Market value, in billions of USD	$44.3
3-year annualized total return	▼5.7%
12-month sales, in billions of USD	n/a
Sales growth, 2019	▲1%
Female board membership	38%
CEO	Carsten Knobel ♂

Better known for home- and personal-care goods, Henkel AG also has a dominant 25% market share in industrial adhesives. Its expertise in the field puts it at the center of the green-products revolution. The company's adhesives are optimal for recyclable packaging, more efficient batteries, and lighter car and jet bodies. ——*Duncan Fox*

Health Care

Intercept Pharmaceuticals

Market value, in billions of USD	$1
3-year annualized total return	▼17.3%
12-month sales, in billions of USD	$0.3
Sales growth, 2019	▲40%
Female board membership	10%
CEO	Jerome "Jerry" Durso ♂

In 2020, Intercept Pharmaceuticals Inc. suffered from the surprise rejection by the U.S. Food and Drug Administration of its front-running treatment for a liver condition called nonalcoholic steatohepatitis. The drug's best-case scenario, resubmission and approval in 2021, would still leave the company well-positioned to carve out a sizable lead in a medical field with significant unmet need. ——*Michael Shah*

Financials

Intercontinental Exchange

Market value, in billions of USD	$66
3-year annualized total return	▲18.1%
12-month sales, in billions of USD	$5.7
Sales growth, 2019	▲4%
Female board membership	27%
CEO	Jeffrey Sprecher ♂

Intercontinental Exchange Inc.'s ability to digitize markets, including mortgages and fixed-income trading, sustains its growth. Its next expansion, into data and analytics, should offer a steadier revenue stream that's less dependent on commissions. ——*Paul Gulberg*

Consumer Staples

Kroger

Market value, in billions of USD	$24.2
3-year annualized total return	▲6.8%
12-month sales, in billions of USD	$130.7
Sales growth, 2019	n/a
Female board membership	33%
CEO	W. Rodney McMullen ♂

An exclusive partnership with British online grocer Ocado Group will let Kroger Co., the largest traditional supermarket chain in the U.S., profitably accelerate e-commerce sales. Kroger will open the first of its Ocado-branded automated fulfillment centers this year, and it has the right to operate as many as 20 such facilities. Access to Ocado's technology should help Kroger expand its market share and digital capabilities while reducing costs. Fulfilling orders using the system is faster than putting them together in stores, and they typically require fewer substitutions, making each transaction more profitable. The rapid expansion of online grocery ordering and repeat usage means these centers are likely to generate sufficient volume to quickly ramp up operations. The Ocado facilities can also help Kroger manage inventory in its physical locations, especially for slow-selling items, resulting in more productive and better-stocked stores. Kroger has focused on keeping prices low, advertised the strength of its fresh-food business, expanded its personalization capabilities, and improved the customer experience, all of which should aid loyalty and sales. Recent forays into media and personal finance could further pad its revenue growth. ——*Jennifer Bartashus*

Foods with the most 2020 sales growth at Kroger

1. Zero-calorie soft drinks
2. Four-cheese Mexican-blend shredded cheese
3. Flavored potato chips (hot and spicy, regional flavors, and meal-inspired varieties)
4. Sauvignon blanc wine
5. Heavy whipping cream
6. Fresh burger patties
7. Artisan breads and restaurant-style buns
8. Bulk individual coffee pods (96 count)
9. Party-size bags of variety chocolate
10. Black Forest ham

PHOTOS: ALAMY (2); BLOOMBERG (1); COURTESY HENKEL (1); GETTY IMAGES (3); DATA: KROGER

Materials

LG Chem

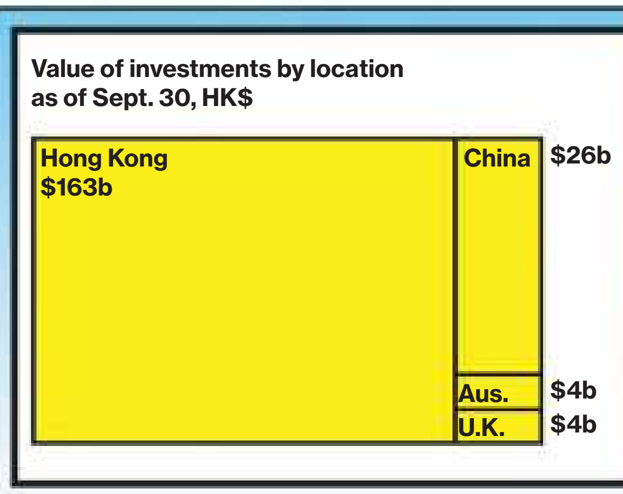
Market value, in billions of USD	$61.8
3-year annualized total return	▲32.2%
12-month sales, in billions of USD	$24.3
Sales growth, 2019	▲2%
Female board membership	n/a
CEO	Shin Hak-Cheol ♂

LG Chem Ltd. is on the verge of becoming the top global battery producer, with segment revenue projected to climb an average 30% annually through 2023. A deal to supply Tesla Inc.'s Model Y should increase profits, offsetting the costs of recent battery recalls. —*Horace Chan*

Financials

Link REIT

Market value, in billions of USD	$18.8
3-year annualized total return	▲3.6%
12-month sales, in billions of USD	$1.4
Sales growth, 2019	▲7%
Female board membership	33%
CEO	Hongchoy "George" Kwok Lung ♂



Asia's largest REIT is burdened with a portfolio that, though lucrative, is focused almost exclusively on increasingly unstable Hong Kong. In 2020, Link's asset managers bought properties in London and Sydney, and the business has almost $2 billion more to put to work overseas. Its ultimate goal is to invest 10% of its capital outside mainland China. —*Patrick Wong*

Energy/Utilities

NextEra Energy

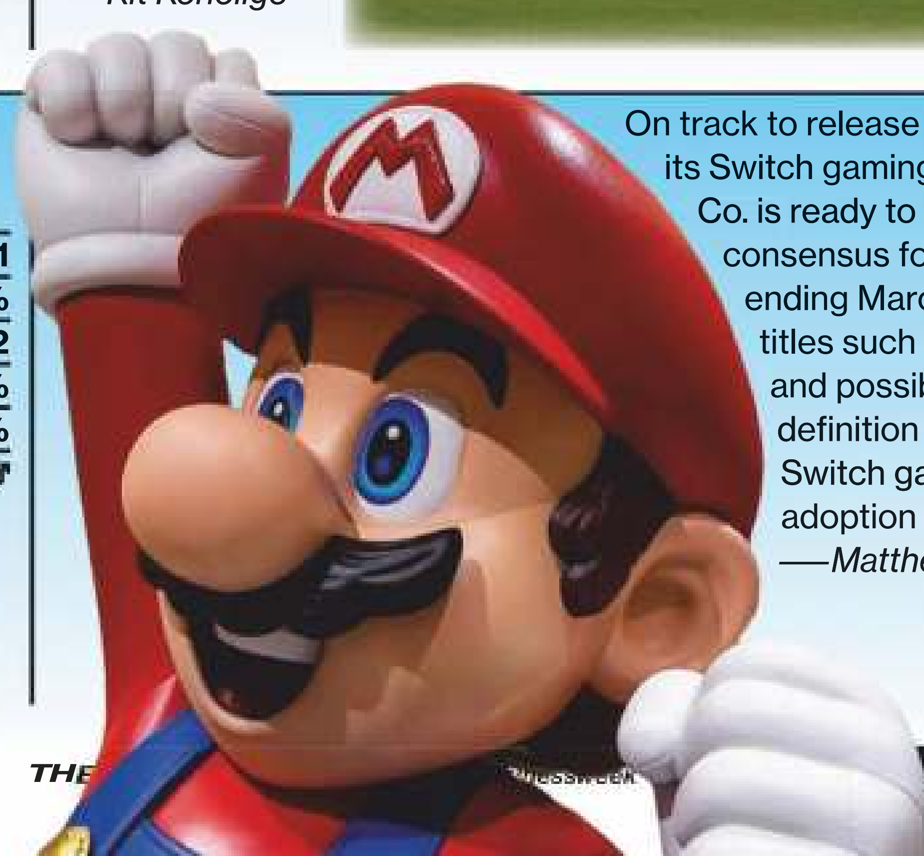
Market value, in billions of USD	$156.1
3-year annualized total return	▲31.8%
12-month sales, in billions of USD	$18.2
Sales growth, 2019	▲15%
Female board membership	23%
CEO	James "Jim" Robo ♂

NextEra Energy Inc., the dominant U.S. generator of wind and solar power, is better positioned to grow than its competitors, especially in Florida. It would also stand to benefit from infrastructure support from the Biden administration. —*Kit Konolige*

TMT

Nintendo

Market value, in billions of USD	$84.1
3-year annualized total return	▲17.1%
12-month sales, in billions of USD	$15.2
Sales growth, 2019	▲9%
Female board membership	11%
CEO	Shuntaro Furukawa ♂



On track to release a new version of its Switch gaming system, Nintendo Co. is ready to beat the revenue consensus for the fiscal year ending March 2022. Homegrown titles such as a new Zelda and possible ultra-high-definition remasters of other Switch games will likely drive adoption of the new hardware. —*Matthew Kanterman*

DATA: LINK REIT

TMT

PayPal

Market value, in billions of USD	$278.3
3-year annualized total return	▲42.9%
12-month sales, in billions of USD	$20.3
Sales growth, 2019	▲15%
Female board membership	33%
CEO	Daniel "Dan" Schulman ♂

Soon the wallet you reach for will be digital and likely built by PayPal Holdings Inc., the market leader by far. The use of digital wallets accelerated along with e-commerce and demand for contactless payments during the pandemic. PayPal can sustain 20%-plus growth as it takes its secure online wallet into stores and adds bill pay, QR code payments, and other financial services. —*Julie Chariell*

Energy/Utilities

Petrobras

Market value, in billions of USD	$73.9
3-year annualized total return	▲24.7%
12-month sales, in billions of USD	$58.7
Sales growth, 2019	▼3%
Female board membership	30%
CEO	Roberto da Cunha Castello Branco ♂

Petróleo Brasileiro SA could capture market share from OPEC+ and U.S. shale producers as the Brazilian company invests through the downturn. Asset sales reduced its leverage and helped leave it better equipped to grow in a potential recovery than most European and U.S. peers. —*Fernando Valle*

Financials

PNC Financial Services

Market cap	$67.5
3-year annualized total return	▲5.5%
12-month sales, in billions of USD	$19.5
Sales growth, 2019	▲8%
Female board membership	31%
CEO	William Demchak ♂

PNC Financial Services Group Inc. operates from a position of strength after the sale of its stake in BlackRock Inc. It now has the capital to weather an uneven economic recovery and use M&A to become one of the five biggest U.S. banks. Its deal for BBVA USA is a big step in that direction, expanding its operations into Texas and elsewhere in the Sun Belt. —*Herman Chan*

Energy/Utilities

Repsol

Market value, in billions of USD	$16.8
3-year annualized total return	▼12%
12-month sales, in billions of USD	$41.4
Sales growth, 2019	▼1%
Female board membership	33%
CEO	Josu Jon Imaz San Miguel ♂

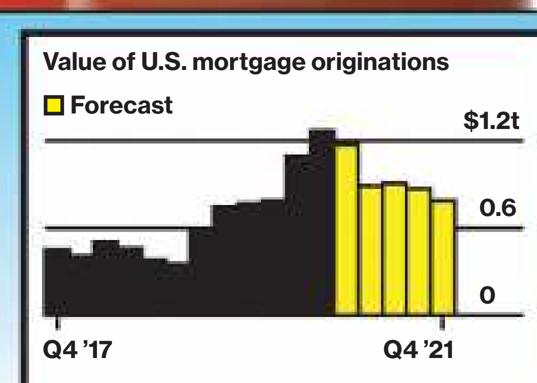
The pandemic has punished Repsol SA, but the Spanish oil company stands to benefit in 2021 from gradual recoveries in crude pricing and fuel demand. With its early embrace of sustainability and a goal of reaching net-zero carbon emissions by 2050, Repsol has the industry's most ambitious emissions targets. —*Salih Yilmaz*

Financials

Rocket Companies

Market value, in billions of USD	$39.4
3-year annualized total return	n/a
12-month sales, in billions of USD	$5.3
Sales growth, 2019	▲22%
Female board membership	n/a
CEO	Jay Farner ♂

Rocket Companies Inc.'s technological edge and huge spending on client acquisition are distinct advantages in the fragmented U.S. market for mortgage origination. The company will have to stay on its toes to guard against its rivals, however, because ultralow interest rates continue to make it much easier to catch up. —*Ben Elliott*



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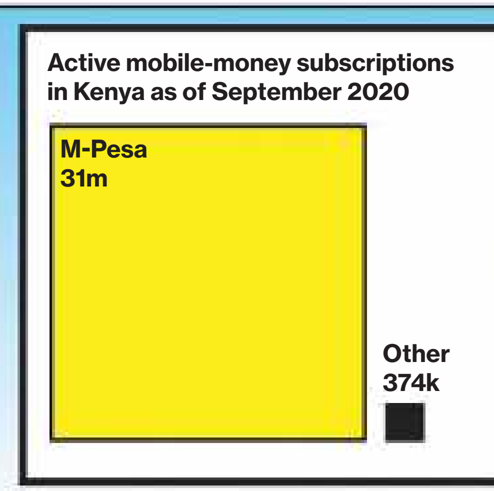
TMT

Safaricom

Market value, in billions of USD	$12.6
3-year annualized total return	▲13.1%
12-month sales, in billions of USD	$2.5
Sales growth, 2019	▲5%
Female board membership	33%
CEO	Peter Ndegwa ♂

Suspending fees for small mobile money transfers through its M-Pesa service as a pandemic-relief measure may have been a blessing in disguise for Safaricom Plc, Kenya's No.1 cellphone carrier and an innovator in virtual banking. The move turned more consumers on to the benefits of mobile finance and could result in significant gains for M-Pesa, which generates a third of the company's operating profit. ——*John Davies*



Materials

Saint-Gobain

Market value, in billions of USD	$27.9
3-year annualized total return	▼1.3%
12-month sales, in billions of USD	$42.7
Sales growth, 2019	▲2%
Female board membership	43%
CEO	Pierre-André de Chalendar ♂

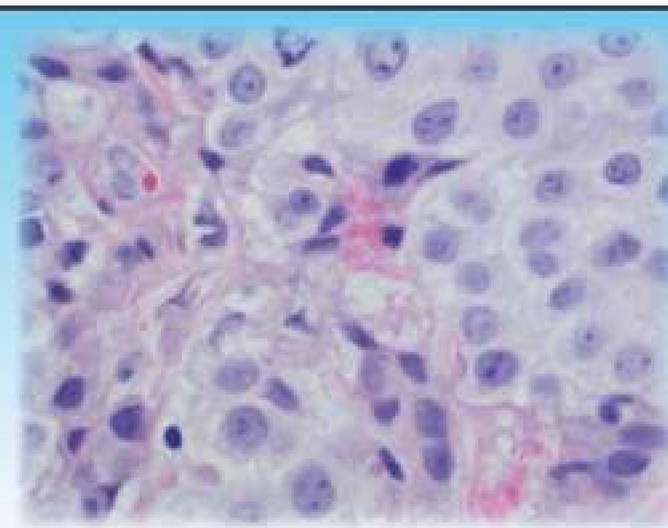
The French maker of construction materials has the financial heft and environment-friendly products to capitalize on the global movement toward carbon-neutral buildings. The company's two-year Transform & Grow program, completed in 2020, simplified its business model and should increase the profitability of a giant that operates in almost 70 countries but has underperformed smaller, nimbler peers. Compagnie de Saint-Gobain ranks No.1 globally in the renovation industry, which is underpinned by energy efficiency mandates and tax incentives in many countries. The European Union is especially prominent in promoting the adaptation of existing buildings as part of the European Green Deal and a post-pandemic economic recovery. Saint-Gobain, whose remodeling business accounts for 45% of its revenue, has broad expertise and innovative products for interior and exterior work such as thermal windows and insulation. Energy efficiency improvements for windows enhance the company's long-term growth prospects, particularly for its flat-glass business, which makes up 14% of revenue. New construction, both residential and nonresidential, accounts for a third of sales, and Saint-Gobain is particularly strong in fast-growing emerging markets such as Brazil. ——*Sonia Baldeira*

Health Care

Seagen

Market value, in billions of USD	$32.3
3-year annualized total return	▲51.5%
12-month sales, in billions of USD	$1.9
Sales growth, 2019	▲40%
Female board membership	22%
CEO	Clay Siegall ♂

Growing acceptance of antibody-drug conjugates, a relatively new class of cancer medications, is great news for Seagen Inc., which won approval for breast cancer and bladder cancer treatments in 2020 and is on track to receive approval for a cervical cancer treatment in 2021. Seagen is rapidly expanding its commercial operations. ——*Marc Engelsgjerd*



Financials

SL Green Realty Corp.

Market value, in billions of USD	$4.4
3-year annualized total return	▼9.4%
12-month sales, in billions of USD	$1.1
Sales growth, 2019	▲1%
Female board membership	22%
CEO	Marc Holliday ♂

SL Green Realty Corp., New York's largest office-building real estate investment trust, is depending heavily on office workers returning to their desks in 2021. To secure future cash flow, it needs to lease the rest of One Vanderbilt, the megatower recently completed across the street from Grand Central Terminal. ——*Jeffrey Langbaum*

DATA: COMMUNICATIONS AUTHORITY OF KENYA

Energy/Utilities

SunPower

Market value, in billions of USD	$5
3-year annualized total return	▲70.2%
12-month sales, in billions of USD	$1.7
Sales growth, 2019	▲8%
Female board membership	11%
CEO	Tom Werner ♂

After spinning off its manufacturing unit in August, SunPower Corp. can better focus on high-growth home and commercial solar installations. California's mandate for solar panels on new homes and the integration of battery storage systems are poised to accelerate the company's sales. —*James Evans*

Health Care

Teladoc

Market value, in billions of USD	$32
3-year annualized total return	▲91%
12-month sales, in billions of USD	$0.9
Sales growth, 2019	▲32%
Female board membership	9%
CEO	Jason Gorevic ♂

Although the pandemic has radically accelerated adoption of telehealth, Teladoc Health Inc., the market leader, has been working to build on those gains. Its $18.5 billion purchase of health-monitoring company Livongo gives it a way to tackle chronic care, most notably diabetes and hypertension. —*Jonathan Palmer*

Health Care

Tenet Healthcare

Market value, in billions of USD	$4.8
3-year annualized total return	▲41.3%
12-month sales, in billions of USD	$17.5
Sales growth, 2019	▲1%
Female board membership	30%
CEO	Ronald "Ron" Rittenmeyer ♂

Tenet Healthcare Corp. has kept pace with its turnaround despite the chaos of the pandemic. The sizable corps of surgeons the hospital system hired in 2020 will amplify its profitability starting in the second half of 2021, once the next wave of Covid-19 cases is under control. —*Glen Losev*

TMT

Twilio

Market value, in billions of USD	$54.6
3-year annualized total return	▲140.9%
12-month sales, in billions of USD	$1.5
Sales growth, 2019	▲75%
Female board membership	38%
CEO	Jeff Lawson ♂

Twilio Inc. is the most convenient and effective software option for businesses working to unify their online and offline advertising, marketing, and other communications, a $62 billion market known as omnichannel. —*Amine Bensaid*

Industrials

UPS

Market value, in billions of USD	$139.9
3-year annualized total return	▲10.2%
12-month sales, in billions of USD	$80.3
Sales growth, 2019	▲3%
Female board membership	25%
CEO	Carol Tomé ♀

United Parcel Service Inc. has suffered from the pandemic-era shift toward lower-margin consumer deliveries. New CEO Tomé's investments in customer service, offset to some extent by peak-season surcharges and cuts elsewhere, represent a starting point for shareholders eager to see returns improve. —*Lee Klaskow*

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TMT

Vivendi

Market value, in billions of USD	$37.8
3-year annualized total return	▲6%
12-month sales, in billions of USD	$17.8
Sales growth, 2019	▲14%
Female board membership	55%
CEO	Arnaud Roy de Puyfontaine ♂

Vivendi SA's portfolio of media assets such as Universal Music, Canal+, and Havas may look very different by the end of 2021 as the French giant resolves disputes over minority stakes in Mediaset, Lagardère, and Telecom Italia. Plans for an IPO by Universal Music by 2022 could be accelerated after the unit secured a follow-on investment from China's Tencent that augurs new sales opportunities in Asia. —*Matthew Bloxham*

Industrials

Weichai Power

Market value, in billions of USD	$20.8
3-year annualized total return	▲26.5%
12-month sales, in billions of USD	$27.8
Sales growth, 2019	▲9%
Female board membership	n/a
CEO	Tan Xuguang ♂

Tighter emissions standards are a boon to Weichai Power Co., China's top maker of electric drive systems for vehicles and machinery. The nation's e-commerce growth, and Alibaba and JD.com's warehouse expansions, support the company's plan for additional capacity to build greener forklifts and its desire to control 40% of the heavy-truck engine market. —*Michelle Leung*

Financials

Wizz Air

Market value, in billions of USD	$5.8
3-year annualized total return	▲5.2%
12-month sales, in billions of USD	$1.7
Sales growth, 2019	▲19%
Female board membership	20%
CEO	Jozsef Varadi ♂

Wizz Air Holdings Plc was the fastest-growing European airline before the pandemic, and after the virus fades, the carrier is well positioned to return to growth. Wizz Air is unencumbered by unions or significant debt, and it has the lowest cost profile in BI's peer group, which should facilitate expansion when demand recovers. —*Rob Barnett*

Consumer Discretionary

Zalando

Market value, in billions of USD	$29.8
3-year annualized total return	▲28.8%
12-month sales, in billions of USD	$8.3
Sales growth, 2019	▲20%
Female board membership	33%
CEOs	Robert Gentz, David Schneider, Rubin Ritter ♂

Zalando SE's shift from wholesale to a more profitable marketplace model should cement its position as Western Europe's go-to online fashion retailer and keep its growth above 20%. A recent bond sale gives it the firepower to consolidate the sector, improve its capabilities, and add brands as customers stuck at home in the pandemic have become more selective about where they shop. —*Tatiana Lisitsina*

Financials

ZhongAn Insurance

Market value, in billions of USD	$7.1
3-year annualized total return	▼20.3%
12-month sales, in billions of USD	$2.4
Sales growth, 2019	▲57%
Female board membership	8%
CEO	Jiang Xing ♂

China's largest online seller of insurance offers simple, low-cost medical policies that satisfy increasing demand for coverage among working-class Chinese. That and a deal with e-commerce giant Alibaba to sell its policies have put ZhongAn Online P&C Insurance Co. on track for an underwriting profit this year for the first time since its founding in 2013. —*Steven Lam*

How We Did in 2020

Cut us some slack: Our crystal ball neglected to show us the virus. So while we were early to cover Covid-19 this time last year, we weren't early enough for 2020's The Year Ahead issue.

RIGHT

We saw a warming trend in relations between **Israel** and Arab countries. Four—United Arab Emirates, Bahrain, Sudan, Morocco—forged diplomatic ties with Israel, motivated by the promise of favors from the U.S.

We said 2020 would be the year of **antitrust** action against Big Tech. The federal government and almost every state filed antitrust lawsuits from October through December against Alphabet Inc.'s Google and Facebook Inc. And while Amazon.com Inc. and Apple Inc. haven't been sued, they are under investigation by antitrust enforcers.

"Parliament's approval of the general outline of Prime Minister Boris Johnson's deal with Brussels reduces the risk of the U.K. crashing out of the EU without a deal," we wrote. **Brexit** negotiators reached an agreement on Christmas Eve.

We said there would be room for only one or two winners in **the streaming wars** in addition to Amazon, Hulu, and Netflix. We liked Disney+'s chances. After 13 months, it has 87 million subscribers, dwarfing other challengers.

KINDA RIGHT

The U.S. **shale oil** industry would face a reckoning, we predicted, as investors stung by years of false profit promises became more discerning. The reckoning came in the form of a pandemic-induced price rout; 45 North American oil and gas explorers filed for bankruptcy in 2020, according to a December tally from law firm Haynes & Boone.

Bloomberg Intelligence's chief equity strategist said 2020's "pain trade"—a **big market move** in either direction that catches you off guard—would possibly result from "excessively defensive positioning given very poor sentiment and fear of taking on risk." The pain trade was the result of the pandemic, and it could have hit you twice: during the crash and on the rebound.

We predicted 2020 as "(Just Maybe) The Year of the Glasses," with Apple's **augmented reality** eyewear possibly coming to market. But it's taking longer than expected: Apple is now slated to sell an AR headset by next year and glasses as early as 2023.

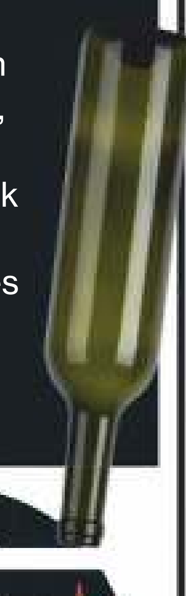
KINDA WRONG

Citing **U.S. election** models "focused solely on the strength of the domestic economy," we predicted a second term for Donald Trump. And we quoted a stock market strategist who said that if politicians were stocks, she would advise shorting Joe Biden, whose poll numbers "remind us of a broken large cap." Elizabeth Warren, she said, looked like a buy.

Bloomberg Economics forecast that the U.S. economy would grow 2%; economists now estimate that **gross domestic product** shrank 3.5%.

We said **IBM** Chief Executive Officer Ginni Rometty "has a real chance to change the narrative in 2020" around the company's decline. Last January, Rometty announced she was stepping down as CEO.

Because of **climate change**, Bordeaux, Napa, and other regions are looking to grapes from southern Europe that better tolerate heat and drought and maintain high levels of acidity, we wrote, adding that some top châteaux "are cutting back on early-ripening merlot because it produces wines too high in alcohol." In 2020, no wines were too high in alcohol.



WRONG

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