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INVESTOR'S GUIDE **2021**

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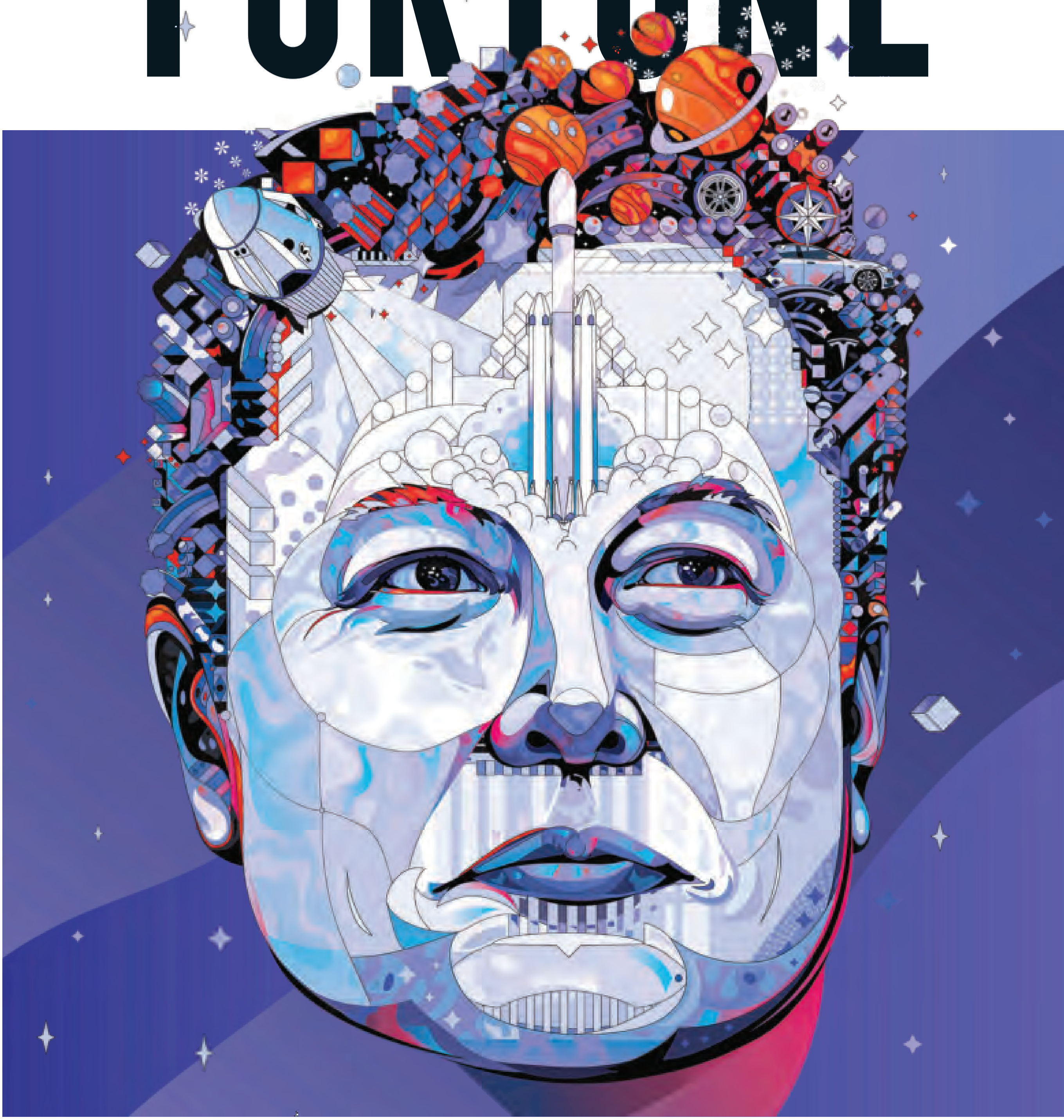

BUSINESSPERSON OF THE YEAR

Elon Musk's Rocket Ride

SPACEX IS SOARING. TESLA IS ROARING. HOW THE WORLD'S MOST CREATIVE AND CONTROVERSIAL CEO IS TRANSFORMING ONE INDUSTRY AFTER ANOTHER.

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VOLUME 182 • NUMBER 4

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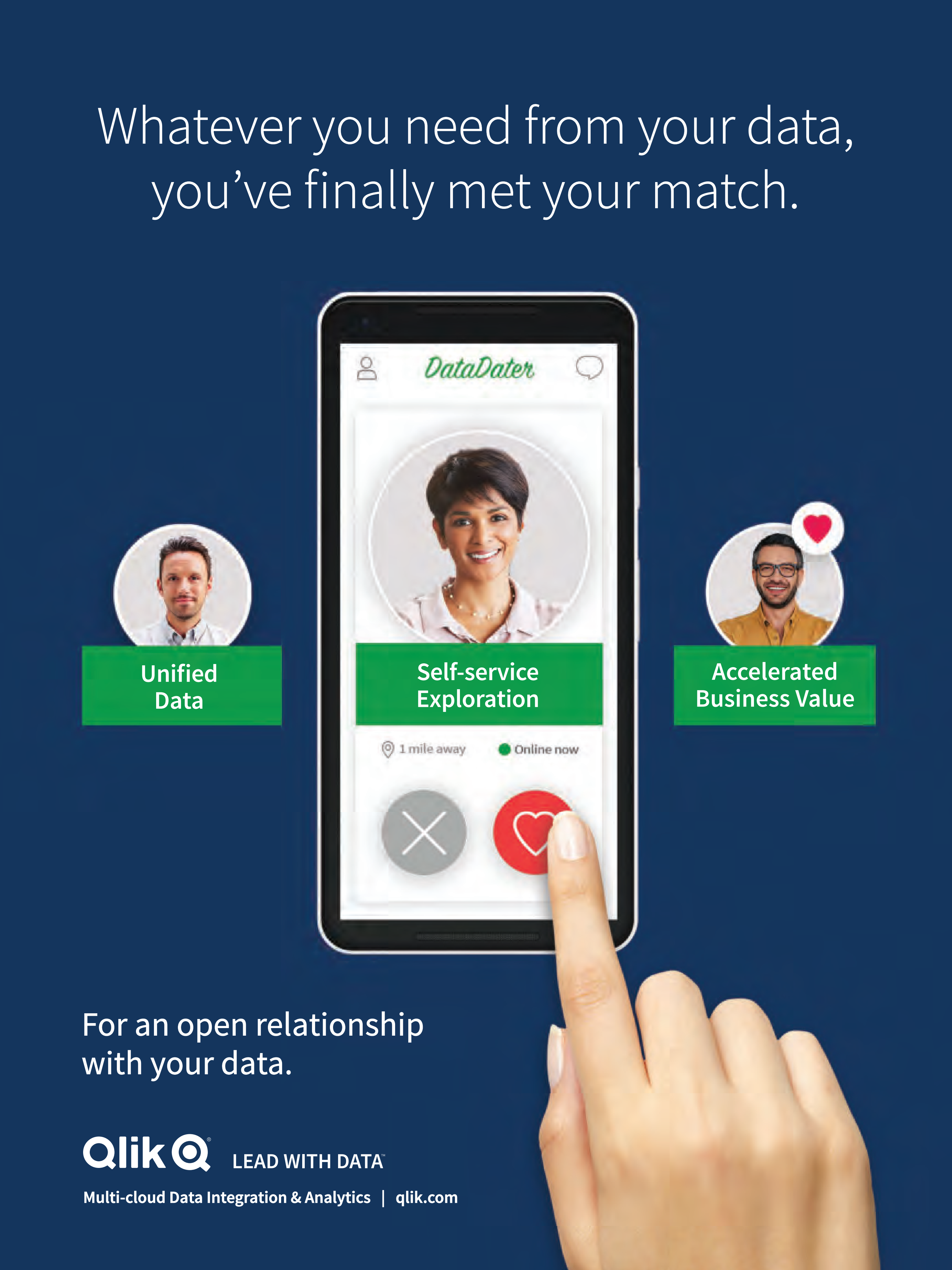
BANGA: MACKENZIE STROH



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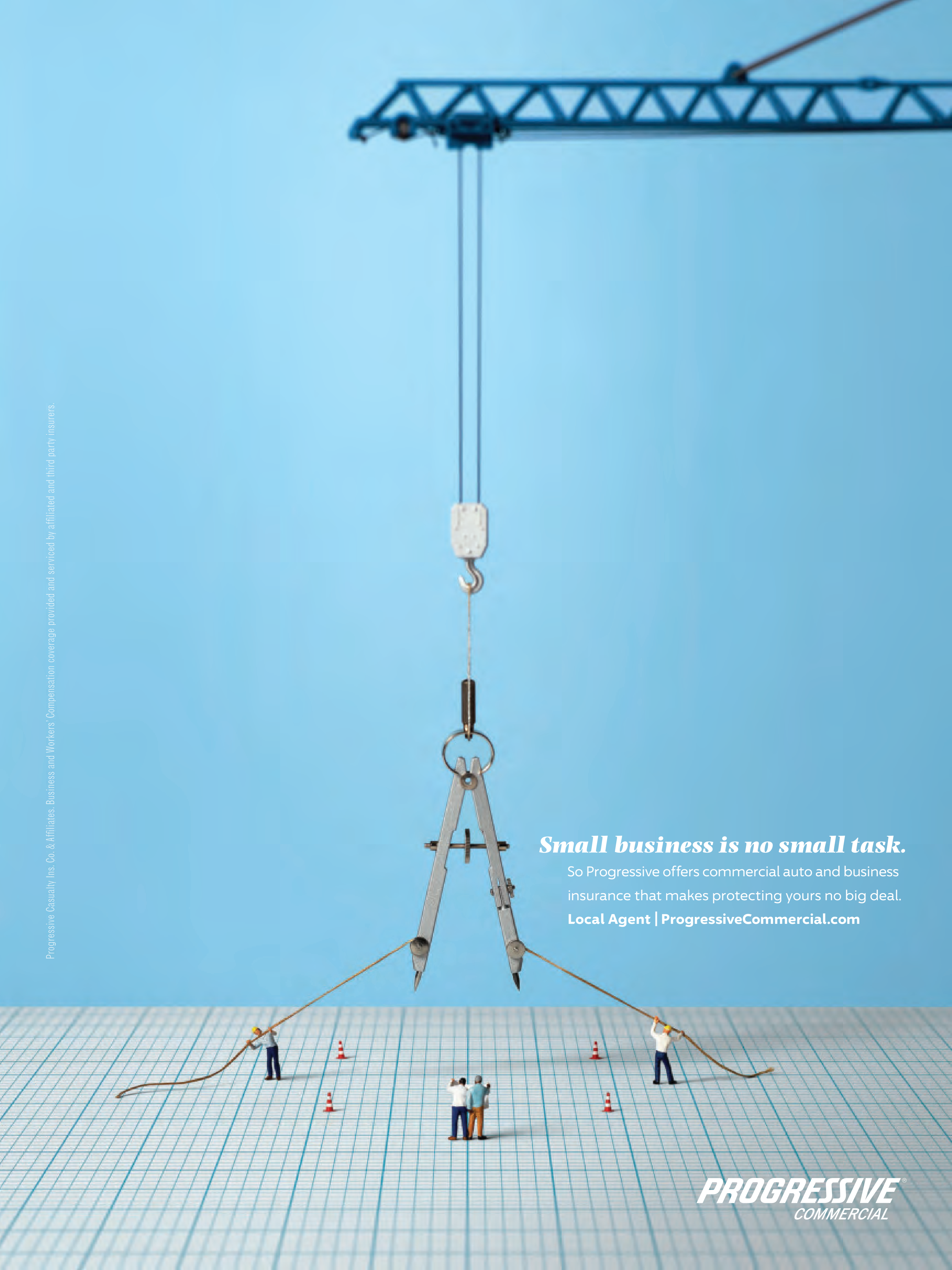
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A Challenge to Measure Up

EVERY YEAR in *Fortune*'s annual Investor's Guide, we make a point of letting readers know how our previous year's picks performed. Such disclosures have made us look good of late—the more than two dozen stocks and ETFs our investment team recommended in last December's guide earned a median return of 20.6% since we published the list, edging past the S&P 500 over the same time period. Meanwhile, last year's Future 50 portfolio, which we put together with our partner BCG, has trounced that benchmark, returning nearly 71%. (To see our investment picks for 2021 as well as the latest edition of the Future 50, please see our stories beginning on page 46 and page 113.)

But accountability should go beyond what we say, it must also apply to what we do. And so I want to take a moment to review an analysis that some of my colleagues and I did for *Fortune* this year. We talk a lot about diversity and inclusion in these pages, on our website, and on our conference stage—and I wanted to see how well our story assignments reflected that focus. The results were surprising, disappointing, and, frankly, embarrassing: Of the nearly 400 byline-attributable stories that we ran in the print magazine in 2020 (through this issue), 61% were written by men and 39% by women. In the case of longer feature assignments, we were even more unbalanced—assigning 63% to male writers and just 37% to women. A mere 13% of our stories were assigned to people of color.

Fifty-four of the 60 illustrators we hired were men—and only four were nonwhite. In the case of photography, our ranks were more even (a ratio of 23 men to 16 women), but still not balanced. Eight of our photographers identify as people of color.

Diversity ought to be reflected in the people we cover and quote. But in my own magazine stories this year, which include these monthly editor's notes, my record was even worse: Fewer than one-third (32%) of the people I cited or mentioned were women, and a shockingly small number were nonwhite.

These are failures of complacency. It's all too easy to preach about the importance of diversity, but as this accounting shows, it's almost effortless to do nothing about it. Our eyes are designed to notice movement. And unfortunately, our everyday practices at work—who we assign, how we hire and promote, who gets mentored—often lurk in the realm of the invisible.

It is for that critically important reason that we have launched a partnership with the financial data firm Refinitiv, which has added a new component to its pioneering environmental, social, and corporate governance data—a tool to collect and report diversity and inclusion metrics. Our collaboration will help companies hold themselves accountable for their diversity efforts—something I wish I had done long ago as editor of *Fortune*. You can't count on progress, after all, if you don't count what goes into making it. I am committed to having next year's byline disclosure look a lot more like the nation of storytellers around us.

CLIFTON LEAF
Editor-in-Chief, Fortune
@CliftonLeaf

ILLUSTRATION BY SAM KERR

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CARDS ON THE TABLE
As CEO, Ajay Banga transformed Mastercard from card network to payment technology multitasker.

The Conversation

AJAY BANGA

In the 10-plus years that Ajay Banga has been CEO of Mastercard, he has delivered to shareholders a cumulative total return of 1,581%—nearly five times that of the S&P 500—and made the company the 21st most valuable in the world, up from No. 256 when he took the helm. That's just one reason so many shareholders don't want this to be his exit interview. (Sorry.) 1 INTERVIEW BY **CLIFTON LEAF**

THIS EDITED Q&A HAS BEEN CONDENSED FOR SPACE AND CLARITY.

"The good thing for our business is that digital has been on afterburners. Everybody has embraced contactless commerce."

PHOTOGRAPH BY **MACKENZIE STROH**

GUIDING CAPITALISM

Ajay, you've had a remarkable tenure—Mastercard's revenue is up an annualized 12.7% over the past decade. Profit has climbed 18.7% a year, and return on capital has soared at a 40% annual clip. 2 These numbers blow away the comparable stats for Visa and American Express. But your CEO playbook seems to start with an unconventional play—at least as far as Wall Street is concerned: Invest in your employees first.

BANGA: I'm actually an old-fashioned believer in capitalism. It's lifted a lot of people out of poverty. But what we need to do today is to reposition it for stakeholder capitalism—which is just capitalism with guide rails. And the first of those guide rails is to take care of your employees. One way we do that at Mastercard is through stock plans. About 70% of our employees get some kind of stock incentive award. When I first joined 11 years ago, that number was minuscule. It was in the single-digit percentage of employees. A stock plan aligns the interests of two of your stakeholders—employees and investors. Or take a simple thing like retirement plans. Today, if you're at Mastercard and you save 6% of your salary into your 401(k) or your defined contribution plan, wherever you are in the world, we'll give you 10% [for a total of 16%]. And we don't have any deductions if you leave early.

So our idea of stakeholder capitalism starts with our employees. We can then figure out what else we need to do in our community, including our efforts at financial inclusion—but doing all that in a way that is commercially sustainable as compared to checkbook philanthropy, which is limited to the size of your checkbook. And of course there's always shareholders who need to be rewarded too. Because if you don't do well, you can't do any of this. You've got to do well and do good at the same time. It's not an either/or.

You've said that "inclusion" is a fancy word for human decency. How so?

I think decency is the bedrock of defining what makes us humans. Decency doesn't mean being nice to everybody. It means being fair to everybody. When I was young, your IQ is what made you supposedly stand out. And then when I got to business school, people began talking about EQ. You know, you couldn't choose your boss or colleagues, but how you conducted yourself with equanimity showed that you had the emotional quotient to be successful. And I say you need DQ—your decency quotient—when you come to work every day. Because you have to bring your heart and your mind to work. You have to care about the people who work with you, for you, above you, around you. That's where inclusion comes in. If I can make it a part of my business, then I can bring the whole company to the party.

You mentioned financial inclusion. 3 Why is this so fundamental?
When I was at Citi in India, a colleague began teaching me about the power of microfinance. And I began to comprehend how you can actually get even the poorest women to become economically independent through microfinance. And if you do that, then she makes her family better off, and so you get a multiplier factor that is many times what you would get just for giving one person more money.

Which you saw as a business model too.
Yes, commercially sustainable solutions make a big difference because they create multiplier effects far beyond the check that you write. That was my second learning. But when I came to Mastercard, I found that my biggest competitor was not other forms of electronic payment—a Visa or American Express. No, our real competition was cash. Cash was 85% of all retail transactions at that time. So cash comes from governments. The largest single source of cash in an economy is the government. It's veterans' payments, Social Security, salary, pensions, benefit distribution, all that.

We decided we're going to go after cash—but 2 billion people were excluded from the financial system, and many were getting these benefits from government. That led us into the financial inclusion space. And so we kind of backed into it from very strong commercial reasons. How do you go after the 85%? We found that our technology and our partnerships could make a difference. That made it commercially sustainable.

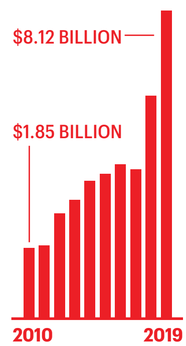
COVID-19 has greatly limited travel and cross-border commerce, which are key to your business. What are the near- and medium-term outlooks for Mastercard?
We said we would manage the company through four stages: containment, stabilization, normalization, and growth. Containment was the free fall of March/April, when everything was shutting down. The world was shutting down. Stabilization was the bottom end of that cycle. People had to buy toilet paper and medicines, but that was about it. Normalization is not really normal. Compared to stabilization, it feels normal. But, you know, there's no mass sporting events. There's no travel in the way we used to travel. We've all got to wear masks in public. We're not going out with friends to a party. That's not normal, but it's a new normal.

Most countries seem to be at some

BETWEEN THE LINES

(1) From success to succession: On Jan. 1, 2021, Banga hands the CEO reins over to Mastercard president Michael Miebach. Banga will stay on as executive chairman.

(2) ANNUAL PROFITS



SOURCE: S&P GLOBAL

(3) Bringing everyone into the game: In April, Mastercard pledged to bring 1 billion people and 50 million micro and small businesses into the digital economy by 2025. After the killing of George Floyd, the company also committed $500 million, and partnered with Black-owned fintech MoCaFi and others, to enhance financial security and help small businesses in Black communities in the U.S.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stage of normalization right now, and real growth would be when you have a vaccine that's equitably distributed to adequate numbers of people for consumer confidence to begin to come back—when we probably get back to a pre-COVID kind of life. [4]

Can a business based on spending thrive in this new normal?

Consumers are spending. Look at U.S. domestic spending: It's actually plus over last year for the last few months, which is interesting. So that's a good thing for our business. The second good thing for our business is that digital is here with double the power of anything. It has been on afterburners. Everybody has embraced contactless commerce.

So seven out of 10 people are now doing e-commerce in some way or another; eight out of 10 people are using contactless methods of paying because they think it's safer. Digital sales, e-commerce sales in the U.S. are double what they used to be pre-COVID. So digital is a tailwind for us because that converts cash to electronic bits, just as consumer spending is a tailwind. [5] And then we've got a headwind.

Which is no cross-border travel.

Yes, I don't know whether that's going to come back, but I believe it'll probably come back as consumer confidence improves. You can see domestic travel beginning to come back. [6] The TSA is turning a million passengers now a day. They were down below a hundred thousand in the peak of the crisis. So clearly there's some recovery, but it's not on international. When that begins to come back, then that will become closer to the normal growth phase.

Crises are often accelerants for disintermediation. One question that hangs over the credit card networking industry is whether some fintech upstart will come along and disrupt your business.

Actually, the clue is in your question, when you said "credit card networks." The reality is that's what we are not—and we've actually not been that. We've got that label attached to us for a long time. So here's the reality.

When I became CEO 11 years ago, it is true that a large percentage of the transactions that we used to see came out of the use of credit cards. Debit cards were smaller; prepaid cards did not exist; and commercial cards were also small. Fast-forward 11 years, and today one-third of our revenue comes from something we didn't really have—which was analytics, cybersecurity, data, A.I., that piece. Of the other two-thirds, some comes from commercial payments and from real-time payments, including bank account to bank account. That leaves you with a significant amount from all the other types of transactions. Within that, debit and prepaid are now very big.

So why am I saying all this? That actually we have embraced all the different forms of payments over a lot of years. And I think we've changed our company to be more capable of competing in this world without getting bothered about one or another rail of payment, which is where the disintermediation story comes from.

So my view is, this is not about me disintermediating credit. This is about providing the consumer a choice on how they want to pay. Or providing a small business the choice on how they want to pay their vendor or their partner. Do you want to get paid now, which is by debit? Or paid later, by credit? Or do you want to get paid in advance (prepaid)? There are only three ways to pay—whether it's on a card, a phone, a fingerprint, or you and I looking at each other and touching our foreheads in the future.

Disintermediation of our own business is actually just providing consumers and businesses with choice. And the trick is to do that and then make money off of that. That's what our business model is.

(4) Health equals wealth: Early in the pandemic, Mastercard committed $25 million to a program to speed up the development of medicines for COVID-19 in partnership with the Gates Foundation and Wellcome Trust. "You could ask, 'What the heck is Mastercard doing in a therapeutic accelerator?'" says Banga. "Well, my view is, if I don't get to normalization of growth, I can't have a prosperous community around me. Without a prosperous community around me, this is not going to be a prosperous company."

(5) From bits to bucks: Mastercard now connects some 3 billion cardholders to some 70-million-plus merchants through nearly 40,000 banks and financial institutions in about 210 countries and territories.

(6) Ramblin' man: The son of a senior officer in the Indian Army, Banga had no shortage of domestic travel growing up. "I went to seven schools before I was out of high school," he says.

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KEEPING ONLINE TRANSACTIONS SAFE

Protecting consumers and businesses from digital fraud presents challenges—and opportunities.

THE PANDEMIC HAS UPENDED the idea of "business as usual." For consumers, lockdowns radically changed daily behaviors with the need for strict social distancing. For businesses, staying afloat has often meant quickly adapting to sudden market changes.

On the upside, businesses that have risen to the challenge may find that they're better positioned for growth. Take the expanding market for e-commerce and non-credit-card digital payments, for example. Gustavo Ruiz, CEO of SafetyPay, which operates the largest non-card network of banks and collection points in Latin America, says around 50% to 60% of consumers in emerging economies have bank accounts, but only about 40% of them use a credit card. And in Latin America alone, alternative payments such as bank transfers and cash payments powered $37 billion in e-commerce spending last year, according to an April 2020 report by Americas Market Intelligence. "That's a huge market that's not being serviced by credit cards," Ruiz says.

Since its founding in 2007, SafetyPay has built partnerships with 380 banks and established a foothold in 17 countries in Latin America and Europe. It boasts 1.2 million monthly transactions, none of which involve credit card fees. And SafetyPay ensures a high degree of fraud prevention.

Consumers are rightfully wary of online fraud. According to the Federal Trade Commission, 1.7 million reports of fraud were received last year, leading to $1.9 billion in losses. But SafetyPay has built a scalable payment platform that ensures real-time transactions that don't require consumers to submit credit card numbers. "We've basically created a closed-loop network that ensures there's no fraud or financial information shared," says Ruiz.

To further increase security, SafetyPay has turned to machine learning. "This has allowed us to become more cognizant of who's coming to our platform, how many times they're using us, even the sort of transactions they're performing," Ruiz says. That not only brings peace of mind to consumers and merchants alike; it also makes for more efficient transactions.

SafetyPay's expansive strategies and safety protocols have been key as its platform has adapted to the world's new realities. In 2020, SafetyPay saw rising demand in several areas, including gaming platforms, delivery services (such as its partnership with Rappi), private schools shifting to online payments, and cross-border transactions as digital companies sought new global markets.

"The companies that are not doing so well took a more passive approach," Ruiz says. "But we've stayed focused on building a robust, secure environment for consumers." And that will provide a wealth of opportunities in 2021 and beyond. ■

THE BRIEF

BUSINESS. DISTILLED.

ECONOMICS

Why Business Is Bullish on Biden

The President-elect's pledges to raise corporate taxes and tighten regulation might not sound business-friendly. But CEOs like what he's saying about trade and immigration policy. **BY GEOFF COLVIN**

PHOTO ILLUSTRATION BY **SELMAN DESIGN**

Only in 2020 would CEOs welcome a new President who promises to raise their taxes, intensify business regulation, and massively empower labor unions.

Yet Big Business is largely bullish on Joe Biden. Exactly what the President-elect will do, or can do, once he's in office depends heavily on the makeup of the Senate. That won't be determined until the runoff elections for both of Georgia's seats on Jan. 5. But Biden has declared several specific actions he will take if he can. And after 50 years in public life, his instincts are clear.

The one-sentence description of Biden's economic inclinations is this: The middle class and working class should get more, and the wealthy should get less. He's no socialist; for most of his political career he's been near the center. But in a major speech last summer in Dunmore, Pa., a former coal-mining borough near his old hometown of Scranton, he was blunt: "Wall Street bankers and CEOs didn't build this country. You can just look around your neighborhood or your kitchen table and see who built this country." The people of Dunmore are the kind of voters whose support he has always sought.

Biden's leanings are apparent in the most important business-related policy changes he has said he wants to make:

Raise taxes on companies

▶ Biden has been unequivocal on this, saying that raising taxes will be a "day one" priority, effectively undoing Trump's Tax Cuts and Jobs Act of 2017—if Congress agrees. The TCJA cut the top corporate tax rate from 35% to 21%; Biden would raise it to 28%. He's also said, "We're going to double the tax on foreign profits so we don't encourage people to leave and build abroad." At the same time, he would offer tax incentives to companies that bring overseas operations to the U.S. and make certain green investments, among other things. But it's all off the table if the Republicans keep the Senate majority.

Strengthen labor unions

▶ Of all Biden's policy prescriptions, this is the closest to his heart. "I'm a union guy," he said in his first postelection speech on business and the economy. "Unions are going to have increased power." He can make that promise with confidence because many of his pro-union changes are within the authority of regulatory agencies, though the Senate must confirm his appointees to run them. He has promised to tilt the balance of power by facilitating union organizing in myriad ways and by

President-elect Biden touring metal fabricator McGregor Industries in Dunmore, Pa., in July.

TIMOTHY A. CLARY—AFP VIA GETTY IMAGES


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giving workers new legal protections. He says he will also protect employees, unionized or not, by getting much tougher on employers. "We will increase funding and staffing at the Department of Labor to aggressively enforce wage, hour, health, and safety rules across the economy," the Democratic platform promises.

Impose new regulations

▶ In addition to union-related regulations, Biden has been clear that he wants to raise the federal minimum wage to $15 and create a public credit-reporting agency and require federal lending programs to use it—both of which would require legislation. He would mandate paid family and medical leave for up to 12 weeks, which would also require legislation. On his own, he could "reinvigorate" the Consumer Financial Protection Bureau, which was established in the Dodd-Frank Act; he appoints the director. And he has promised to scrutinize mergers and acquisitions much more closely, which he could do through the Justice Department and the Federal Trade Commission.

Add a public option to Obamacare

▶ Biden's public option would be available to all. He would allow Medicare to negotiate prescription drug prices and would permit importation of lower-cost drugs. The U.S. health care industry—America's largest industry, accounting for 18% of the entire economy—generally hates those proposals, fearing they would decimate or demolish wide swaths of the sector.

Increase infrastructure spending by $2.4 trillion during his term

▶ That's a change business in general would love, and delivering it ought to be easy. Legislators are united in wanting to bring federal dollars back home. But President Trump also wanted an infrastructure bill, and partisan warfare was so fierce that in four years Congress couldn't agree on the details. Biden will have a tough time doing better.

SO WHY DO so many CEOs welcome Biden's victory? At a Yale conclave of top CEOs in September, 77% said they would vote for him, and a range of major business figures—Microsoft founder Bill Gates, Facebook COO Sheryl Sandberg, Amazon CEO Jeff Bezos, and others—quickly applauded his win. Business leaders were relieved for a couple of specific reasons and one big general reason. Specifically, Biden is less likely than Trump to escalate trade wars, not just with China but also with U.S. allies, notably Europe, Canada, and Mexico. For every company that benefits from tariffs, dozens of others suffer from the higher cost of imports and from retaliatory tariffs on their own exports. While Biden vows to be tough on China, he's well positioned to dial down trade combat.

In addition, Biden will likely be less menacing to immigrants than Trump has been. The agriculture, construction, and technology industries in particular rely on immigrants and have suffered from Trump's restrictions and his bellicose rhetoric that makes immigrants feel fearful and unwelcome. Biden won't throw open the gates; he doesn't want immigrants taking jobs away from unionized workers. But he says he'll provide a road map to citizenship for undocumented immigrants and end workplace and community raids.

The big, general reason many business leaders are fine with a President Biden is that they can't take the tumult any longer. Business prizes stability, predictability, and certainty. Trump's incessant whipsawing on some of the largest issues—imposing tariffs, closing borders, retaliating against companies, leaving NATO—has exhausted businesspeople. As many of them say privately, they can compete so long as they know the rules, but can't if the rules are constantly changing.

Biden is far from the business world's ideal President. But after the past four chaotic years, he'll do just fine. F

THREE BIG BUSINESS CHALLENGES BIDEN WILL INHERIT

Issues crucially important to business will be waiting for Biden on Inauguration Day. He has given hints on how he'll handle them.

1

A POTENTIAL COVID ECONOMIC COLLAPSE

Biden has said he favors mandatory masking nationally, widely available testing, free distribution of vaccines, and generous relief to workers as well as to states and localities.

2

DE-ESCALATING THE TRADE WAR

He opposes "poking our finger in the eyes of our friends" and "will work with our allies to mobilize more than half the world's economy to stand up to China."

3

RESETTING IMMIGRATION POLICY

He would end Trump's freeze on green cards for new immigrants and says he supports "visas for permanent, employment-based immigration." Policies should be "responsive to labor market needs."


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XLS+
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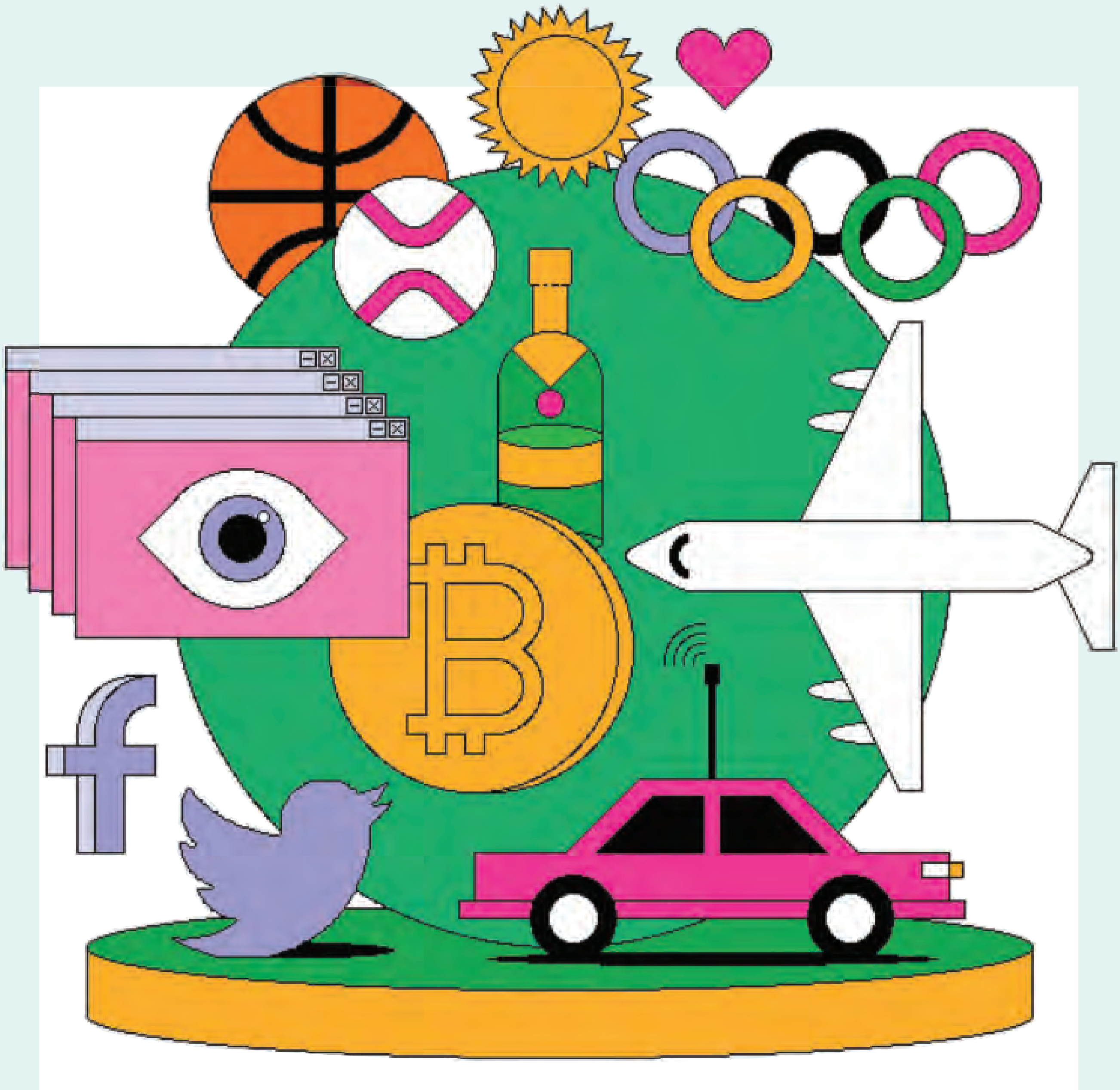


FORTUNE

2021 Crystal Ball

ILLUSTRATIONS BY **NICK LITTLE**

IF YOU THOUGHT 2020 WAS AN UNPREDICTABLE YEAR, you probably weren't paying attention. For over a decade, epidemiologists have sounded the warning that a once-in-a-hundred-years pandemic could ravage the planet, and that even the most advanced nations were ill-prepared for the fallout. In 2021, we will face challenges both familiar and unforeseen—but we will also see shoots of rejuvenation as the world thaws from lockdown. Here are *Fortune*'s predictions of how the next year will play out.

MARKETS

Wall Street and Reality Remain Out of Whack

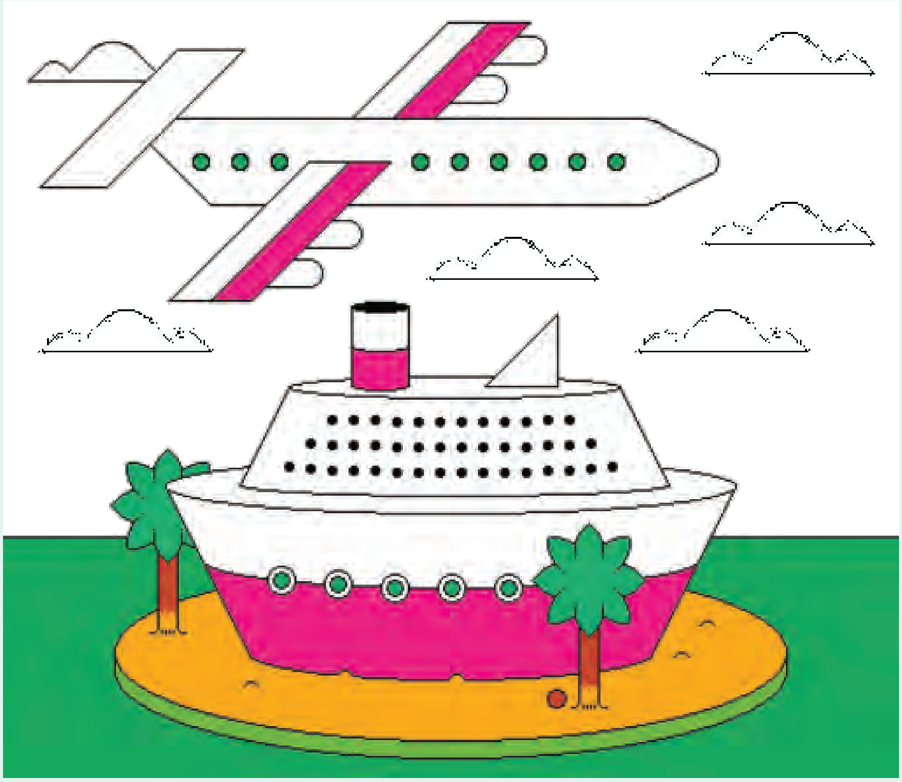
Corporate America will thrive in 2021, but good fortune will not be evenly distributed.

CORPORATE TAXES STAY LOW

▸ After November's elections, many stock market prognosticators gleefully greeted the promise of a divided U.S. Congress. That's because the markets tend to perform better when Capitol Hill is gridlocked, as that rules out disruptive policies that threaten to upend business as usual. In 2021, a likely GOP-controlled Senate, or even a fifty-fifty split, puts the kibosh on any Biden administration plans to reverse the Trump tax cuts; that should bode well for corporate profits, which are also primed for a major rebound when the pandemic wanes.

CRUISES RUN AGROUND

▸ Several small cruise operators have gone under since the pandemic essentially shut down the industry in March (and turned some 3,500-person vacations into headline-grabbing superspreader events). The world's largest cruise conglomerates—Carnival, Royal Caribbean, and Norwegian—have remained afloat by selling ships for scrap and taking on new debt. They say they have enough liquidity to survive several more months of near-total shutdowns. But they're also burning almost a collective $1 billion every month just to stay afloat—and are expecting to see costs increase once they can get their ships back to sailing around the world again.



2 MILLION WOMEN LOST TO THE U.S. LABOR FORCE

▸ Between the job losses that have disproportionately affected Black and Latina women and the childcare burdens that have fallen much more heavily on mothers than on fathers, almost 2.2 million women stopped working or looking for work between February and October, according to the National Women's Law Center. It will take years for these women to fully return to the workforce, and even then they will experience suppressed wages and lost opportunities.

COLLEGES UNDER THREAT

▸ Life on campus will look more normal again next fall—sports! dorms! students!—but colleges will be far from free of their financial woes. Up against declining enrollment (and a steep drop in international students), state budget shortfalls, and an economic crisis, small private colleges and second-tier state schools will struggle to survive. (And a good number won't.) Don't expect institutions to save themselves by slashing tuition; they'll try to stay competitive with generous financial aid, but, as always, the average college sticker price will rise.

BY THE NUMBERS

3850

S&P 500 AT THE END OF 2021

Stocks will keep climbing as new vaccines gradually awaken more industries from their pandemic-induced comas. But rising interest rates and slowing growth in Big Tech will keep markets out of stampeding-bull territory.

$50

PER BARREL

PRICE OF OIL AT THE END OF 2021

Even with a full economic recovery, demand won't reach pre-COVID levels, as the work-from-home crowd continues to avoid business travel and commuting. Demand from emerging markets will keep prices from crashing outright.

6

BLACK CEOs

RUNNING *FORTUNE* 500 COMPANIES

There are currently just four Black men (and no Black women) running *Fortune* 500 companies, and one of them will retire in March. We expect modest but meaningful change on that front next year: Three Black CEOs will be hired, including one woman.

POLITICS

WASHINGTON: SAME BUT DIFFERENT

SOME NEW FACES WILL EMERGE IN 2021, BUT DON'T EXPECT THE STATUS QUO TO BE ROCKED ON CAPITOL HILL.

Nancy's Farewell Tour

At 80, House Speaker Nancy Pelosi has led her party through the hallowed halls of the Capitol Building for nearly two decades. Now she'll stand at the helm of the Democratic ship for one final voyage across the stormy seas of the Beltway before handing over the rudder. Pelosi has been notoriously tight-lipped about whom she would like her successor to be. Out of the names floated, like Hakeem Jeffries (N.Y.), Cheri Bustos (Ill.), and Tim Ryan (Ohio), we predict it will be California Rep. Linda Sánchez—just elected to her 10th term—who takes the gavel.

The Reaper Cometh

Republican Senate Leader Mitch McConnell delights in his nickname, the Grim Reaper, a title he procured from his steady and skillful slaughter of any Democratic bill that crosses his desk. And sure, past performance doesn't indicate future results, but it seems unlikely that McConnell's heart will swell three sizes under a Joe Biden presidency. A number of Democrats are hopeful that Biden's long history in the Senate will give him some sort of in with the notoriously steel-faced McConnell, but we don't predict any "Kumbaya" moments uniting Mitch's Republicans with the left.

A New Leader for the Left

Like Speaker Pelosi, Vermont Sen. Bernie Sanders will ease into the octogenarian lifestyle, and progressive Democrats will soon realize that their torchbearer is likely closer to retirement than another presidential run. A leadership vacuum will become a real risk, and there are no obvious candidates with the seniority and stature of Sanders.

There are a number of young progressives working in politics at the state level (N.Y. State Sen. Julia Salazar, we're looking at you) that Sanders could back for federal runs in 2022.

Trump TV

Sure, the President is having trouble letting go of the Oval Office, but wait until he sees the TV set re-creation. If there's one thing Donald Trump is good at, it's entertainment. His rallies captivated a nation, and before that his reality TV show was a runaway hit. In 2021, Trump will partner with One America News Network—already a mouthpiece for the President—for a primetime show that will stick it to Fox News. He'll go head-to-head against Sean Hannity in the 9 p.m. slot, and steal away Laura Ingraham to serve as his TV Veep.

Student Debt Canceled

Eager to inject an FDR-esque stimulus into the economy as the pandemic rages on, Biden agrees to Senators Chuck Schumer and Elizabeth Warren's resolution to wipe away 50 grand of federal debt per borrower. The executive order bypasses Congress and survives multiple legal threats, thanks to broad wording in the Higher Education Act of 1965.

Habers Gonna Habe

Fresh off a whirlwind tour documenting the Trump White House, star *New York Times* reporter Maggie Haberman lands a lucrative book deal and—in her typical prolific fashion—manages to publish the account just before year's end. The memoir immediately rockets up the bestseller list of her employer. Expect a television adaptation to follow.

TRUMP: SARAH SILBIGER—GETTY IMAGES; MCCONNELL: JON CHERRY—GETTY IMAGES; PELOSI: JOE RAEDLE—GETTY IMAGES; SANDERS: SCOTT OLSON—GETTY IMAGES; BIDEN: SAUL LOEB—AFP VIA GETTY IMAGES; TV & CAPITAL: GETTY IMAGES

TECH

The Shadowy Valley

It will be a year of reckoning for denizens of the tech industry as their unchecked behavior catches up with them.

THE INTERNET GOES PRIVATE

▸ Platforms like Discord, Telegram, and WhatsApp have grown massively in recent years by helping users create invite-only chats and channels tailored to particular interests or real-world social groups. That will only accelerate, thanks to worries about social media's effects on our privacy, mental health and, in the U.S., political divides so deep they seem unbridgeable—especially on Facebook.

DRIVERLESS CARS WILL KILL (AGAIN)

▸ In 2018, an Uber test vehicle became the first self-driving car to strike and kill a pedestrian. Now Waymo has dozens of them on the road in Arizona, and Tesla is promising self-driving software in all of its vehicles soon. But the technology is still developing, and even perfect robots can't prevent every accident, so Uber will have (tragic) company soon enough.

BITCOIN SINKS BUT REMAINS A TREASURE

▸ Bitcoin will hit an all-time high of $50,000 next year, right before—as usual—crashing. But when the dust settles, the price of the OG cryptocurrency will sustain around $20,000. More investors will flock to the so-called digital gold, largely as a hedge against inflation, as regulators finally approve a Bitcoin ETF.

GOOGLE SETTLES ANTITRUST CASE

▸ The Justice Department's antitrust case against Google is limited in scope, focusing only on search listings and based on behaviors that have been going on for more than a decade, like Google paying Apple to be the default on iPhones. Expect Google to settle as it has in Europe over similar charges. Consumers will probably get a choice of search engines when buying a new device, and exclusive deals will be out.

A FOLDING PHONE SUCCEEDS

▸ The first folding smartphones had a few things in common besides trying to combine the portability of a phone with the larger display of a tablet. They were powerful, but delicate—and rather expensive, ranging from Motorola's $1,500 Razr to Samsung's $2,000 Galaxy Z Fold 2. But companies like Motorola, Xiaomi, and Samsung are relentless at pushing high-end features down to entry-level models. Just as they did with OLED screens and 5G modems, expect at least one of them to offer a folding phone selling for just three figures in 2021.

HOW WE DID LAST YEAR

ON TARGET

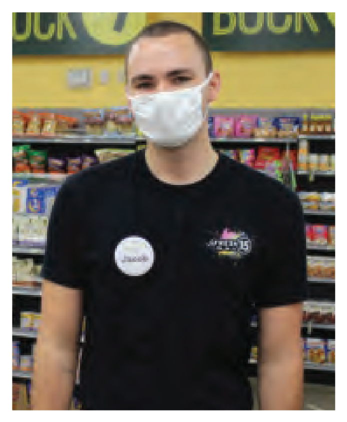
We predicted a strong year for the S&P 500, though weirdly we were too conservative. We said the election polls would be wrong again, even after pollsters made corrections for errors from 2016. We also foresaw that Tesla would raise more capital, that the video-chat app Houseparty would be a hit (though we couldn't explain why), and that 37 women would be in charge of *Fortune* 500 companies.

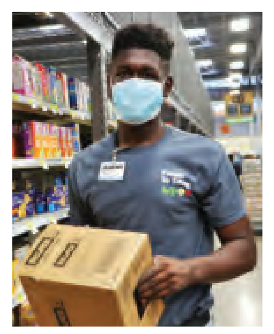
IN THE BALLPARK

While Joe Biden didn't put former Georgia gubernatorial candidate Stacey Abrams on his ticket, she did play a crucial role in his campaign, helping to deliver the Peach State for the President-elect. We got a reality TV show starring the Conways—one that played out on TikTok instead of Bravo.

OFF BASE

There were no Roaring Twenties garden parties; the new James Bond movie was delayed; and just about every major event was put on hold. Angela Merkel has kept her coalition together; the specter of negative interest rates in the U.S. evaporated; and Carrie Lam is still the boss in Hong Kong. Though there's always the chance we were not wrong, just early.





our PARTNERS.
our HEROES.

WE ARE ONE TEAM, PROUD TO SERVE.

BGC
BROOKSHIRE
GROCERY COMPANY

FORTUNE
BEST
WORKPLACES
IN RETAIL™
2020

We are proud to be named one of Fortune's Best Workplaces in Retail and we salute our 15,500 employee-partners for serving as true heroes on the front lines of the COVID-19 pandemic. We can never thank them enough for their continued commitment to delivering exceptional experiences for our customers and communities and for keeping our world moving forward.

BRAD BROOKSHIRE
CEO & CHAIRMAN OF THE BOARD

Brookshire's | Super 1 Foods® | FRESH BY BROOKSHIRE'S | Spring Market

GLOBAL

BoJo's Brexit & China's Vaccines

The past four years have been but a prelude to the true chaos of Britain leaving the European Union.

BREXIT FOOD SHORTAGES

▸ Although it is now belatedly spending $1 billion to build new border infrastructure, the U.K.'s preparations for Brexit remain incomplete. Expect miles-long lines of trucks at U.K. and French ports, and the very real possibility of food and medicine shortages.

BORIS OUT

▸ Boris Johnson may have once prevaricated about Brexit, but his political identity is now bound to it. British businesses will soon learn the reality of the project, and it is unlikely to go well. Expect Johnson's premiership to meet an early end.

CHINA VACCINATES THE WORLD

▸ In 2021, Chinese vaccine makers will supply more vaccines globally than Western firms. Chinese companies currently in Phase III trials are focusing on technologies that won't require as much cold storage capacity as mRNA vaccines from Pfizer and Moderna, increasing the likelihood that developing countries will be able to support importing and distributing them.

HOTTEST YEAR ON RECORD

▸ Surface temperatures across 2020 indicated it was in the running to beat 2016's inauspicious record, and 2021 could be worse still. That's despite global lockdowns that kept cars off the roads and shut down factories. But emissions are cumulative, and temperatures don't drop on one year alone.

HEALTH

THE PANDEMIC HAS FOREVER CHANGED PUBLIC HEALTH

THE BEHAVIORS WE'VE LEARNED DURING LOCKDOWN ARE NOW JUST HOW WE LIVE.

Virtual doc visits are here to stay
Telemedicine was always the wave of the future; the COVID pandemic just hastened its arrival. As hospitals remain overwhelmed with coronavirus patients, many medical centers have had to cut back on procedures that take place on-site. CVS and subsidiary Aetna beefed up discounts for telehealth visits during the outbreak, and the total market could near $25 billion in the U.S. alone by 2027. Don't expect this wave to crest post-pandemic.

Vaxxers beat out anti-vaxxers, narrowly
With promising candidates from Pfizer and Moderna, medical experts say they expect widespread distribution of coronavirus vaccines by the middle of 2021. But persuading people to get one is its own challenge. Polls have fluctuated but suggest only 50% to 58% of people will definitely get vaccinated.

Face masks will be worn on New Year's Eve 2021
There's a reason why in East Asian countries you see people wearing face masks in public spaces. Some of that boils down to personal hygiene preferences. But regions that have seen widespread, airborne, infectious diseases ravage their communities tend to keep wearing them even after the immediate danger has passed. So don't be surprised if face masks remain a part of your daily routine.

ACA survives another fight
A GOP-led lawsuit seeking to scuttle Obamacare has already faced skeptical questioning from conservatives Chief Justice John Roberts and Justice Brett Kavanaugh. Expect the Affordable Care Act to live another of its nine lives.

FLAG & THERMOMETER: GETTY IMAGES; JOHNSON: LEON NEAL—GETTY IMAGES; SYRINGE: EYEEMGETTY IMAGES;

THE FUTURE OF (SAFE) WORK

New sanitization protocols are the cornerstone of reopening—and staying open.

IN THE ERA OF COVID-19, the importance of keeping the workplace clean has never been clearer. While research indicates that the coronavirus is primarily spread through airborne droplets, particles can linger on surfaces. Providing employees and customers with confidence in sanitization protocols is key to a business's long-term health and economic survival.

"Ensuring workplaces are properly disinfected isn't just a protective safety measure, but one that also instills a sense of confidence," says Philip Thonhauser, chief technology officer at Zep, a cleaning solutions provider that works with clients across industries. "You gain trust in the eyes of your customers."

With that in mind, the first thing to do is implement a cleaning and disinfecting strategy. First, thoroughly clean all work areas (the exact type of cleaning solution will depend on the surface), including hidden places like the backs of door handles. All loose particles and dirt must be removed before applying a disinfectant. Once clean, apply an EPA-registered disinfectant.

Always read the disinfectant's label. The amount of time a specific product needs to stay applied varies widely (some require more than 10 minutes to be effective, while others work in just 60 seconds). The label should also have information about which viruses the disinfectant kills effectively.

Once the cleaning and disinfecting strategy is established, it's time to focus on daily maintenance, says Thonhauser.

Employers should encourage good hygiene by posting signage about the importance of handwashing, installing hand sanitizer stations throughout the office, and making sure soap and sanitizer stations are refilled often. Regular disinfecting should take place throughout the office, particularly in high-traffic areas such as elevators.

A company's specific needs, such as where to install hand sanitizer stations, will vary based on the industry and the layout of the space. A school, for example, should consider installing stations at bus drop-offs, entrances, and stairwells. "At Zep, we help customers identify critical control points and put them in a conceptual frame," Thonhauser says, "creating a plan of action that is thorough, scientifically sound, and simple to deploy."

By maintaining higher sanitization standards, companies can reduce risk for their workforce and customers. This, in turn, will help keep their operations open—and the global economy running. ■

CULTURE

Delayed Gratification

Next summer will be about celebrating everything we put on hold in 2020.

JEFF BEZOS BUYS AN NFL TEAM

▸ Many thought it would happen in 2019 or 2020, but in 2021 Bezos finally uses his fortune to get ahold of one of the most valuable franchises in sports, whether it's the nearby Seattle Seahawks or the Washington Football Team. Either way, he'll cough up a record amount for a sports franchise of any type, and the Mark Cuban comparisons will abound.

AN OLYMPIC BUBBLE

▸ "Bubbles" set up by the NWSL and the NBA proved sporting events can still be held safely, and they'll be the model for the Tokyo Summer Games. Expect many drastic changes, including welcoming far fewer ticketed attendees, having athletes quarantine weeks prior to the opening ceremonies, and regular testing for the duration of the competition.

MONEY MOVES TO TIKTOK

▸ How naive we were to think YouTube and Instagram would stay pure. Then ads and influencers flooded feeds. They're now colonizing the TikTok Wild West, and in 2021 the app is fated to evolve into a full-on business model. Retailers are already pressuring employees to plug them via TikTok. So enjoy the dogs with butter on them (*buttadog!*) while you can, before they become Kerrygold ads.

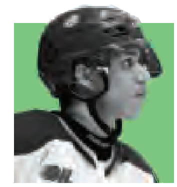
NEW SUMMER OF LOVE

▸ After a year of social distancing and staying indoors while watching death tolls tick up over the winter, young Americans need a release. The widespread distribution of a COVID-19 vaccine will coincide with the summer of 2021, just in time for parks across the country to turn into full-on party zones. Think Woodstock-esque full-time gatherings in public outdoor spaces.

A POSTHUMOUS OSCAR

▸ Following a year of cinema hampered by delays and theater closings, Academy voters decide the late Chadwick Boseman saved one of his best performances for last. The beloved Black Panther posthumously wins Best Supporting Actor at the 2021 Oscars for a star turn in *Ma Rainey's Black Bottom*, his final film appearance. F

RISING STARS



QUINTON BYFIELD
HOCKEY PLAYER

The highest-drafted Black player in NHL history will star for the L.A. Kings this season and use his prodigious skating skills, quick hands, and size to win Rookie of the Year.

ASHNIKKO
SINGER-SONGWRITER

From America, now based in the U.K., 24-year-old Ashnikko found viral fame on TikTok with her song "Stupid." Her debut album, *Demidevil*, comes out in February 2021. Her brash style feels new but is catchy enough to make it on pop radio.

TEEZO TOUCHDOWN
RAPPER

Teezo Touchdown is a guitar-shredding Beaumont, Texas, native who seamlessly blends rap, rock, and the avant-garde in a way that conjures the sounds of Rick James, Richard Hell, and Tyler, the Creator. Believe us, it works.

CRYSTAL BALL CONTRIBUTORS MARIA ASPAN, LYDIA BELANGER, DANIEL BENTLEY, KATHERINE DUNN, ERIKA FRY, NICOLE GOODKIND, ROBERT HACKETT, BRETT HAENSEL, MATT HEIMER, ARIC JENKINS, JEREMY KAHN, RACHEL KING, REY MASHAYEKHI, GRADY MCGREGOR, JAKE METH, DAVID MEYER, MCKENNA MOORE, DAVID Z. MORRIS, SY MUKHERJEE, AARON PRESSMAN

BYFIELD: CHRIS TANOUYE—GETTY IMAGES; ASHNIKKO: JOHN PHILLIPS—GETTY IMAGES; TOUCHDOWN: COURTESY OF TEEZO TOUCHDOWN

REINVENTING FOOD

Saudi female entrepreneur Deem Al Bassam represents the new generation of innovators changing the way that Saudis eat out and spend their leisure time.

Not that long ago, dining options in Saudi Arabia and much of the Middle East were limited, consisting of restaurants offering traditional fare and ubiquitous international fast-food franchises, often located in shopping malls.

But millennials were hungry for brands that share the values of their customers and understand that for today's diners, memorable experiences are just as important as delicious food.

Those brands began to arrive just a few years ago, with young restaurateurs like partners Deem Al Bassam and Amal Al Marri, of the Independent Food Company, emerging on the Saudi hospitality scene.

"Our guests are not just interested in going to a restaurant to sit and eat," Deem explains. "They're not there because they're hungry. They are there because they want to have fun. They are looking for a certain dynamic and a certain experience from their brands."

Diners in the Middle East enjoyed their first glimpse of Deem's vision back in 2009, when she opened Switch, one of the first home-grown concepts to compete with international brands

In just a few short years, **Deem Al Bassam**'s Independent Food Company has become the leader of the pop-up dining market in Saudi Arabia.

With her flagship brand, Salt, as well as Parkers, Somewhere, Grind and Public, Deem has revitalized the local dining scene and created iconic examples of contemporary Saudi living.

"LIKE TODAY'S DINERS, I LIVE FOR EXCITING NEW IDEAS. WE ARE CONSTANTLY DESIGNING NEW DESTINATIONS AND EXPERIENCES TO KEEP OUR CUSTOMERS HAPPY."

—

DEEM AL BASSAM, MANAGING DIRECTOR, INDEPENDENT FOOD COMPANY

CULTURE OF INNOVATION

Salt is much more than just a place to eat burgers—it is a destination.

in The Dubai Mall. Switch offers innovative fusion dishes in a futuristic space created by internationally renowned designer Karim Rashid.

In 2014 the two women launched what has become their signature brand: Salt. One of the first food-trucks in the Middle East, Salt has evolved into a leisure and lifestyle brand with a large community of passionate followers, known as Salters.

Even before they received a food truck license, the duo ran a savvy marketing campaign on Instagram to showcase the concept. Six years later, Salt's iconic Airstream trailers now operate at beaches, marinas, and other outdoor venues in Saudi Arabia and across the Gulf, providing locals with lively shared experiences of food, art, and sports.

That lifestyle would have been unimaginable just a few years ago. "The success of Salt and our other brands in Saudi Arabia has only been possible because of all the changes that have happened here," Deem says. "The last few years have been a magical time for us."

What first inspired you to launch new restaurant brands?
My goal is twofold – to create urban destinations that are timeless, and to disrupt the food and entertainment market. Creating Independent gave me an outlet to express my personal ideals and beliefs. Although I want to disrupt the dining landscape, all of my ventures must also start from a place of passion. It is about much more than the financials. I believe if someone has the capacity to give back to their community, then it is not only their right, but it is their obligation. With every project we release we are focused on our people. That's one of the many differences between franchise concepts and home-grown brands.

What do you and Amal do that is different to other restaurants in Saudi Arabia and the Middle East?
To stay ahead of the competition, it's vital that we constantly reinvent our businesses and ourselves, and the only way to accomplish this is by having an entrepreneurial mindset. Developing an entrepreneurial mindset is all about altering your perspective: No matter how long you've been in business, you're starting it anew today. Therefore, we have built a creative ecosystem in the company where product and brand development have become possible through our creative house and studio. Combined with our culinary creativity, this allows us to stand out from the intense competition.

How has your business grown in the last 10 years?
The beauty of running such a young company is that it gives rise to so many opportunities to build your own niche. Our day-to-day is food and beverage, but the team that has built this foundation is slowly developing in ways that reflect where we are going. Just 10 years ago, we were a group of around 30 people. Now, there are more than 1,000 of us across all our brands. We have grown faster than I ever imagined. In Saudi Arabia, this has only been possible because of all the positive changes that the country is experiencing. Our Parker's outlet in Khobar was one of the first fully mixed restaurants in Saudi. The response has been amazing

Did you ever face any opposition as a female entrepreneur?
No—in fact, the opposite. The public-sector bodies we have dealt with have all taken our projects very seriously.

What does the future hold?
For the past few years the Kingdom has been expanding into the tourism sector. As experts in hospitality, we are keen on creating new touristic destinations like Salt Albahar in the Eastern Province and on beaches all along the coastline of the Kingdom.

Independent has recently created 'Public', an Italian pizzeria that offers a sense of community, music and art.

***FORTUNE* BLUE RIBBON COMPANIES** 2021

THE STANDOUT COMPANIES THAT MADE IT ON MULTIPLE *FORTUNE* LISTS

MAKING IT ONTO A single *Fortune* list is impressive. Those that rank on several deserve a list of their very own.

To qualify for *Fortune's* annual Blue Ribbon list, a company must appear on at least four of our 10 most rigorous annual rankings: the *Fortune* 500, Global 500, 100 Best Companies to Work For, Change the World, Future 50, World's Most Admired Companies, Fastest-Growing Companies, Most Powerful Women, Most Powerful Women International, and Businessperson of the Year.

Three companies tied in 2020 for the top spot: Amazon .com, Adobe, and Progressive each appeared on a total of seven lists. Incidentally, all of their CEOs appear on our Businessperson of the Year list in this issue—Jeff Bezos at No. 7, Shantanu Narayen at No. 8, and Tricia Griffith at No. 10.

Five companies landed on a total of six lists, while 10 companies made it onto five. This year's full Blue Ribbon list will debut on Fortune.com this December. —L.B.

RETAIL

Happy Workers Help These Chains Thrive

The Best Workplaces in Retail are making employees feel supported during a trying year. **BY LYDIA BELANGER**

"THE CUSTOMER IS ALWAYS RIGHT." But at the Best Workplaces in Retail—an annual list *Fortune* compiles with Great Place to Work—it's happy employees that make a winner.

Wegmans, which has now taken the top spot five years in a row, drew raves from its workers. "During this year of many unknowns, working at a place where you feel safe and comfortable while also being your own person has been a huge task that Wegmans has taken on amazingly," one employee wrote. A Burlington Stores (No. 10) employee lauded management, saying they were "ready to deal with the unexpected possibilities of reopening."

Leadership in 2020 also meant speaking up about issues of systemic racism. Yolanda Royall-Williams, VP of people and engagement at Wireless Vision (No. 11), shared a video to address George Floyd's killing. "I appreciate how much this company promotes equality, inclusion, and diversity," one employee commented. Visit Fortune.com to learn more about the other inspiring companies on this year's list.

BEST WORKPLACES IN **RETAIL**

	Company	HQ	U.S. Employees
01	Wegmans Food Markets	Rochester, N.Y.	49,018
02	CarMax	Richmond	26,041
03	Publix Super Markets	Lakeland, Fla.	200,274
04	Recreational Equipment Inc. (REI)	Kent, Wash.	13,941
05	Nugget Market	Woodland, Calif.	1,930
06	Sheetz	Altoona, Pa.	18,291
07	Custom Ink	Fairfax, Va.	1,684
08	Target	Minneapolis	Confidential
09	Altar'd State	Maryville, Tenn.	1,409
10	Burlington Stores	Burlington, N.J.	31,978
11	Wireless Vision	Bloomfield Hills, Mich.	3,389
12	Cumberland Farms	Westborough, Mass.	8,781
13	QuikTrip	Tulsa	22,832
14	Trek Bicycle	Waterloo, Wis.	Confidential
15	Brookshire Grocery	Tyler, Texas	15,461

ILLUSTRATION BY SAM PEET

PATTI POPPE

President and CEO, Consumers Energy

"MICHIGAN HAS BECOME A MAGNET FOR INNOVATION."

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

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MICHIGAN.
PURE OPPORTUNITY.

MICHIGAN ECONOMIC
DEVELOPMENT CORPORATION

Putting People First

Retailer **Altar'd State** treats every associate like family—and steps up when needed most.

ASSOCIATES FROM ACROSS THE COUNTRY GATHERED VIRTUALLY DURING QUARANTINE TO EXPRESS GRATITUDE TO THEIR ALTAR'D STATE FAMILY.

PROTECT THE FAMILY. That was Aaron Walters' first instinct when he realized the impact the COVID-19 pandemic would have on Altar'd State, the women's retail chain he co-founded and where he serves as chairman and CEO. And by "family," Walters meant his associates.

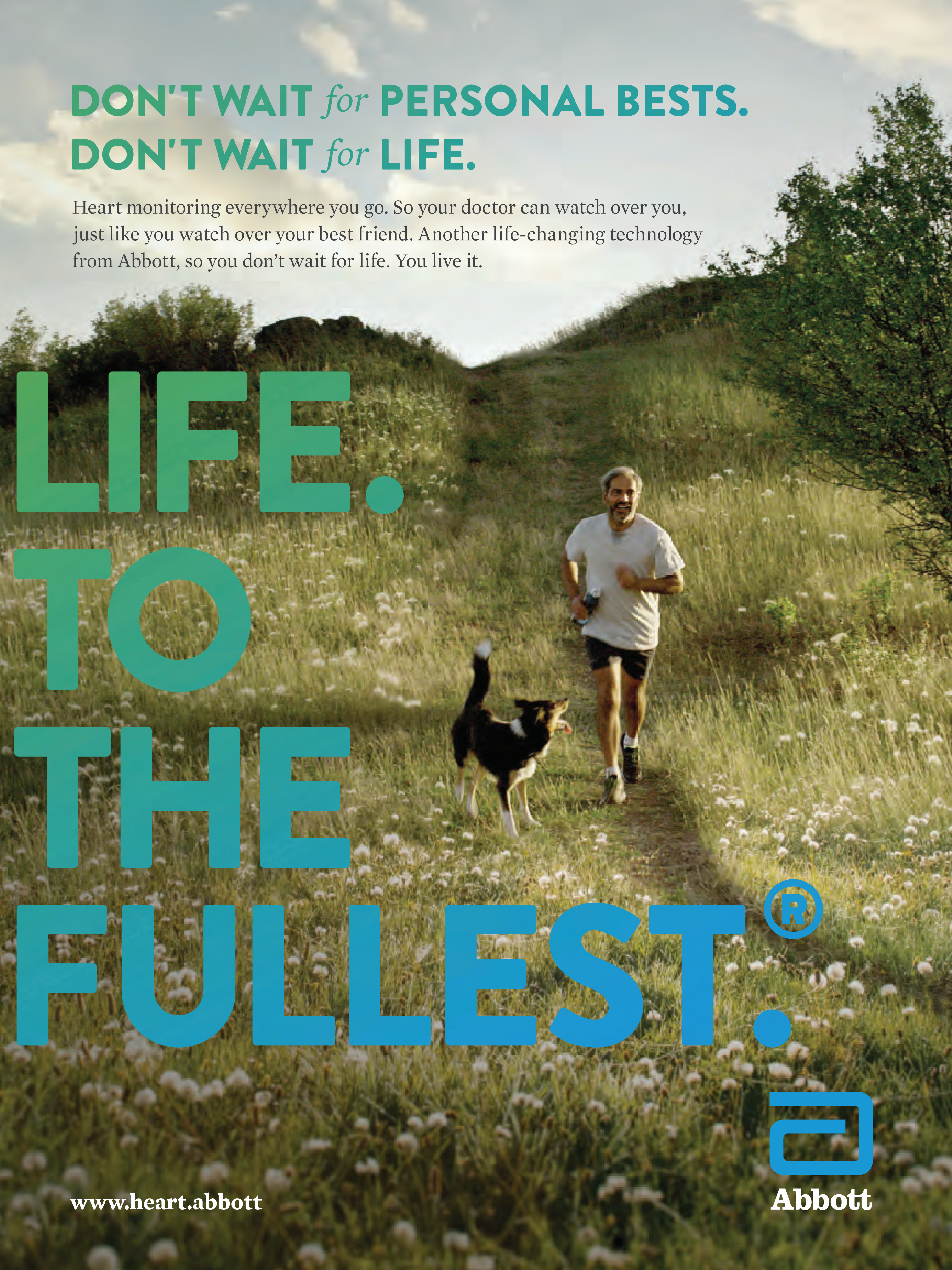
He knew it would be complicated. Altar'd State has associates at 121 locations, along with teams at sister brands A'Beautiful Soul and Vow'd. But the challenge wasn't a deterrent. "There's never a wrong time to do the right thing," says Brian Mason, co-founder and president of Altar'd State. He and Walters quickly zeroed in on their new mission.

"We laid out a very simple, people-first strategy," Walters says. He and Mason wanted to protect their associates both physically and financially. The first step was to protect the health of associates and guests by shutting down stores, even before state-mandated lockdowns began, although this meant sales would decline dramatically. Despite the drastic reduction in sales, Walters made the decision that Altar'd State would not resort to layoffs or furloughs. "Our number one key performance indicator was saving the jobs of our 2,000 associates," he says.

But taking care of the family also meant caring for associates' mental and emotional health. To help associates remain informed and feel included, Walters led companywide video calls every week to keep communication and connection thriving. In addition, the company has also arranged for associates to have access to mental health professionals. To help associates stay resilient, Walters distributed inspirational books across the organization, with smaller groups meeting regularly via video to discuss and dive deeper into each message.

This culture of caring has been integral to Altar'd State's DNA since its inception in 2009. "We're a give-back company," Walters says. "Retail is our platform."

Indeed, since its founding, Altar'd State has donated more than $14.7 million to those in need. Each location gives 10% of every Monday's net proceeds to local charitable organizations that help feed the hungry, assist servicemen and -women, boost self-esteem, care for those undergoing medical treatments, and house the homeless. The Altar'd State company motto is: "Stand Out. For Good." And that tight-knit family is showing us how it's done—during the pandemic and beyond. ■



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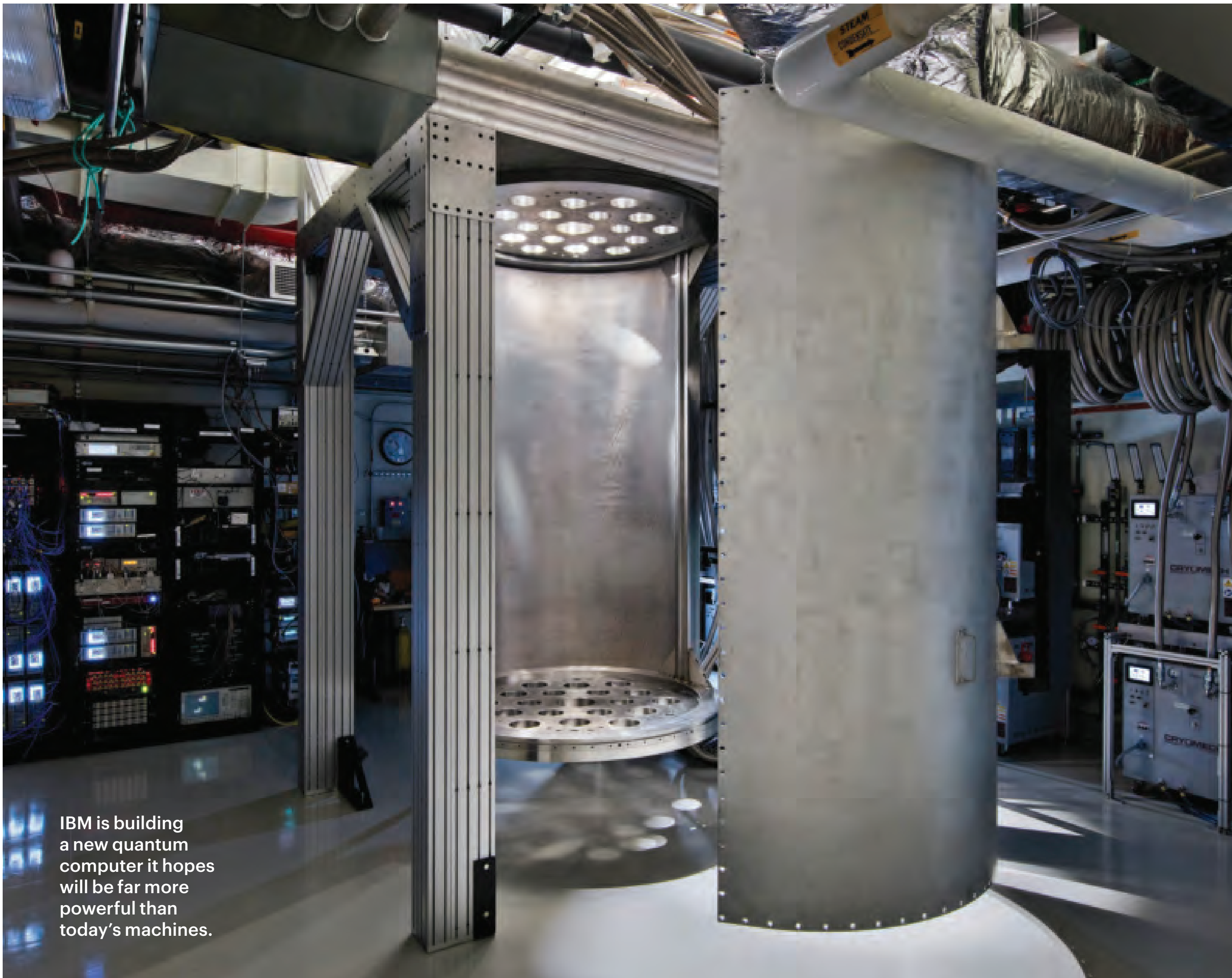


IBM is building a new quantum computer it hopes will be far more powerful than today's machines.

CONNIE ZHOU—COURTESY OF IBM

COMPUTING

Quantum Enters a New Dimension

For years, companies have been spending big money to develop quantum computers. Now those bets are starting to pay off.

BY ROBERT HACKETT

SOFTWARE DEVELOPERS on a conference call are trying to get a quantum computer, a buzzy successor to today's supercomputers, to do some of its magic. They want to see how well the experimental machine can reproduce a simple pattern of bars and stripes.

After the team tees up some software code, a scientist with dreadlocks clicks a button to put the computer, located in a lab outside Denver, into action. A laser generates a magnetic pulse in the machine that sets atoms inside a vacuum chamber—the computer's brain, of sorts—into motion.

Engineers with Zapata Computing, a startup that helps business customers create algorithms to use on quantum computers, are conducting the test. The company is renting use of a machine owned by industrial giant Honeywell, which considers quantum computing to be a huge business opportunity.

And recently that opportunity—requiring years of painstaking tinkering on the necessary technology—is starting to generate revenue. Time on Honeywell's quantum computer is fully booked for months. "You can talk about all the innovation you have and how great your technology is, but if no one is willing to pay for it, how valuable is it?" says Honeywell CEO Darius Adamczyk.

The half dozen or so companies that are serious about developing quantum computers, including Google, IBM, and Intel, plus startups such as Rigetti and IonQ, are reaching an important new phase: Customers are lining up and paying to use their machines.

QUANTUM SPEAK

Like many futuristic fields, quantum computing comes with its own complex vocabulary.
The following are some key terms to know.

Qubits
Not the biblical unit of measure, though it's pronounced the same. Qubits are "quantum bits," a turbocharged version of classical computing's bits. Composed of atoms, photons, or other materials, they are the basis of quantum computing's exponential potential.

Superposition
Whereas classical bits, or "binary digits," encompass just two states—often represented as "0" and "1"—qubits can assume any shade in between. Peculiarly, qubits can maintain this state only when no one is looking.

Entanglement
This flavor of superposition describes a shared state in which one qubit's fate depends on another's. Quantum-computer makers hope they'll be able to harness entanglement to one day achieve bewilderingly fast, parallel processing power in their machines.

Noisy
Today's quantum computers aren't loud, per se, but they are error-prone (or in scientific lingo, "noisy"). That's partly because qubits are highly sensitive, even to the mildest disturbances, like a glancing photon.

Quantum supremacy
A theoretical milestone that describes a quantum computer performing a calculation no classical computer can replicate in any reasonable amount of time. Google claims to have achieved it last year, but IBM argues otherwise.

While quantum computers are still largely inferior to today's basic desktop computers, the experiments give customers a taste of what's possible. The challenge will be to improve the machines enough in the coming years so that they produce better results at a lower cost than any other kind of computer.

Quantum computers are designed to harness the strange and powerful physics properties of so-called qubits (pronounced "cubits"), or quantum bits. Traits such as "superposition" and "entanglement," when combined with "interference," have the potential to solve problems in science and industry that are otherwise intractable, even to state-of-the-art supercomputers.

Experts expect full-blown quantum computers to be ready in a decade, or longer. But in the meantime, the machines being built now could provide an edge—a "quantum advantage," as IBM likes to say—in certain scenarios as soon as 2023.

The quantum computing industry is currently small in terms of revenue, but it could grow very big over time. The total market for quantum hardware rentals is projected to rise to $9 billion in 2030 from $260 million today, according to research firm Tractica.

The real value, however, lies in the potential business opportunities that quantum technology is poised to unlock. For that reason, and for fear of falling behind rivals like China, the federal government along with private businesses in August promised to pour $1 billion into the fledgling industry.

Major tech companies are already tussling for quantum dominance. And those that got an early start have a growing list of customers; IBM has more than 130 of them across business, academia, and government, for example. "Some people ask, 'When are we going to have a real industry? When is commercial quantum going to be real?' " says Dario Gil, director of IBM research, during my visit to his mad-scientist-like lab in September. "That's already started."

Cloud-computing behemoths are latching onto the trend. Microsoft, which is working on its own moonshot quantum-computing hardware, started offering select Azure customers remote access to other partnering companies' quantum computers in May. "We're making this technology really accessible and lowering the barriers to adoption," says Julie Love, Microsoft's head of quantum computing business development.

Amazon opened the quantum gates in August to all customers of its huge Amazon Web Services cloud-computing division. The offering, which, like Microsoft's, uses partners' hardware, has made it easier than ever for just about anyone to gain access to the technology.

Another member of the


WHAT CONNECTS US IS STRONGER THAN WHAT DIVIDES US.
For millions of Americans, connectivity is their lifeline. From farmers and healthcare workers to small business owners and students, access to broadband allows them to earn a living, get an education, and pursue the American dream.
Let's work together to narrow the digital divide, and bring reliable and affordable, high-speed broadband to every corner of America.
Let's connect, not divide.
facts.huawei.com
Erin Acarregui,
Elementary School Teacher
HUAWEI
Connect, Not Divide.

QUANTUM COMPETITION

The battle for dominance in the nascent quantum computing market is fierce. **Here are some of the main players:**

GOOGLE

Last year, the search giant said it achieved a major milestone: "quantum supremacy." But since then, it has lost some prominent members of its quantum team.

IBM

Big Blue has become one of the leaders in these newfangled business machines. It recently set a new goal: creating a 1-million-qubit machine by 2030, more powerful than any currently available.

HONEYWELL

The industrial giant's "trapped ion" hardware is a departure from the superconducting qubit machines pursued by IBM and Google.

MICROSOFT

The company's development of a quantum computer has been slow going. In March, it began offering cloud-computing customers access to the machines of others.

ALIBABA

In 2018, the Chinese company started offering access to a 12-qubit quantum processor through its Aliyun division. U.S. policymakers are alarmed by China's gains in quantum.

Big Tech club, Google, made waves last fall when it claimed to have achieved "quantum supremacy," a term that describes when a quantum computer outpaces a classical supercomputer at a specialized task. Although that result is disputed by rival IBM, it speaks to the technical battle between companies vying for their own supremacy in the nascent industry.

Recently, Google used a 12-qubit quantum computer to simulate a chemical reaction involving hydrogen and nitrogen atoms, a record-breaking achievement that graced the cover of the journal *Science*. The previous record holder was IBM, which three years earlier had modeled a molecule of half the size on a six-qubit machine (more qubits mean more sophisticated modeling).

Such data crunching, in general, could one day lead to improved batteries and carbon-capture technologies, which explains why companies like Volkswagen (a Google partner), Exxon Mobil (IBM), and Daimler (both) are so keenly interested in the tech.

Earlier this year, Honeywell, a dark horse, surprised many people by bursting onto the quantum computing scene with a version of its own technology. The company is using a different hardware approach that replaces the specially designed, supercooled silicon chips favored by Google and IBM with laser-guided atoms in the machine's guts.

JPMorgan Chase, German shipping titan DHL, and pharmaceutical giant Merck are the latest big names to join Honeywell's public list of customers. Kam Chana, director of computational platforms at Merck, explains that his company wants to use the computer for early-stage R&D so it can produce newer, more effective drugs and distribute medicine more efficiently at less cost.

Marco Pistoia, who leads research at JPMorgan's "future lab," says quantum computing could enhance his bank's analysis of risk, a prime concern. Goldman Sachs, Wells Fargo, and Visa are also exploring the tech, including for pricing complex financial derivatives and bolstering cybersecurity.

Stefan Woerner, IBM's quantum applications lead, raises the possibility of quantum computers being used for smarter vehicle routing, the safer management of investment portfolios, as well as a better understanding of protein folding, a complex area of biology with medical implications.

With its bars-and-stripes experiment, Zapata's team must wait hours to receive the final results from Honeywell's computer, which, in these early days of quantum, is painfully slow. When they finally receive the finished product, they compare it to what an ideal quantum computer would have produced, to gauge the new technology's limits when it comes to machine learning. The verdict? The pattern is as close to perfect as Zapata's team could have hoped to see.

> **"SOME PEOPLE ASK, 'WHEN ARE WE GOING TO HAVE A REAL INDUSTRY? WHEN IS COMMERCIAL QUANTUM GOING TO BE REAL?' THAT'S ALREADY STARTED."**
>
> **DARIO GIL,** IBM RESEARCH DIRECTOR

Such trials, while simplistic and plodding today, could eventually yield better techniques for detecting financial fraud or diagnosing diseases from MRI scans. In the meantime, quantum computers have a tendency to err, and accounting for and correcting those errors is the industry's top priority.

Still, despite the current shortcomings, getting real value from quantum is inevitable, says Chris Savoie, Zapata's chief executive, and that's coming sooner rather than later. "If you're not preparing for that and doing these experiments now, you're not going to be able to catch up."

An Industry Disrupter Taps a New Market

As part of its long-term growth strategy, **Align Technology** is focused on digital orthodontics for the masses.

FORTUNE FUTURE 50 2020

THE INVISALIGN SYSTEM HAS HELPED DOCTORS TRANSFORM THE SMILES AND LIVES OF MORE THAN 9 MILLION PATIENTS AROUND THE WORLD.

EVER SINCE ALIGN TECHNOLOGY PIONEERED THE launch of clear aligners with its Invisalign® system more than two decades ago, the San Jose–based company has been shaking up the orthodontics market. Today, Align employs 17,000-plus people and has helped treat more than 9 million patients in upwards of 100 countries worldwide.

In recognition of its success—which includes surpassing a $30 billion market cap—the medical-device company has been named to the 2020 *Fortune* Future 50 list. This honor ranks global organizations with the most promising prospects for long-term growth.

From the outset, Align has focused on the 15 million orthodontic case starts that occur around the world each year. Over the past five years, the company has gained even more international traction by increasing clinical cases and launching targeted innovations, such as Invisalign Teen with Mandibular Advancement, as teen orthodontic cases experienced a 30% compound annual growth rate worldwide in the past three years alone.

"We've reached a critical point where a doctor who knows the Invisalign system well understands that it can handle some of the most severe orthodontic cases," says Joe Hogan, president, CEO, and director of Align Technology.

Another major global opportunity for Align is the estimated 500 million adults who want to straighten their teeth without the use of metal wires and brackets.

"The adult market is an incredibly underpenetrated demographic," says Hogan. "We're not just disrupting the current orthodontic market. We're expanding orthodontics to the masses."

In addition to its Invisalign products, Align Technology is leading the evolution of digital dentistry with the iTero® intraoral scanner and CAD/CAM software. These technologies have modernized orthodontics practices by enabling enhanced digital techniques and restorative workflows that improve patient outcomes and office efficiencies.

"We have the critical competency to do broadly 90% of the world's orthodontic cases," says Hogan. "The challenge lies in helping doctors cross the threshold from analog to digital to make sure their practices remain efficient and profitable."

During the pandemic, Align's digital platform has made it possible for thousands of doctors and patients to continue Invisalign treatments via digital care. The company has also utilized its 3D-printing technology to produce face shields and medical swabs for COVID-19 testing kits.

"Going forward, we're focused on steering dentistry from analog to digital," says Hogan. "This also supports our broader purpose to continue improving smiles—and changing lives." ■

INVESTOR'S GUIDE 2021

HOW TO PROFIT FROM A "NORMAL" WORLD

Defying a pandemic, logic, and even gravity, the S&P 500 rose a very healthy 10% between Jan. 1 and mid-November. If—or hopefully *when*—society tames COVID, should investors expect more of the same? Well, yes and no. Our in-house finance reporters (see page 46) and our panel of outside experts (page 66) agree that the return of a more "normal" global economy in 2021 could reorder the ranks of winners and laggards, delivering big gains for some of this year's most beaten-down stocks. Our annual guide also takes a closer look at two upstart forces pulling the market in opposite directions: the stock-app Robinhood and its young, bullish traders (page 102); and the new breed of short-sellers whose muckraking has made them the nemeses of many an overhyped company (page 56). We explore as well the influence of a more pernicious force: the double standard to which venture investors hold female founders (page 92).

STOCKS FOR 2021

INVESTING IN THE BIG REBUILD

These companies and industries should rebound as the economy recovers, giving investors a reason to rejoice.

By ANNE SRADERS, JEN WIECZNER, SHAWN TULLY & MATT HEIMER

AMONG THE MANY crises that have kept Americans awake at night in 2020, one that looms large is the idea of a "K-shaped recovery" from COVID-19. That's the premise, backed by a growing body of evidence, that a year of lockdowns, isolation, and uncertainty have widened the wealth gap between America's work-from-home managerial classes and its paycheck-to-paycheck frontline workers—with the two groups' well-being moving in opposite directions like the arms of a "K."

The stock market, meanwhile, has undergone its own K-shaped recovery, albeit one with less dire consequences. Borne up by events that made us more dependent than ever on technology, from e-commerce to teleconferencing, the five Big Tech stocks lumped under the awkward acronym FAAMG—Facebook, Apple, Amazon, Microsoft, and Google—have returned 52.5% year to date, compared with just 6.3% for the other 495 members of the S&P 500. Together, they now have a market cap of $7.2 trillion. If you were keeping your entire portfolio in a typical, "cap-weighted" S&P 500 ETF, 23% of your assets would now be parked in those five stocks alone.

The weeks before Thanksgiving brought promising news on three COVID vaccines, with more likely to come. Though a very difficult winter looms, the odds are good that these lifesavers will help the global economy turn the corner on the pandemic in 2021—and, with luck, trigger a recovery that's strong enough, and broad enough, to KO both those K-shapes.

Where stocks are concerned, that ray of hope is leading pros to reconsider where they'll earn the best returns. In the industries most beaten down by the pandemic, the thinking goes, companies' shares should have more room to snap upward as their earnings recover. "It's the materials stocks, the consumer discretionary, the financials, industrials that will come roaring out" as the economy normalizes, says Sarah Ketterer, CEO of Causeway Capital. Many managers believe that non-U.S. stocks, which sank faster than U.S. equities as the pandemic settled in, are also poised to surge. Whatever happens, FAAMG won't be the only game in town, says Saira Malik, head of global equities at Nuveen: "I don't think we're going to end 2021 saying, 'Five growth stocks were all you had to own.'"

Betting on these sectors doesn't mean bailing out of tech stocks. Technology's central role in driving economic growth is undeniable. (To see which companies are most likely to parlay tech expertise into strong returns, read our Future 50 list in this issue.) That said, analysts expect tech earnings to rise at a slower rate than earnings for the S&P 500 as a whole in 2021. That's another sign that stocks in other industries could enjoy a prolonged spell in the sunshine as the global economy gets healthier. With that in mind, we sought out stocks in six categories that are poised to deliver big results as the world rebuilds.

ILLUSTRATION BY **MATT W. MOORE**

ENERGY & INFRASTRUCTURE

As the U.S. builds new economic backbones, these stocks will benefit.

A NEW ADMINISTRATION typically raises investor hopes of fresh spending on infrastructure—upgrades that both sides of the aisle tend to support. President-elect Joe Biden campaigned on two particularly timely infrastructure themes: a climate plan that calls for $2 trillion in federal investment in "sustainable infrastructure," and a $20 billion proposal to invest in rural broadband connectivity. Yet even if funding stalls in a gridlocked Congress, there's reason to bet on companies that build these backbones of the future economy.

Many investors are setting their sights on renewable sources of electricity. While wind and solar account for only about 7% of world electricity generation today, the International Energy Agency expects that figure could rise to 40% by 2040. "We're just in the very early stages of a multi-decade growth opportunity within renewables," says Josh Duitz, a senior portfolio manager helping to oversee the Aberdeen Standard Global Infrastructure Income Fund. He's a fan of utilities known as "yieldcos" for their high dividends, including U.K.-based **Atlantica Sustainable Infrastructure** (with a 5% dividend) and **Clearway Energy** (yielding 4.6%), which own and operate solar-panel installations and wind turbines across the U.S. and abroad. Duitz also likes **NextEra Energy,** the biggest renewable-energy utility in the U.S. NextEra plans to invest $1 billion next year in the emerging frontier of battery storage. That innovation is key to taking renewable energy mainstream, enabling it to be used even after the sun sets or the wind dies down.

Mobile data consumption was already growing more than 30% a year in the U.S. before the pandemic; with the reliance on teleconferencing for work and for school, we're using even more. That means telecom companies will need to continue fleshing out their 5G networks for years to come—in part by putting more antennae on cell towers. "The physics of it is, the more bandwidth you require, the shorter the distance you need to be to a tower," explains Nick Langley, senior portfolio manager at ClearBridge Investments. That's good news for real estate investment trusts like **Crown Castle** and **American Tower,** which Langley expects will grow earnings at a high single-digit rate for as much as a decade. Duitz recommends Spain's **Cellnex,** which is also growing through acquisitions as more European cell phone companies shed their towers to pure-play operators.

PICKS

Atlantica Sustainable Infrastructure
(AY, $34)

Clearway Energy
(CWEN, $30)

NextEra Energy
(NEE, $78)

Crown Castle
(CCI, $165)

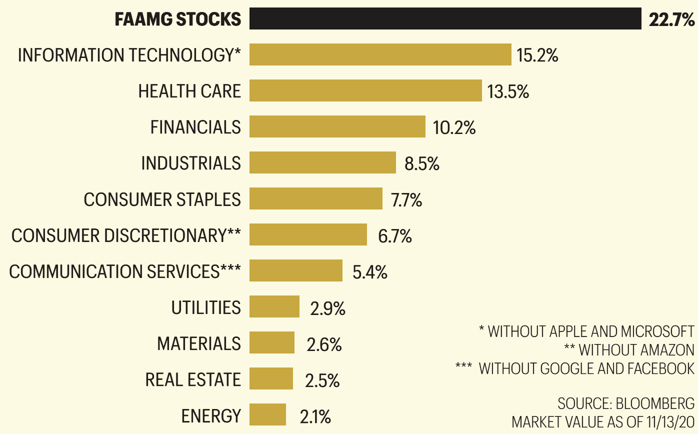
American Tower
(AMT, $239)

PRICES AS OF 11/16/20

THE FOOTPRINTS OF FIVE GIANTS...

Facebook, Apple, Amazon, Microsoft, and Google (the so-called FAAMG stocks) now account for almost a quarter of the value of the S&P 500.

SHARE OF S&P 500 MARKET CAPITALIZATION



* WITHOUT APPLE AND MICROSOFT
** WITHOUT AMAZON
*** WITHOUT GOOGLE AND FACEBOOK

SOURCE: BLOOMBERG
MARKET VALUE AS OF 11/13/20

HEALTH CARE STOCKS

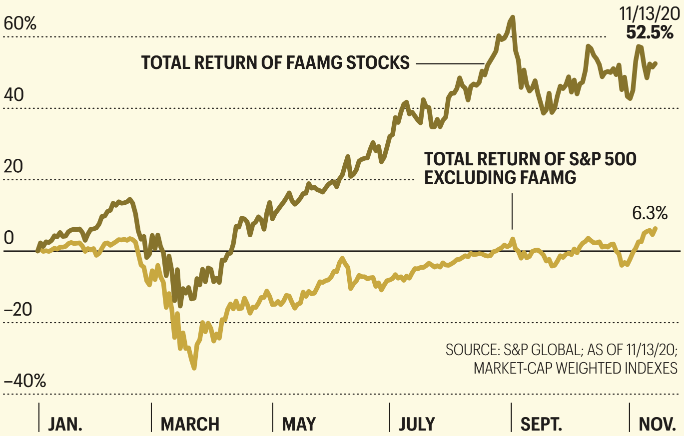
Waiting for COVID to release its grip on the health care system.

THE PANDEMIC is a health care crisis that has been brutal on some health care companies. Elective procedures, a big profit-generator for device makers and hospitals, slowed or stopped altogether, while older people in particular put off medical care of all kinds to avoid exposure to the coronavirus. But while COVID-related challenges remain, encouraging progress on potential vaccines has led some investors to double down on companies

MADE BIGGER BY A BOOM YEAR

As the pandemic increased our dependence on telework, e-commerce, and home entertainment, the FAAMG stocks soared.

2020 STOCK PERFORMANCE



SOURCE: S&P GLOBAL; AS OF 11/13/20; MARKET-CAP WEIGHTED INDEXES

that will benefit from a return to normal.

Eric Schoenstein, a managing director and portfolio manager at Jensen Investment Management, likes **Stryker,** a top producer of orthopedic implants, joint replacements, and other technology that caters to the needs of an aging population. Stryker has what Schoenstein calls a "first-mover advantage" with its robotics-assisted surgical platform, which is used in hip and knee replacements. Roughly half of Stryker's business can be categorized as "elective procedures," but as those procedures continue to come back, analyst estimates project its revenues growing more than 13% in 2021. The stock, meanwhile, trades at valuations slightly below the sector average.

The full-fledged return of elective surgeries will also benefit **Teleflex,** whose products include many used in vascular and urology procedures and the treatment of prostate disease. Lori Keith, who manages the Parnassus Mid Cap Fund, sees long-term demand for Teleflex's equipment as baby boomers age. The stock isn't cheap, at nearly 30 times estimated forward earnings, but analysts think Teleflex could grow revenues by 13.5% in 2021.

Giant insurer **UnitedHealth Group** has navigated the pandemic well; its profits even rose early on owing to the decline in elective procedures, leading it to pay some rebates to customers. But Saira Malik of Nuveen calls the absence of post-election risks the "biggest positive" for the insurer: With the next Congress expected to be evenly and sharply divided, Medicare for All is not to be. Malik expects UnitedHealth to expand its footprint in Medicare Advantage plans "at the fastest rate in five years" and to increase memberships in its Optum business (which includes health savings accounts and payment processing). The stock's forward P/E, at 22 times estimated earnings, trails the S&P 500 average, and Malik believes UnitedHealth could close that gap "as the company's business model returns to normal" and its shares climb.

PICKS

Cellnex
(MC: CLNX, $61)

Stryker
(SYK, $236)

Teleflex
(TFX, $375)

UnitedHealth Group
(UNH, $357)

Burlington Stores
(BURL, $231)

VF
(VFC, $82)

PRICES AS OF 11/16/20

CONSUMER STOCKS

There's life after lockdown for some retailers and for live events.

RETAIL'S LONG SHIFT to e-commerce accelerated even faster as the pandemic shuttered stores nationwide. But if the eventual arrival of a vaccine coaxes still more people back into in-person shopping, companies that rely on physical stores could reward investors nicely. That's particularly true of discount retailers, which have been able to please customers with a "treasure-hunting" experience along with lower prices that are welcome in a shaky economy. Parnassus's Keith is a fan of **Burlington Stores**, the third-largest off-price retailer in the country after Ross Stores and TJX. Burlington was hit less hard than some brick-and-mortar retailers because many of its stores are in stand-alone locations, not malls, and were able to reopen early. And new CEO Michael O'Sullivan, who came to the company in 2019 from Ross, is making investments in tech for supply-chain management and analytics that should help Burlington continue to improve its operating margins.

An era in which people prefer outside to inside could be a boon for apparel titan **VF**, whose portfolio includes outdoorsy brands like Vans, The North Face, and Timberland. Investments in e-commerce have paid off with sales increases in recent quarters, Keith says, and the company has shed older brands like Nautica and Reef in recent years to streamline its offerings. Keith also believes VF's recent $2.1 billion acquisition of youth-favorite streetwear brand Supreme is a potential accelerant for the company's growth.

Katie Koch, cohead of fundamental equity at Goldman Sachs Asset Management, believes that among younger consumers, experiences like concerts and travel matter more than retail therapy—and once a vaccine arrives, businesses that specialize in such experiences could boom because of pent-up demand. That would be music to the ears of **Live Nation,** the concert and event behemoth that owns the likes of Ticketmaster. Live Nation's revenues are down nearly 60% in the past 12 months, and with no clarity on when live events might get the all-clear, Wall Street expects earnings to stay depressed in 2021. But Koch says the company has the "balance sheet strength to make it through a continued, protracted shutdown." For events canceled because of the pandemic, over 80% of Live Nation's customers opted to hold on to their tickets instead of getting a refund. To Koch, "that's just a great data point that people are committed."

BANK STOCKS

The pandemic chased investors away, but profits have stayed steady for many of the "Big Four."

NO GROUP OF COMPANIES is a better proxy for the health of the economy than the four giants of financial services: JPMorgan Chase, Bank of America, Wells Fargo, and Citigroup. So far, the market's comeback has mainly bypassed the Big Four. Since Jan. 1, while the S&P has risen 10%, they have lost an average of 22%. But that has left their stocks so cheap that if their profits rebound, investors could pocket substantial returns.

Several factors are trending in banks' favor. A strengthening economy should gradually lift rates, boosting "net interest income"—the spread between what banks charge on home and credit card loans and what they pay in interest on deposits. And the Big Four have been posting steady earnings even after taking charges for pandemic-struck loans. Owing in part to a new accounting rule, from January to September, the Big Four booked $62 billion in provisions for bad credit, covering all the COVID-induced losses they're expecting. The good news: "Unless the U.S. goes into another steep recession, losses should remain at much reduced levels," says Charles Peabody, chief of boutique research firm Portales Partners.

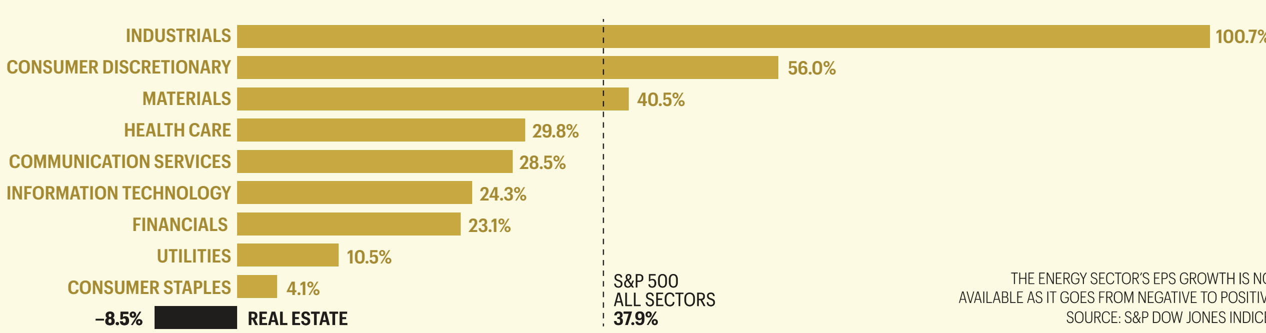
Bank of America is particularly likely to gain from a rising economy, because it's focused more on the consumer than on investment banking or trading. In the third quarter, falling rates cut BofA's net interest income by $2.1 billion, or 17%—but the bank still posted $4.9 billion in profit. It reckons that every one-point rise in the 10-year Treasury yield swells its pretax earnings by $3.34 billion. Peabody thinks BofA's consumer-heavy mix is super-well positioned for the recovery. "This rebound is more about Main Street than Wall Street," he says, driven by demand for credit cards and mortgages. And at a P/E of just under 8 on 2019 profits, BofA is cheaper than JPMorgan.

Wells Fargo is a chancier bet. The bank has been suffering from costs associated with

MAKING UP FOR LOST TIME

Analysts expect hefty profit growth almost across the board in 2021, as the economy gets back up to speed.

ESTIMATED GROWTH IN OPERATING EARNINGS PER SHARE, BY S&P 500 SECTOR, 2020–21

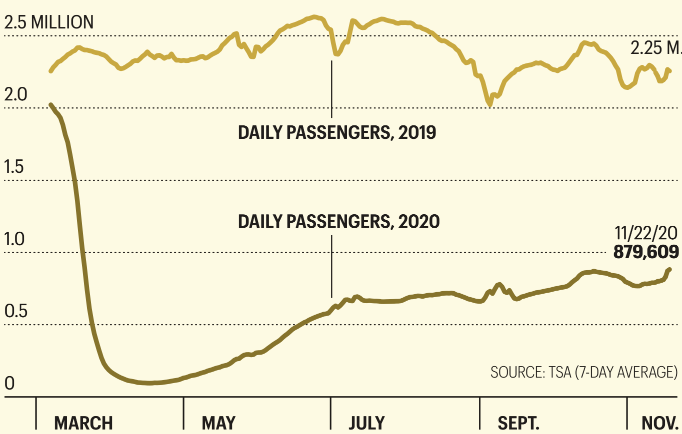


THE ENERGY SECTOR'S EPS GROWTH IS NOT AVAILABLE AS IT GOES FROM NEGATIVE TO POSITIVE.
SOURCE: S&P DOW JONES INDICES

HOLDING PATTERN

A partial recovery in U.S. air travel in the summer and fall wavered as coronavirus cases surged again.

U.S. AIRPORT CHECKPOINT TRAVELER VOLUME



a regulatory crackdown over its unethical sales practices, and the Fed has imposed strict limits on its growth. Wells' shares have fallen 60% from their 2018 peak. But CEO Charles Scharf has had success in chopping expenses. And like BofA, Wells is mostly a consumer franchise—it wrote the most mortgages last year among the Big Four. That fact should help it benefit greatly from rising rates.

AIRLINES AND AEROSPACE

Wary passengers and grounded flights won't stop these stocks from climbing.

PROMISING VACCINE DATA in November sent airline stocks soaring off their lows, but investors caution that shares may struggle to ascend much higher anytime soon. Though business travelers vaccinated against COVID-19 may be more comfortable flying, they may still be less inclined to fly to work meetings when they could Zoom instead. And planes aren't profitable to fly unless they're full.

Instead, investors hoping to reap returns from a recovery in air travel are looking further up the supply chain, at companies that make and repair airplane components. "There's lots of ways that airlines can save money, but plane maintenance is not really one of them," says Bill Callahan, investment strategist at Schroders. As long as planes are taking off, their parts are wearing out—and fixing them is a lot cheaper than buying a brand-new aircraft, which airlines can't afford at the moment. "Boeing's pain is their gain," Callahan says of manufacturers like Cleveland-based **TransDigm,** which makes aircraft components from the cockpit to the lavatories, and **Hexcel,** based in Stamford, Conn., which specializes in carbon fiber for planes. While both companies' shares have surged recently, they're still far from their pre-pandemic highs; Hexcel trades nearly 40% below its 2019 peak.

For those who are willing to bet early on airline stocks, consider those with businesses focused on the U.S.: "International travel is going to be impacted for longer than domestic travel," notes Callahan. Domestic-focused **Southwest Airlines** has ridden out the crisis more smoothly than the other major U.S. carriers and has taken advantage of pandemic-induced travel slack to add 10 new airports to its routes by mid-2021. Peter Essele, head of portfolio management for Commonwealth Financial Network, believes **JetBlue**'s reputation for superior customer experience will give it an edge in the long term over more traditional carriers, well beyond the pandemic. Buyer beware, however: Even the strongest airlines will face a lot of turbulence next year.

INTERNATIONAL STOCKS

Investors looking abroad are finding strong companies at bargain prices.

DURING THE COVID crisis, American stocks have traded at a premium to international stocks because they were, well, American: Their businesses were supported by stimulus spending from the Fed and by the dollar's status as the global reserve currency. When the pandemic finally eases, says Goldman's Koch, "I don't think the U.S. will

PICKS

Live Nation
(LYV, $68)

Bank of America
(BAC, $28)

Wells Fargo
(WFC, $25)

TransDigm
(TDG, $574)

Hexcel
(HXL, $50)

Southwest Airlines
(LUV, $46)

PRICES AS OF 11/16/20

have the same hegemony of market outperformance" as investors grow more confident in non-U.S. names. Another confidence-booster for Asian and European stocks: A Biden administration will be more predictable than its predecessor on trade issues.

One stock that Nuveen's Malik believes will continue its upward trajectory is **Taiwan Semiconductor Manufacturing Co.** (**TSMC**), the world's largest contract chipmaker. The company makes chips that are central to the buildout of 5G worldwide. And semiconductor titan Intel's recent manufacturing woes are "certainly going to indirectly, if not directly, benefit TSMC," Malik argues, as Intel may subcontract more of its own chips to TSMC. But the stock still comes at a reasonable price tag, trading at around 23 times forward earnings.

Jensen's Schoenstein favors **Unilever,** the multinational beauty and food giant that's currently consolidating its headquarters in London. Unilever's brands, which include Dove soap, Lipton tea, Breyers ice cream, and Vaseline, are sold in 190 countries, and its China and North America businesses have been recent bright spots. Like other consumer goods behemoths, Unilever held up well as shoppers filled their pantries during the pandemic. If consumers stay loyal, its stock could have room to run, since it trades at a modest 21 times forward earnings, compared with the U.S. consumer staples average of nearly 26.

Some of those Unilever products may well reach customers via **Canadian National Railway,** a freight-only railroad whose lines run through the U.S. and Canada and link major ports on the Atlantic, the Pacific, and the Gulf of Mexico. CNR transports a diversified mix of oil, metals, minerals, and forest products, and its consumer goods shipping business saw a particularly sharp recovery as the COVID crisis played out. CNR continued making improvements to its rail network during the pandemic. Schoenstein says that efficiencies from those investments, plus relatively low fuel prices, should position CNR to do even better once other economic locomotives start gaining speed again. ■

PICKS

JetBlue
(JBLU, $15)

Taiwan Semiconductor Manufacturing
(TSM, $99)

Unilever
(UL, $61)

Canadian National Railway
(CNI, $109)

PRICES AS OF 11/16/20

HOW *FORTUNE* DID

When It Pays to Be Cautious

While no one could have predicted the insanity of 2020, *Fortune* writers Rey Mashayekhi and Anne Sraders did anticipate a year of iffy growth and political tension. The 27 stocks and ETFs they picked in "The Yellow-Light Portfolio" put an emphasis on prudent, resilient companies—and it beat the S&P 500 over the ensuing year, with median returns of 20.6%, including dividends, to the market's 19.5%. Here are some highlights.

ELECTRIFIED

Whatever you think of Elon Musk—and we think he's the Businessperson of the Year (see the story in this issue)—there's no denying **Tesla** had a torrid 2020. The electric-vehicle maker ironed out its production kinks, fought its way to profitability, and earned a spot in the S&P 500. The stock has returned 505% since we picked it, making it by far our best performer. Another winning pick in a related field: **Nidec** (up 51%), a Japanese maker of EV motors.

SAFE SHOPPING

The pandemic has put retailers under tremendous strain but rewarded those that adapted nimbly. **Target** staffed up to keep its stores open and clean, and stole market share from rivals; it has returned 53% since last year. The work-from-home trend, meanwhile, boosted **Home Depot,** as homeowners renovated, repaired, and traded up to make the best of their round-the-clock domestic surroundings.

CASH OUR CHIPS

Our tech picks included Alphabet and Microsoft, which had great years. But our top tech performers were little-known chip specialists. Shares in **Synopsys,** whose software is used by semiconductor-design wizards, and Dutch chip-component maker **ASML** returned 63% and 61%, respectively. Each stock soared (along with their industry) as global demand for digital hardware increased.

CAN'T WIN 'EM ALL

Our portfolio included five "bold bet" picks, companies with higher-risk profiles. Tesla and Nidec paid off. British retailer **Burberry** (down 19%) did not, as luxury brands got crushed by COVID. The fallout from past scandals, meanwhile, clobbered **Wells Fargo** (down 52%), though our team is betting this year that better times are coming for the battered bank.

Rising to Meet Tomorrow's Challenges

Palo Alto Networks continues to thrive by helping its partners—and employees—adapt to change.

"Every organization today needs the capacity to quickly scale, pivot, and maintain cybersecurity. Our goal is to provide trusted and secure solutions on every front, from cloud networks to mobile devices."

NIKESH ARORA
CEO AND CHAIRMAN
PALO ALTO NETWORKS

FOR PALO ALTO NETWORKS—A $3.5 BILLION cybersecurity leader that serves more than 75,000 customers in more than 150 countries—maintaining flexibility is critical to pioneering cybersecurity innovation and safeguarding the future of work. The longtime next-generation firewall leader has transformed its business over the past two years to offer a comprehensive cybersecurity portfolio for its clients, helping accelerate their digital transformations and adapt to ongoing uncertainties.

By anticipating the transformations that 2020 accelerated, Palo Alto Networks has helped an energy services provider secure 80,000 employees using the world's largest clouds, enabled a global tech manufacturer to quickly scale its security as 35,000 homes became offices, and worked with school districts to secure online education for students and teachers.

Aside from the innovative platform approach and security services that Palo Alto Networks offers its clients, the secret to the company's growth is simple: Give its employees the support and tools they need to succeed.

"Every organization today needs the capacity to quickly scale, pivot, and maintain cybersecurity," says CEO and chairman Nikesh Arora. "Our goal is to provide trusted and secure solutions on every front, from cloud networks to mobile devices. This requires us to provide our employees with the capacity to be more responsive and resilient, and provide enterprises with the network visibility and systems automation they need to adapt to unexpected events."

Palo Alto Networks is delivering on its goals. Faced with the disruption of COVID-19, the company has doubled down on cloud-focused solutions, which enable more rapid enterprise-wide network developments and deployments. It has also pivoted to a new program called FLEXWORK, which is designed to support its employees' changing environments.

"We've been listening closely to what our people need through this period, and one size no longer fits all," explains Arora. "With FLEXWORK, our employees enjoy more flexible scheduling, more personalized benefits, and more individualized trainings that better suit their working models."

Today, Palo Alto Networks' employees can effectively work from home (using offices as needed), receive $1,000 per year to choose from flexible benefits, and receive individualized training to stay up to speed on emerging cybersecurity trends and topics.

"Meeting tomorrow's challenges requires us to apply forward-thinking solutions," Arora says. "In addition to serving our clients, it also means giving our people the added support and flexibility they need to excel. Even in a time of historic upheaval." ■

LITTLE BIG SHORTS

SHERIFFS IN A WILD WEST MARKET

Tiny "activist short" research firms have earned outsize attention—and the occasional windfall—by shining harsh light on overhyped companies.

By BERNHARD WARNER

THIS SUMMER, investor Nathan Anderson got a juicy tip. The subject: Nikola Corp.

On June 4, the Phoenix-based electric-vehicle maker had gone public through a reverse merger. In a year of euphoric demand for growth stocks, particularly EV makers, this one stood out. Nikola bulls believed the company would do for hydrogen-powered, long-haul trucking what Tesla has done for electric cars. Within a week, investors had pushed its market cap above $34 billion, enough to overtake Ford and Fiat Chrysler even though the upstart had yet to sell a single vehicle.

The tipster wasn't buying the hype. Neither was Anderson, a 36-year-old CFA turned whistleblower turned short-seller.

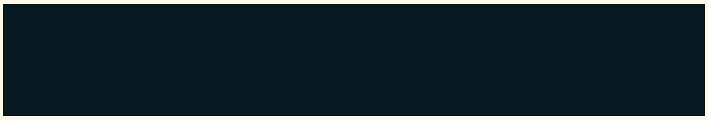
The source put Anderson, the founder of Hindenburg Research—a five-person investment research firm with no clients, no license to manage investors' money, and no phone number or address on its website—in contact with two former business partners of Nikola. The informants turned over a cache of text messages, emails, and photographs that cast doubts on, among other things, various public statements made by Nikola and its founder Trevor Milton about the company's progress in developing battery and hydrogen fuel cell technology.

These were tantalizing allegations. But one accusation struck Anderson as almost too flat-out crazy to take at face value. It had to do with a video Nikola posted to YouTube in January 2018 featuring the Nikola One semi, its original prototype rig. The video shows the truck cruising through the high desert outside Salt Lake City. It opens with a long shot of the Nikola One rolling toward the camera at high speed, barreling across a wide valley. The sun glistens off the windshield and the gleaming white roof as it zips across the frame.

Nikola titled the video "Nikola One Electric Semi Truck in Motion." It generated hundreds of thousands of views online and got wide pickup from the automotive press. At a 2018 ceremony to celebrate Nikola's new Arizona manufacturing facility, Gov. Doug Ducey watched the video and then gushed, "Nikola Motor Company is coming to Arizona. This is a huge announcement!"

The insiders claimed the whole thing had been staged. The truck wasn't traveling under its own power, they told Anderson. Instead, it had been towed to the top of a hill. The person at the wheel then popped it into neutral and started it on its journey downhill—slowly at first, then accelerating.

The idea that Nikola was pulling a fast one wouldn't count as outright fraud, Anderson knew, because the video didn't explicitly claim the truck was self-propelled. But exposing the gimmick



JOHNNY MILANO

AN "OBSESSIVE DIGGER"
Short-seller Nathan Anderson debunked a target company's misleading marketing video by analyzing it frame by frame and re-creating it.

◀
"A LOT OF GUYS HAVE COME AND GONE"
Carson Block of Muddy Waters says that activist shorts' successes have proved hard to replicate.

COURTESY OF MUDDY WATERS

would demonstrate the kind of razzmatazz the company was engineering to sustain its hype. Anderson's problem: How could he prove the video was a ruse?

A self-described "obsessive digger," Anderson used a technique that's common to the open-source investigations in the Internet's most skeptical corners. He slowed the YouTube video down, frame by frame, and cross-referenced those stills with images he found on Google Street View. That helped him establish the precise location of the video shoot, down to the exact mile marker where the Nikola truck came to rest and the starting point of its journey. He called one of his contacts in Utah with an unusual request: Go to that very spot and re-create the truck roll, and film the entire thing. The contact did so, albeit in a 2017 Honda Pilot SUV. It rolled for 2.1 miles and reached a maximum speed of 56 miles per hour—entirely in neutral.

Bingo.

With that, Anderson could show how the company had pulled off the video—a proof point of Nikola going to great lengths to mislead the public. He wrote up his findings, replete with photos and maps. "You just want to be 100% on those things," he notes.

TIP NO. 1 FOR WOULD-BE SHORTS

IF YOU'RE GOING TO TAKE DOWN A BIG STOCK, SWEAT THE SMALL STUFF.

On Sept. 10, Hindenburg Research published a 67-page report on Nikola—a huge dump of damning allegations. "Today, we reveal why we believe Nikola is an intricate fraud built on dozens of lies over the course of its Founder and Executive Chairman Trevor Milton's career," the report began. The opening page set the tone: It included 24 bullet points that poured cold water on the company's claims that it was developing proprietary battery technology, and that it had cracked the code on cheap hydrogen fuel production. The report took repeated swipes at Milton. And it laid bare how the company gave the Nikola One a push to get across the desert floor.

Nikola responded the following day, saying the report contained "false and misleading statements" and that it had hired counsel to "evaluate potential legal recourse." For good measure, it added, "This was a hit job for short sale profit driven by greed." But three days later, Nikola delivered a more detailed response—in which it copped that the Nikola One was not built to "drive on its own propulsion."

The damage was swift. The stock cratered, and investor lawsuits began to mount. In a regulatory filing in November, the company revealed that the Justice Department had issued grand jury subpoenas against Nikola and Milton, and that the Securities and Exchange Commission was investigating whether Nikola had misinformed investors. "We have incurred significant expenses as a result of the regulatory and legal matters relating to the Hindenburg Report," Nikola disclosed. (Nikola declined multiple requests to answer questions on the matter. Reached through a spokesperson, Milton, who called the report "false and deceptive" in September, would not comment further.)

Since the report dropped, Nikola's stock has fallen 30%, and Milton has resigned. But one cohort has walked away the better from the truck wreck. As of mid-November, short-sellers—Anderson among them—had earned $263 million in mark-to-market profits from Nikola's plunge, according to S3 Partners, a firm that tracks short activity. And they clearly expect to earn more: More than a third of all Nikola shares outstanding were held by shorts.

BULL MARKETS, the saying goes, ignore bad news. And if you set aside the black-swan pandemic-driven crash of early 2020, U.S. stock indexes have been in bull mode since the financial crisis, almost 12 years ago. Still, there's a small but influential force in activist investing that is not only paying attention to bad news but also promulgating and profiting from it.

Anderson's firm is part of a cadre who identify themselves by many names—some flashy ("short activists"); some self-righteous ("whistleblowing short-sellers"); some deceptively banal ("activist researchers"). These investors research targets suspected of shady behavior, then expose them and short them.

They share gimlet-eyed DNA with financiers large and small who've done the same—from Jim Chanos, who shorted Enron while warning about its accounting skulduggery, to the low-profile contrarians who bet against the subprime bubble, to CNBC-darling hedge fund managers like Bill Ackman and Daniel Loeb.

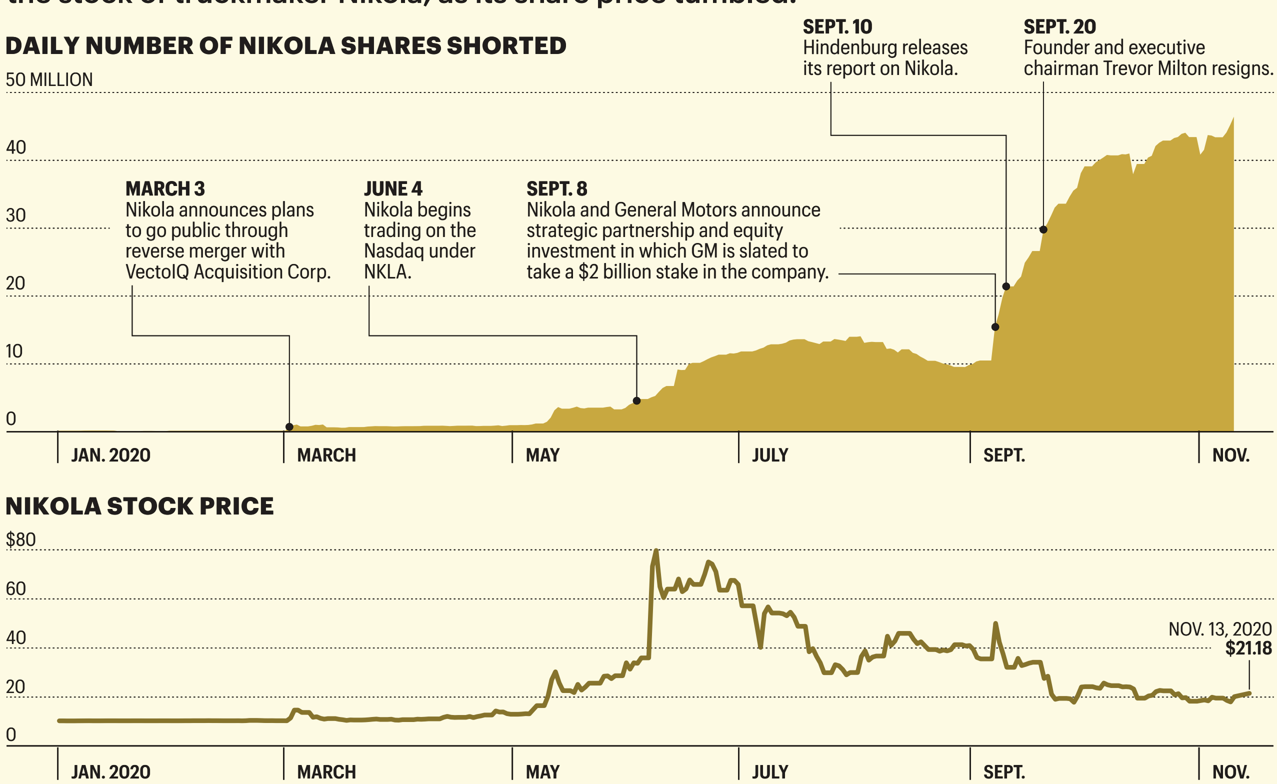
The new breed—the little big shorts—stand out because, by and large, whistleblowing and shorting is *all* they do. Lately, they've delivered plenty of pelts from publicly traded Goliaths, powered by meticulously reported jeremiads whose details rocket across social media and the business press. And with few exceptions, they do it for themselves, not for clients: They place bets with their own dough, which means many regulations don't affect them. Anderson built a personal short position in Nikola through the summer as he became convinced he could take the company down. "It's a big win for us," he says, though he declines to specify how big. Critics fume that the shorts' actions represent a blatant conflict of interest. Precisely, they fire back—no conflict, no interest.

Carson Block says he didn't see short-selling as a profession when he published his first short report in 2010. But in the years following the financial crisis, as investor appetite for growth stocks drove mammoth valuations, it raised mammoth red flags for Block. The former attorney went on to become founder and chief investment officer of Muddy Waters, an activist short firm with the motto: "Doing the work Wall Street won't." His firm's success in exposing fraud—and profiting from it—attracted copycats, many of whom were already raising hell on investor message boards.

Since 2010, Muddy Waters has published short attacks on 38 companies. It came to fame by shorting Chinese firms listed in North America, then delivering devastating haymakers in the form of free oppo research published online. In 2011, Muddy Waters took on Sino-Forest, a Chinese timber firm listed in Toronto, accusing the company of inflating revenues and exaggerating its holdings. The report torpedoed the firm's shares, and it went bankrupt a year later. Sino-Forest denied Block's allegations, but Canadian regulators eventually found that its leaders had committed fraud, and the company settled an avalanche of investor lawsuits. Earlier this year, Block went after Luckin Coffee. The company later disclosed in an SEC filing that it had inflated its 2019 sales by $320 million and costs by $200 million. Its CEO and COO were fired, and the Nasdaq

SHORT-SELLERS SLAM THE BRAKES

A blistering report from Hindenburg Research prompted short investors to stampede into the stock of truckmaker Nikola, as its share price tumbled.



SOURCE: S3 PARTNERS

◀ **"I WAS NEGATIVE MILLIONS"**
Shorts like Fraser Perring of Viceroy Research face huge losses if the stocks they short rise dramatically.

delisted the company for its misbehavior.

Though Chinese firms were Block's first focus, he realized that the flaws he found in those companies could be found everywhere. "The conflicts of interest, the ineptitude, the laziness that enabled these empty boxes to raise money in the U.S. and trade at real valuations—I mean, those are global issues," he explains.

One of the California-based firm's best-known takedowns came closer to home. In early 2016, Abbott Laboratories announced a $25 billion bid to buy St. Jude Medical, combining the two top players in the $30 billion market for "heart failure devices." But in August of that year, Muddy Waters entered the scene with guns blazing, announcing a short position in St. Jude and alleging that some of its pacemakers and defibrillators were vulnerable to hacking. The disclosure pushed St. Jude shares down 10% in a single day.

The Muddy Waters report relied heavily on evidence compiled by MedSec, a cybersecurity research firm. MedSec had approached Block's team first with the juicy information, rather than alerting St. Jude per Food and Drug Administration guidelines. St. Jude sued Muddy Waters and MedSec for defamation. But a few months later, the FDA and Department of Homeland Security confirmed that the devices were indeed vulnerable, and they issued a recall. The shorts cashed in; the defamation suit was eventually dismissed.

FROM THE JUMP, activist short campaigns are decidedly antagonistic—the tone is Accounting 101 meets WrestleMania. The shorts allege endemic fraud at the highest levels. "Money grab," is a term that appears often in the reports. A Chinese sportswear company is not just cooking its books, it's dropping "turds in the punch bowl," blares one Muddy Waters report.

The attack-dog language is deliberate. (Ackman, the hedge-fund manager famed for his short bets, has honed it to a fine art.) Short-sellers get no points for prosecuting a good argument. Their research pays off only if the reader takes action, dumping her shares.

TIP NO. 2

EXPECT A FIGHT, AND DON'T PLAY NICE.

It seems every activist short has horror stories they could dine out on: the white whale that nearly ruined them, the lawsuits, the PIs and PRs, the hostile regulators, the death threats. Fraser Perring, founder of Viceroy Research, says one of his short targets sent heavies to his native England in a clumsy attempt to kidnap his daughter. (*Fortune* could not verify this claim.) "At one stage there were bugs in the kitchen, cameras in the hedge. It was something out of a novel," he says.

"A lot of guys have come and gone in short activism" over the past decade, Block says. "People thought, 'Oh, wow, this is really easy. It's a great way to make money.' And it's not. Relative to being on the long side, it takes a lot more effort to make each dollar."

Shorting stock is indeed not for the faint of heart. Believing a stock will fall, an investor opens "short" position by borrowing shares—

NATHAN ANDERSON • HINDENBURG RESEARCH

"I think fraud is more pervasive than at any time I've been in the market." Until regulators step up, "we're going to see a proliferation of short actors."

PHOTOGRAPH BY **SOPHIE GREEN**

say, 1,000 shares of Nikola. He sells them for cash. He'll eventually have to buy 1,000 NKLA shares to return to the lender. That's called "closing out the short." The more the share price falls between opening and closing, the more money the bet makes.

It can all easily backfire. "You can only ever make 100% of your equity on a short," Perring explains. If the share price falls from $20 to zero, the difference—$20 per share—is your take. But if the price doubles, your losses double. If the price triples, your losses triple. And so on. (This is one reason so many shorts have lost their shirts on Tesla, a stock that was up almost sixfold year to date as of Nov. 19.)

Viceroy, a three-person shop, has the manpower to research only a few firms per year. Wirecard was far and away its biggest score, Perring says. The share price of the now-insolvent German payments provider collapsed from €104 in mid-June to 60¢ this month following an accounting scandal that landed former CEO Markus Braun in jail. When whistleblowers, journalists, and short-sellers like Perring leveled allegations of malfeasance at Wirecard in 2019, Germany's securities regulator, BaFin, investigated the tattlers instead. BaFin also temporarily outlawed short-selling of Wirecard shares: "Short attacks," it said, "posed a risk to market integrity." But further investigation vindicated the critics, igniting a national reckoning in Germany's conservative investor culture.

"Wirecard was a war, a four-and-a-half-year fucking war," Perring groans. At one point, he says, "I was negative millions. And that's not bragging."

The 47-year-old says his ship came in in 2020, thanks to Wirecard and his muckraking behind Grenke, a German leasing company that Viceroy came after in a report in September. Viceroy's central charge is that Grenke used acquisitions to obscure how little cash it had on its books. Viceroy's accusations are "completely unfounded," Grenke said in a statement; still, the damage has been severe. Grenke shares are down one-third since the report came out, and its founder stepped aside from the board. BaFin, meanwhile, opened an investigation into Grenke days after Viceroy's report hit; it was ongoing at press time.

Perring has taken plenty of arrows for his short attacks, as well as for his conduct outside the market. A former social worker, he was barred from such work in England eight years ago following allegations he forged documents. (He sued his former employer and won a settlement in that case.) A 2018 report commissioned by a South African business group accused Viceroy of "substantially" plagiarizing a hedge fund report in its efforts to take down Steinhoff, a South African holding company. Perring shrugs off his critics. "If you're worried about your ego, don't get into short-selling," he says.

When pressed on Viceroy's finances, Perring would only say he has one outside backer, whom he would not name. "We've never commented on our profit," he adds, "because we're only as good as our last report anyway." That's even truer in 2020, Block adds; for every Nikola, there "are probably five really frustrating results."

TIP NO. 3

LIKE HOLLYWOOD, SHORT-SELLING IS A HITS-DRIVEN RACKET.

FOMO RALLIES. The retail-investor army. The $60 billion boom in blank-check IPOs. These bullish forces have pushed the Cassandras to the fringes of the market in 2020. Cumulative short positions held on NYSE-listed firms generally hover between 4% and 6% of shares outstanding; by early November, they had fallen to less than 1%.

The exuberance persists despite the reality that we're enduring the worst recession and labor-market collapses in living memory; that companies are piling on debt; that earnings have collapsed. Analysts at banks and brokers—the go-to research source for many retail investors—aren't exactly playing the skeptic. FactSet calculates that of the 10,322 analyst ratings affixed to the stocks in the S&P 500, only 6.2% are a "sell." It seems as if we've all bought a dog to get us through the pandemic, and yet Wall Street can't find any.

Even Nikola, for all its flaws, is riding the rising tide: Shortly before the Hindenburg report was published, General Motors said it would buy a stake in the company and would agree to codevelop the Nikola Badger pickup truck. Publicly, GM says the deal remains a go.

In this permissive era, the shorts see themselves as a necessary force for good. In the Wild West, they're sheriffs—sheriffs who drive Audis, mind you. "I think fraud is more pervasive than at any time I've been in the market, certainly," says Hindenburg's Anderson. Until regulators and auditors step up their game, he adds, "we're going to continue to see a proliferation of short actors."

TIP NO. 4

DON'T SHOOT THE MESSENGER, AT LEAST UNTIL *AFTER* YOU'VE READ THE REPORT.

Nikola isn't Anderson's first big scoop, but it stands out. Usually, his reports enrage long investors, and he hears from them. "We get more angry emails, or death threats to murder me and my entire family," he says. But not this time. In fact, kudos have been coming in from a tough crowd: fellow shorts. "The Nikola report," Perring says admiringly, is "bulletproof." F

SINGLE-USE SUSTAINABILITY

How recyclable plastics can help protect human health—and the planet.

BEFORE THE PANDEMIC HIT in 2020, consumers were moving away from single-use plastics. Reusable beverage containers and canvas shopping bags were becoming commonplace. But COVID-19 and hygiene concerns have reminded us that plastic disposables and packaging can still play an important role in our everyday lives—especially if they're made from recyclable materials.

Food items that used to be sold loose are now individually wrapped. Takeout orders come with labels vouching for their tamper-proof preparation. But where all the extra packaging and labeling comes from—and where it ends up—could determine whether a company reaches its environmental goals. Using recycled plastic could make all the difference.

With that in mind, Avery Dennison, a Glendale, Calif.–based public company with $7 billion in sales, makes its pressure-sensitive labeling materials from components that are easily separated into pure streams of recycled raw material.

"The most important thing is that the packaging doesn't end up in the landfill," says Jeroen Diderich, vice president and general manager of Avery Dennison's label and graphic materials division in North America.

But recycling also requires infrastructure. That's why Avery Dennison is spearheading a consortium of suppliers and customers that's making it easier for brands to choose sustainable materials. It's also investing $5 million in RoadRunner Recycling, which is launching a program to help label makers achieve their zero-waste goals.

"We're not only focusing on providing solutions ourselves, but we're also reaching out and providing collaboration with other players in the ecosystem," Diderich says.

As the pandemic continues to change nearly every industry, plastics are proving they still have a place—just not in the landfill. ■

WHY IOWA IS POISED TO BECOME THE NEW INSURANCE CAPITAL OF THE NATION

A pro-business environment is driving a statewide expansion of the insurance and financial services industries.

IOWA IS WELL-KNOWN FOR ITS ABUNDANT CORNFIELDS, strong work ethic, and spirited caucuses that launch the presidential primary process every four years. But in the last five years, the state has also experienced a boom in its business sector—boasting GDP growth of 45% in the insurance and financial services sectors alone. By attracting some of the largest companies in those industries, Iowa has cemented itself as one of the nation's top insurance and finance hubs.

"Iowa offers a pro-business environment where innovation and growth aren't only encouraged, they're incentivized," says Michael Gould, manager of business development, Iowa Economic Development Authority (IEDA).

One clear incentive is the state's insurance premium tax rate—at just 1%, it's one of the lowest in the country. Additionally, state leaders have enacted policies and programming that help finance and insurance companies hire, train, and employ more skilled workers. For example, Iowa public colleges and universities offer 24 bachelor's degree programs in accounting and 21 bachelor's degree programs in finance, as well as three of the top 25 actuarial science degree programs in the country, which create a rich pipeline for the state's insurance firms and financial institutions.

Nurturing Innovation

Thanks to the state's forward-thinking vision for the insurance industry, it's no surprise that Iowa is the birthplace of numerous advancements in insurtech. Several of these advancements trace their origins back to Iowa's Global Insurance Accelerator (GIA), the world's first business accelerator specifically geared toward insurance technology. Founded in 2015, GIA is a mentor-driven program designed to foster innovation by connecting well-established insurance companies with startups that are driving the future of the global insurance industry. During the 100-day immersive experience, early-stage startups can glean insights about the industry from executives to whom they may not have otherwise had access. In turn, executives are able to see firsthand emerging technologies that could advance the field.

Safeguarding Interests

But it's not just about insurance and finance in Iowa. State agencies have also been particularly helpful in the midst of COVID-19, going the extra mile to support impacted businesses through relief grants, tax deferrals, assistance with access to federal resources, and workforce development initiatives. Thanks to these targeted efforts, Iowa has seen minimal business closures, despite the national and global challenges created by the pandemic.

"Iowa's diverse economy provides the ideal climate for business growth and innovation," says Gould. "Our nationally recognized research centers and low cost of doing business give companies operating in the state a huge competitive edge."

And as businesses reopen and rethink what's next, there's no doubt many of them will have their eye on the Hawkeye State. ■


You could say we're experts in the field(s).
We may be known for our farms and fields, but Iowa is world-renowned for other fields, too. In fact, Greater Des Moines (DSM) consistently ranks as one of the nation's premier destinations for business with key industries including insurance and financial services, agribusiness, advanced manufacturing, data centers, logistics and technology. Centrally located in the heart of the state, DSM offers a unique blend of accessibility and affordability which has attracted industry leaders such as Kemin Industries, Inc., Corteva Agriscience™ and nearly 80 insurance company headquarter locations.
With a cost of doing business 16% below the national average (Moody's Analytics, 2020), if your company is ready to expand operations, this must be the place.
Learn more at growDSMUSA.com.
IOWA economic development
GREATER DES MOINES PARTNERSHIP

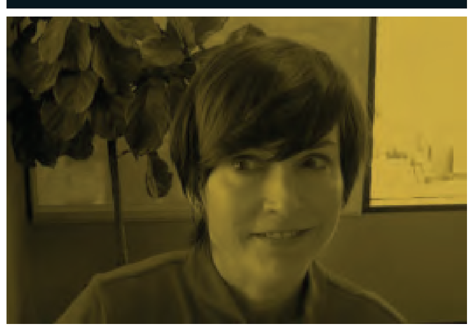
INVESTOR R

MALLUN YEN
• **Operator Collective**

"Direct listing isn't right for every company, but I love the trend of investor democratization."

SARAH KETTERER
• **Causeway Capital**

"We're at a very exuberant part of the market cycle. And what happens after that?"



THE SMART MONEY PLOTS ITS NEXT MOVE

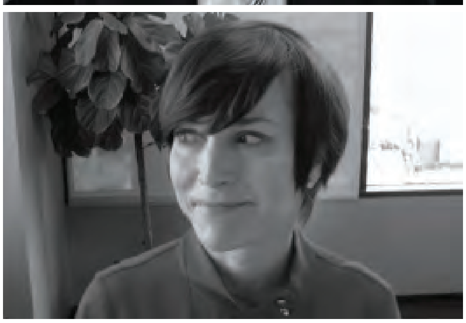
The pandemic has done less damage to the stock market than most investors feared.

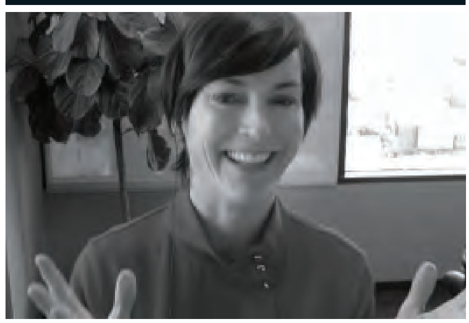
Moderated by MATT HEIMER

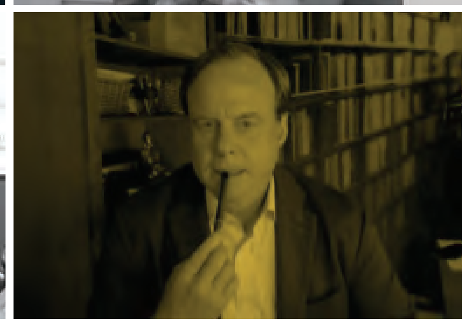
OUNDTABLE

JOSH BROWN
• **Ritholtz Wealth Management**

"It's stocks that can go up long term versus stocks that only go up in fits and starts."





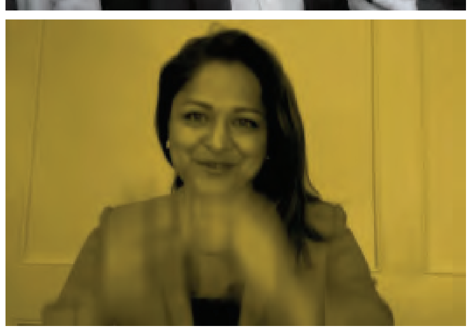


DAVID EISWERT
• **T. Rowe Price Global Stock Fund**

"You have to suffer on the path in the near term, so that you make money over the next two or three years."

SAVITA SUBRAMANIAN
• **Bank of America Merrill Lynch**

"An old-school buy-and-hold mentality might be the biggest opportunity to make money."



And our panel of experts still sees plenty of hidden opportunities.

Savita Subramanian
• Bank of America Merrill Lynch

GRIM NEWS about a resurgent pandemic on one hand, exuberant stock markets on the other. That was the paradox confronting the members of our annual investor roundtable when we gathered to talk about 2021. Fresh hopes about the arrival of a COVID vaccine, of course, were the updraft lifting those soaring stocks. Our panelists shared the optimism, though they had sharply contrasting ideas about how to play a post-coronavirus recovery. (Bet on beaten-up blue chips, or stick with young disrupters? Old-school banks, or fintech?) They shared the concern that stocks could lose their luster quickly if a return to economic normal led to rising interest rates. And they agreed on one other interesting point: Diversity in management and enlightened treatment of employees were good things for shareholders too.

This year's panel included Savita Subramanian, head of U.S. equity and quantitative strategy and head of global ESG research at Bank of America Merrill Lynch; Josh Brown, CEO of Ritholtz Wealth Management and author of *How I Invest My Money*; David Eiswert, head of the top-performing T. Rowe Price Global Stock Fund; Sarah Ketterer, CEO and fundamental portfolio manager of Causeway Capital; and Mallun Yen, founder and general partner of early stage venture capital firm Operator Collective. What follows are edited excerpts from our discussion; read more at Fortune.com.

***FORTUNE:* Investors are absorbing two big pieces of potential good news—U.S. election results that look positive for business, and major progress on COVID vaccines. How might those factors play out in 2021? Should investors be looking at beaten-up "value" sectors like banks and industrials?**

DAVID EISWERT: I don't think it's quite as simple as value and growth, because the virus has caused this situation of extremes. You can buy growth companies today that have extremely negative business fundamentals. **Mastercard** is going to be a great stock in the next couple years. (See "The Conversation" in this issue.) But Mastercard lost all its cross-border business to COVID, so the stock has struggled at times this year.

***FORTUNE:* Speaking of borders, U.S. markets performed far better than most foreign markets through the pandemic. Are there international stocks that investors should pivot to?**

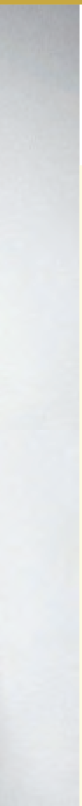
JOSH BROWN: What I think will be different 10 years from now is that we'll stop talking about stocks based on what country they're in. Investors are going to harness new technology to build globally diversified portfolios, weighted toward sectors where there are strong reasons to be invested.

Same with growth and value. I've watched energy go from 18% of the S&P in the mid-aughts to under 1% now. I'm sure it can mean-revert and go back to being 3% or 4%. But it's not going back to 18%. Our grandkids are not going to be in vehicles powered by dinosaur bones. Value right now is basically energy stocks and banks. And banks are another area where there is no secular growth anymore: Once **PayPal** got into the room, and **Rocket Mortgage** and **Lemonade** and **Root** and all of these new disrupters? So we are trying to reorient investors' minds around the concept: It's not U.S. versus rest of world or value versus

SARAH KETTERER • CAUSEWAY CAPITAL

"We've had $10 trillion, globally, of fiscal and monetary support from central banks. We haven't even seen the full impact yet."

SUBRAMANIAN & BROWN: REED YOUNG



Josh Brown
• **Ritholtz Wealth Management**

Sarah Ketterer
• **Causeway Capital**

growth, it's stocks that can go up long term versus stocks that only go up in fits and starts.

SAVITA SUBRAMANIAN: The idea that we'll see sectors rather than regions is interesting, but I don't know if now is the time. For multinationals, what's happening is they're forming little ecosystems. And there are big divides between countries today from a values and governance framework. The U.S. and Europe may have a more similar value structure, whereas China's framework, political backdrop, and governance structure is very dissimilar. Another issue that we need to think about is just the role of China in U.S. companies' manufacturing.

EISWERT: One of the things that helped U.S. markets get through COVID is that the United States has a global reserve currency and a printing press. So you've got great opportunities, still, to buy franchise companies in emerging markets, where the currency got destroyed. There's a great story of growth in Indian banks. You could have bought **HDFC Bank** a few months ago for one-and-a-half times book value, which is an amazing valuation for a company that grows its earnings 10% a year.

***FORTUNE:* There was a major acceleration of technological adoption in so many industries during the pandemic. Will that momentum continue?**

MALLUN YEN: The digitization of work was always inevitable. What we've seen with the pandemic is that what might have taken decades to roll out, it's forced widespread adoption immediately.

We're also seeing a new generation of founders who came from, for instance, the Googles and the LinkedIns and the Twitters and the Salesforces of the world, who then go on to these companies that were trying to disrupt those old-school industries—and who now are going beyond that with their own startups. Let me give you an example, which is a company in insurance tech called AgentSync. They do something very boring, which is licensing of insurance agents. But the founders came from LinkedIn, and then went on to Zenefits, in the case of the CEO, and the CTO went to Dropbox and Stripe. They saw a problem with respect to licensing compliance when they were at Zenefits, which is what AgentSync is focused on. And while they are not people who've been in insurance all of their lives—they bring with them the

PICKS FROM THE EXPERTS*

Mastercard
(MA, $335)

PayPal
(PYPL, $192)

Rocket Companies
(RKT, $23)

Lemonade
(LMND, $65)

Root
(ROOT, $20)

HDFC Bank
(HDB, $69)

UniCredit
(MI: UCG, $10)

*STOCKS APPEAR IN THE ORDER MENTIONED. PRICES AS OF 11/16/20.

KETTERER: ROBYN TWOMEY—REDUX PICTURES

LinkedIn experience, as well as Dropbox and Stripe—all that experience from enterprise tech. And so that's going to enable them to accelerate some of the changes faster than you would see otherwise.

SARAH KETTERER: Before banks get too maligned: From a value perspective, they became so cheap. Valuations of European banks fell through October lower than they were in the global financial crisis, even though they have much more capital now. And if a really good bank has big franchises in faster-growing countries in Central and Eastern Europe, like **UniCredit** in Italy does, it's worth looking at. UniCredit trades at 40% of tangible book value, less goodwill, and it should trade at 80%. That, in my simple math, is a double, and I'll take that any day.

***FORTUNE:* We've been talking about the pandemic as a win for tech. But not all technology is COVID-proof. If you're running, say, an online travel business, your stock is struggling.**

EISWERT: We're shareholders in **Trainline.** They basically run the app for electronic ticketing for the U.K. and continental Europe. They've had a disaster of a year. But they're only gaining share. And as train ticketing comes back, there's not going to be any paper tickets. It's a long-term growth story—they just happen to be on the wrong side of COVID.

SUBRAMANIAN: The interest rate backdrop is so low right now that it seems like you need to be in really long-duration growth stocks, especially in tech. Those stocks have looked amazingly attractive because the cost of capital has fallen to very low levels. But if you use an interest-rate-sensitive valuation model, growth stocks now look more expensive than value companies.

EISWERT: There's also a big difference within tech. Apple and Microsoft trade at very high valuations. Amazon, I think, is experiencing extremely positive fundamentals which are not sustainable. And on the other hand, I actually think **Google** has been hurt by COVID. So Google's valuation looks attractive. **Facebook** actually looks attractive.

PICKS FROM THE EXPERTS

Trainline
(LON: TRN, $6)

Alphabet
(GOOGL, $1,774)

Facebook
(FB, $279)

Airbus
(PA: AIR, $107)

Sabre
(SABR, $10)

Amadeus
(MC: AMS, $69)

DraftKings
(DKNG, $43)

PRICES AS OF 11/16/20

315%

PRICE PREMIUM OF GROWTH STOCKS OVER VALUE STOCKS
in the MSCI World Index at the end of the third quarter—a gap that suggests value stocks are due to rebound.

KETTERER: The stocks in the absolute epicenter of pain of the big wipeout, so many of them are in travel, hospitality, aerospace, and aviation. But wow, what you can find there. Who would have imagined that you could buy **Airbus** at 12 times earnings—a company in a duopoly. Or in travel, **Sabre** or **Amadeus,** its Spanish-listed competitor. They're all about travel volume, and when it picks up, that's when they generate fees.

***FORTUNE:* DoorDash and Airbnb and other later-stage startups are expected to IPO soon. They have so much more momentum now than we would have imagined eight months ago.**

YEN: At the beginning of the pandemic, everyone thought, Oh, gosh, Airbnb was on its way to going public, and then the travel and hospitality industry was seemingly decimated. Silver Lake was quite prescient, stepping in there at a very reasonable valuation. And now Airbnb is booming.

On the private venture capital side, valuations are kind of crazy. So while a lot of companies are in preparation to file, more and more are looking at alternative ways of getting financing. There's been a lot of discussion about direct listings and SPACs [special purpose acquisition companies, which raise cash to buy privately held startups and take them public]. That's not the right alternative for every company, but I love the trend of investor democratization. The openness to doing things not just the traditional way, I think, is ultimately going to benefit the broader economy.

BROWN: But it's not always better. Let's look

Mallun Yen
• **Operator Collective**

at direct listing: Slack went public that way. Not great for shareholders who came in in the aftermarket, and not just because the stock hasn't performed well. There's no lockup for insiders. Executives are free to sell, and they're not under any pressure whatsoever to deliver results. Whereas if you come public in the traditional way, the insiders are locked up for six months, nine months.

With SPACs, I get it: The IPO road show is arduous; you can't do it in COVID times. This is a really efficient way to match an investor with a company. But that's the thing: It's one investor, the SPAC, deciding this is the right price for this company. There is no vetting process. And what we've seen with Nikola and others, like MultiPlan, is that oftentimes, these companies would have benefited from having more vetting on a traditional road show. They would never have gotten the valuations they got, and people wouldn't have lost billions of dollars.

EISWERT: I can't even keep track of them. We have 150 analysts, and I still don't even know what's going on. You can't do the kind of due diligence that you want to do.

***FORTUNE:* Of SPACs that have taken a company public, are there any that seem like models for doing it right?**

BROWN: **DraftKings** looks good. I like everything about the way they did that. And it was early.

YEN: There are very strong companies that could have done this if they wanted to, but they didn't—**Snowflake**, for example. As with everything, there's a 1.0 model, and the ones that aren't as strong are going to fall by the wayside.

KETTERER: I'm going to add that the proliferation of SPACs, plus the record level of loss-making IPOs, tell us something, which is, we're at a very exuberant part of the market cycle. And what happens after that?

***FORTUNE:* The pandemic drew attention to the way companies conducted themselves as corporate citizens. Are investors starting to pay a premium for better behavior?**

SUBRAMANIAN: From February to March, in the fastest bear market we've ever had, it was fascinating to see the differentiation of stocks based on some social factors. For example, within sectors, companies with happy employees dramatically outperformed companies with unhappy employees. We also found that companies' policies around leave were a very important differentiator of returns. We're all used to thinking about governance risks and financial risks as the big drivers during downturns. But we actually saw these more employee-geared or community-geared factors driving a lot of the returns during that quick but very severe bear market.

BROWN: From that severest point through October, sustainable funds and ESG funds took in $30.5 billion in new flows. By the summer, we had taken in more in that category than in all of 2019. And that 2019 number was four times the previous year. A lot of old-school portfolio managers scoff at it. Like, who cares how a company treats its employees? When you talk to investors in their twenties and thirties, they care so much.

SAVITA SUBRAMANIAN • BANK OF AMERICA MERRILL LYNCH

“ **If you're in an innovative sector and your employees are unhappy, they're going to go to a competitor, and you're going to lose your advantage."**

MATTHEW SPROUT—COURTESY ARGENT

SUBRAMANIAN: And it goes beyond what millennials want. If you're in an innovative sector that is labor-intensive and your employees are unhappy, they're going to go to a competitor, and you're going to lose your advantage.

What's also interesting with ESG is that there are opportunities to buy "bad" stocks that have material aspects of their business model aligned with ethical considerations. Energy has been essentially purged from portfolios because of its dirtiness. But if you look at some of these electric-vehicle companies, they use batteries—and mining for the metals that go into batteries is a very dirty business. Whereas some energy stocks could do really well from here on ESG measures because they've established carbon neutrality goals.

BROWN: We're gonna get a live test of that, Savita, because Exxon Mobil basically said, "We don't care about ESG at all." And **Royal Dutch Shell** said, "By 2050, we won't have any oil for sale." So we'll see how those two companies fare in the next 10 years.

EISWERT: I do think there's a sense that people are more aware today than they were three years ago about social injustice. And I know at T. Rowe Price, we strive to be a leader here. In an industry that's been dominated by white men as ours has been, the question is, how much talent are we leaving on the table? We want to do things in the interest of our clients, and that means unlocking talent from diverse areas. That's an alpha-generating issue, right?

***FORTUNE:* I'd be remiss if I didn't point out that Mallun's fund, Operator Collective, operates on that principle.**

YEN: At startups it's very easy to hire people who are just like you. So we're trying to get to those companies early to hire outside the dominant homogenous group. We invest in founders from all backgrounds, all genders. But because our investor base is 90% women, 40% people of color, when we invest, we are naturally mentoring, helping, and bringing board members and executives from those backgrounds into that ecosystem.

EISWERT: There are just great examples of that this year. Lisa Su at **AMD** is an amazing leader. She basically is the Intel slayer. It is incredible what she did building that company. Kristin Peck at **Zoetis** is another great leader. They're showing by example that they can deliver value.

David Eiswert
• **T. Rowe Price Global Stock Fund**

COURTESY OF T. ROWE PRICE

KETTERER: Or **UPS**! [Carol Tomé is CEO.]

BROWN: Sonia Syngal at **Gap** was handed the reins, basically, the day the pandemic started. They were going to spin Old Navy off and have her be the CEO. In March, they said, "Forget it, no spinoff; we're in trouble. You're the CEO of Gap now." And look at the stock chart since then. And I don't think an elderly white male CEO could do what she now has to do, which is slay Lululemon.

***FORTUNE:* Where do you see the greatest opportunities and biggest risks in the year ahead?**

KETTERER: So many companies have been using the pandemic to cut costs and increase operating leverage, and many of them will likely generate higher profit margins than they did pre-pandemic. But the catalyst behind all this is not just vaccines and therapies and testing. We've had $10 trillion, globally, of monetary and fiscal support from central

JOSH BROWN • RITHOLTZ WEALTH MANAGEMENT

"Here's the problem: We'll have another recession. And the pressure will be on policymakers to simply repeat what we just did."

$1.2 TRILLION

ASSETS IN SUSTAINABLE MUTUAL FUNDS AND ETFS
at the end of the third quarter, according to Morningstar. Sustainable funds stayed hot even during the worst weeks of the pandemic bear market.

banks. This typically hits economies with a one- to two-year lag, so we haven't even seen the full impact yet. It's the materials stocks, the consumer discretionary, the financials, industrials, that will come roaring out of this.

The risk that worries us the most is U.S.-China relations. We just opened a Shanghai office, and I want to make sure that there's free movement of ideas, of knowledge. There's so much we can learn from private sector companies in China and vice versa. If that's cut off, and we balkanize, the world is worse for it.

EISWERT: We now know there's gonna be multiple vaccines. We're gonna beat COVID. I feel pretty confident about that on a 12-month, 18-month basis. That's the destination. But the path is rocky. You have to suffer on the path in the near term, so that you make money over the next two, three years. I think social unrest is a big risk. I don't understand our country right now. I don't understand beliefs that people have, and how opposed they are. I think it makes us vulnerable. And I worry about interest rates. Right now we live in zero-interest-rate land. Housing prices are off the hook—what was the 30-year mortgage, recently, 2.8%? When that goes away, all asset prices are going to go down. Do we have an economy that can sustain growth with a 10-year Treasury at 3%? Because that's going to cause pain.

YEN: So, 1.1 million workers dropped out of the labor force in September, and 80% of those were women. And the reasons include the fact that a lot of the supports that we have in place for working parents, like traditional childcare and traditional school, went away. How do we make sure that the workforce that we've worked so hard to get onto equal footing is not wiped out, so that you can have the Sonia Syngals and Lisa Sus

THREE THINGS TO GET EXCITED ABOUT, AND THREE TO WORRY ABOUT

GET EXCITED ABOUT

NON-U.S. STOCKS

Stocks in emerging markets and Europe are 20% to 30% cheaper than U.S. stocks in relation to their earnings, giving them more upside when the economy improves.

FINANCE, OLD OR NEW

Financial stocks look well positioned to soar as COVID-19 eases; ironically, so do the fintech stocks looking to steal their market share.

YOUNGER INVESTORS

Their desire to invest in and work for socially responsible companies is changing corporate priorities—and influencing share prices.

WORRY ABOUT

INTEREST RATES

Central banks have kept rates low during the pandemic. If rates inch back toward normal as the economy improves, prices of stocks and real estate could tumble.

U.S.-CHINA TENSION

Trade wars and fights over intellectual property could escalate, harming multinationals that depend on global supply chains.

WORKING PARENTS

School and childcare closures have driven millions of women out of the workforce, with unforeseeable economic consequences.

2.8%

AVERAGE RATE ON A 30-YEAR FIXED MORTGAGE
for the week ended Nov. 5—an all-time low. Some investors fear that stock and other asset prices will slump if interest rates eventually rise.

in the next generation?

It's very hard for working parents, single working moms, to fit into the rigid corporate structure of having to commute in, having to work from eight to five. So I'm very encouraged that people have now gotten used to the fact that, hey, you don't have to fit into that rigid, traditional corporate construct. We can work a little bit more flexibly.

SUBRAMANIAN: The S&P 500 in particular, which we all watch as a barometer, has started acting really weird in terms of price swings. We're seeing eight-standard-deviation events happen every other day—these are supposed to happen every hundred years. And maybe this is because of the democratization of the market, which is good—but it also means you have the ability to express a bet very quickly, and roil the market.

But there's an opportunity there, too. For the S&P 500, if you're buying and selling the market on a one-day basis, your chance of making money is a little bit better than a coin flip. But if you extend that time horizon to 10 years, your probability of losing money is less than 5%. So thinking about the market from an old-school buying-and-holding mentality, and not trading as aggressively, might be the biggest opportunity to make money.

BROWN: I'll give you one very big risk. What the Fed did this year was probably essential. But it may have set a really bad precedent. Normally, in a recession of the magnitude that we've had, we would have already been in the midst of a wave of corporate bankruptcies. And in fact, there are almost no bankruptcies. And we did that, of course, so that companies would keep their workers and the wheels wouldn't fall off. But we had a recession without having a recession. And I don't think that we have fully mentally processed that.

And here's the problem: We'll have another recession. It might be in three years, it might be in 12 years, I don't know. But the pressure on policymakers will be to simply repeat what we just did. And people will say, "Last time you just gave everybody money. Why wouldn't you do it this time?" "Well, that was a pandemic." "Oh, well, this time it's an alien invasion. I feel like that's just as bad. Pull the trigger." It's insanity, but Whirlpool just sold more bathtubs in a recession than in an expansion. Or look at GM's earnings. It's bananas. How are we going to avoid doing this again? And here's the thing: Every time we do it, more debt goes up. We've always been in this trap. But now we're really in it.

Here's an opportunity that's profound. Direct indexing [buying diversified portfolios of many individual stocks, rather than index funds or ETFs] is going to change our industry in massive, fundamental ways. We began migrating ETF-only households over to direct indexing. And I cannot tell you the degree of client satisfaction, performance improvement, tax-loss harvesting, the ability to remove companies that aren't highly ranked on gender equality, to remove gun manufacturers, pull out of oil companies that aren't trying to improve their environmental impact, etc.

All of the new wealth in the United States is now being generated in Silicon Valley. The new people with high net worth, they look and feel and speak and act and think way differently than the boomer generation. But what they all have in common is they come to wealth managers like me with $10 million net worth, and $8 million of it is in Facebook stock. And I can't say to that person, "Let's buy [a Nasdaq ETF]," because all I'm doing is upping their concentration risk in Facebook stock. Ditto for Apple, Salesforce, Google, Microsoft. So direct indexing is allowing us to give them the Nasdaq minus Facebook, or minus web advertising companies.

Every major asset manager is thinking this way, because they know that the ETF is now a 1990s technology in the 2020s world.

FORTUNE: **Thank you all for giving us so much to think about.**

PICKS FROM THE EXPERTS

Snowflake
(SNOW, $242)

Royal Dutch Shell
(RDS.A, $33)

AMD
(AMD, $84)

Zoetis
(ZTS, $165)

UPS
(UPS, $168)

Gap
(GPS, $24)

PRICES AS OF 11/16/20


THE AMERICAN SPIRIT
STIHL

IT'S TAKING CARE OF WHAT'S YOURS


STIHL
STIHL

IT'S TRYING A NEW APPROACH


STIHL
STIHL

IT'S CLEARING THE WAY

IT'S TAKING PRIDE IN THE WORK


STIHL

IT'S HELPING OTHERS


Protection for the Heat of the Battle™
FD
FIRE-DEX
STIHL

IT'S GETTING THE JOB DONE


STIHL
STIHL

IT'S SERVING COMMUNITIES


STIHL

A Bike Company That Puts Its Employees at the Handlebars

How **Trek Bicycle** creates happy employees who never want to leave.

THE TEAM FROM TREK BICYCLE STUYVESANT TOWN, NEW YORK CITY (L TO R: ERIK ALVAREZ, EDWARD HOGAN, SIMPLEE GITTENS)

TREK BIKES ARE ICONIC. They've been ridden all over the world—on mountainsides and city streets, in small towns and in big races like the Tour de France. The road to success started back in 1976, when Dick Burke founded Trek Bicycle in Waterloo, Wis. The company went from building bikes in a barn to building a billion-dollar business. Dick's son, John Burke, who is now the president of Trek, credits the company's global success to creating a great atmosphere for employees, which has helped land Trek Bicycle on *Fortune*'s 2020 Best Workplaces in Retail list.

"Our attrition rates are insanely low," says Chad Brown, Trek's chief financial officer and vice president of retail. Part of that, he says, is due to competitive pay and great benefits, which include medical, vision, dental, and 100% paid maternity leave. But Brown says it goes beyond the material incentives: "Culture is our greatest asset."

Trek maps this out in its "10 Non-Negotiables of Trek Culture," which are distributed in a bound book to every employee. The list embodies the company's shared set of attitudes, values, and goals that define what Trek is and how it does what it does. For example, number one is "have good energy," because "energy is contagious, whether it's positive or negative." Seventh on the list is "deal with reality," an approach that speaks to corporate transparency and communication, and sharing all news, whether it's good or bad.

"It's a combination of speaking frequently with all employees and inviting people to behave like a family in how we communicate," says Mark Joslyn, vice president of human resources and IT at Trek.

The word "family" is used a lot at Trek to describe its culture. One of the challenges of being a family-owned company is making employees who aren't related to the Burkes feel like an important part of the business. That's why Trek created its Employee Stock Ownership Plan: It means the company is technically family- and employee-owned. The plan enables employees to be part of the company's financial success. This drives accountability, and it drives the culture. "We have a saying at Trek," says Brown. "It's: 'The right people in the right seats on an awesome bus.'" ■

FEMALE FOUNDERS UNDER FIRE

IT'S HOT IN THE SPOTLIGHT

The ranks of powerful women who have been forced out of the companies they created continue to grow. Now some in the startup world are asking: Are female founders being unfairly targeted?

By **MARIA ASPAN**

LAST FALL, Audrey Gelman seemed to be on top of the business world—or at least one pale-pink corner of it. At 32 years old, the former political operative and well-connected New Yorker had raised more than $117 million in venture capital for the Wing, the upscale women's club and coworking startup she had cofounded in 2016. Women from Los Angeles to London flocked to the Wing's pastel-painted offices and star-studded events, where movie stars and presidential candidates alike talked about "asking for what you want" and "blazing your own trail."

By September 2019, Gelman was celebrating her professional and personal triumphs by appearing, eight months pregnant and unquestionably powerful, on the cover of an issue of *Inc.* magazine devoted to female startup founders. "My hope is that women see this and feel the confidence to take greater professional risks, while also not shelving their dreams of becoming a mother and starting a family," she told the *Today* show on the morning that the cover was released.

Then it started to crumble. Some Black customers were already sharing on social media and in the press the discomfort they sometimes felt at the Wing and its "majority-white" space. And in March, *The New York Times Magazine* published a long feature about what employees called the Wing's "toxic culture," including complaints about pay and scheduling for hourly workers and Wing managers' poor handling of incidents, such as one in which a customer referred to Black and brown employees as "colored girls." Then, as COVID-19 shut down the Wing's physical locations and threw its business future into question, George Floyd's killing by Minneapolis police sparked a national reckoning over racism—amplifying the voices of women who said the Wing had failed to live up to its feminist rhetoric of sisterhood for all. Current and former workers, including many laid off amid the pandemic, protested the company's attempted response to the Black Lives Matter movement and Gelman's leadership.

ILLUSTRATION BY **JOAN WONG**

ORIGINAL IMAGES, GELMAN: JEAN BAPTISTE LACROIX—WIREIMAGE/GETTY IMAGES; KOREY: DIA DIPASUPIL—GETTY IMAGES; HANEY: NICHOLAS HUNT—GETTY IMAGES

By mid-June, amid mounting pressure and scrutiny, Gelman stepped down as CEO. "Ultimately the prioritization of growth over culture came at the expense of women of color feeling empowered," she later wrote on Instagram. "I didn't live up to the values I set."

Gelman's fall from grace was dramatic—but not singular. Amid employee allegations of mismanagement or mistreatment—often amplified by the press—each of these founders has stepped down or been forced out of her company in the past 18 months: Tyler Haney of activewear startup Outdoor Voices; Steph Korey of luggage company Away; Christene Barberich of women's digital publication Refinery29; Yael Aflalo of dressmaker Reformation; Jen Gotch of retailer Ban.do; Shannon Spanhake of workplace-benefits platform Cleo; and Nancy Lublin of mental-health platform Crisis Text Line.

While each ouster has its own twists and turns, there's a lot that unites these companies and founders. All are fast-growing startups that emphasized feminist or socially driven missions. All have venture capital backing or have been sold to private owners. Most provide consumer-facing products. The vast majority were started by young, wealthy, white, or Asian founders who had become the celebrity faces of their businesses. And—some would argue, most crucially—all were founded by women.

To many in Silicon Valley, the toppling of so many of the industry's most prominent female founders signals something much

▼

TAKING WING

The Wing cofounder and former CEO Audrey Gelman (left) and cofounder Lauren Kassan (right), with actress and producer Kerry Washington at the Wing's SoHo location in New York City in December 2018.

2.6%

SHARE OF TOTAL VC DOLLARS GOING TO COMPANIES WITH ALL-FEMALE FOUNDING TEAMS

Startups led by Black women receive just 0.1% of all venture funding.

bigger and more disconcerting than the usual game of startup musical chairs. "There are very few women leaders who rise to the level where they get press and attention, and at some point, they're all disappearing," says Sara Mauskopf, the cofounder and CEO of Winnie, a San Francisco-based childcare platform that has raised $15.5 million. Throw in a slew of other female founders who remain atop their companies but who have faced pointed scrutiny of their management styles and cultures—including the CEOs of skin care startup Glossier, retailer Rent the Runway, dating app Bumble, and lingerie company ThirdLove—and it's hard not to wonder, as Mauskopf does: "What the heck is going on? And why is this only happening to women?"

TO UNDERSTAND the alarm expressed by Mauskopf and many of the 24 other founders, investors, executives, and startup employees who spoke to *Fortune* for this story, it helps to start with a big-picture view of the state of women-led startups. Female founders have a track record of success—one 2018 BCG study found that women-owned businesses earn twice as much revenue per dollar invested as male-owned businesses do—but the overwhelming majority of investors shun them. Women-only founding teams received only 2.6% of all venture capital invested in startups in 2019, with Black women historically receiving less than 0.1%. Women who do get funding raise about a third of the amount that men do, on average, and are less likely to raise subsequent rounds. They also retain less equity in their companies, thus ceding more control to the investors who have the power to fire or protect them.

Female founder-CEOs run only 4% of the "unicorn" startups valued at more than $1 billion, according to Crunchbase. Which means that, proportionally, these successful venture-backed female founders are even more rare than female *Fortune* 500 CEOs, who currently run 7.4% of the country's largest companies.

The pandemic, which has created an economic catastrophe for women writ large, has made this challenging situation still more difficult. In October, data firm PitchBook reported that VC funding for companies founded by women dropped to $434 million in the third quarter, its lowest level in three years—and about 1% of the $37.8 billion invested in all startups during the same period.

Investors and entrepreneurs say the current global uncertainty has reinforced the insular, pattern-matching nature of venture capital, in which 88% of those making investing decisions are male and male-founded companies are seen as the default "safe" bet. "In a time of stress, there are people who are just falling back to pattern recognition and their standard operating behavior" of investing in male founders, says Pam Kostka, a veteran Silicon Valley executive who now runs All Raise, a nonprofit devoted to female VCs and founders.

These trends, married with the cascade of high-profile founder ousters, are fueling a growing debate among startup industry insiders over whether female founders are facing a backlash—one that makes them more subject to public scrutiny and, ultimately, more likely to be forced out of their companies than their male counterparts.

"There's absolutely a double standard for women," says Alex West Steinman, the cofounder and CEO of the Coven, a Minneapolis-based women's coworking startup. "We do walk around with a target on our backs, and people are looking for us to fail." There's copious social science research—and widespread real-world experience—that agrees. Women in the business world face what's been dubbed the "double bind," which penalizes them for "unfeminine" behaviors that are expected and often applauded in male leaders. One 2007 study by New York University researchers found that when two managers were described using identical personality traits but different genders, "women are decidedly more disliked" and "are found to be less desirable as bosses." Where male leaders are seen as strong, determined, and decisive, women who behave the same way are judged to be aggressive, abrasive, or strident.

Still, not everyone sees a gender backlash at startups. "Being a founder is so hard, but the playing field felt relatively fair," says Alexa von Tobel, who at age 31 sold her financial planning startup,

SARA MAUSKOPF • COFOUNDER AND CEO, WINNIE

> **"What the heck is going on? And why is this only happening to women?"**

DOLLY FAIBYSHEV—REDUX PICTURES

LearnVest, to Northwestern Mutual and who now runs her own early stage venture capital firm, Inspired Capital. Naysayers dispute the idea that, as Mauskopf put it, such falls from grace "happen only to women," pointing to the high-profile exits of WeWork cofounder Adam Neumann and Uber cofounder Travis Kalanick, and the more recent departure of Nikola founder Trevor Milton. Meanwhile, employees have complained this year in the press, on social media, and in a couple of lawsuits about the leadership of and workplace cultures created by the male founder-CEOs of companies including Pinterest, Everlane, and Carta (all of whom have, at least thus far, retained their jobs).

"Culture is top of mind for anybody interviewing now," says Jennifer Fitzgerald, the cofounder and CEO of Policygenius, whose insurance company has raised more than $162 million from private investors. She argues that when workers criticize CEOs on social media or in the press, it's "less of a gender thing and more that there's just a shorter fuse and a bigger public platform, and a lower tolerance for it among employees."

THE REALITY OF THE SITUATION may—not surprisingly—be a little more nuanced. In many of these cases, it's worth asking whether the female founder in question helped set the very traps she walked into. Outdoor Voices founder Tyler Haney, for example, started her Instagram-friendly activewear company in 2014 and within five years raised more than $60 million. She seems to have been reading from the same playbook as Gelman, sitting for multiple magazine covers, participating in a long 2019 *New Yorker* profile that anointed her the "brand's best model," and announcing her pregnancy that July on *Good Morning America* with her own message of feminist empowerment: "As a young female founder and CEO, it's so cool to show that you don't have to choose career or family."

But in February, while still on maternity leave, Haney revealed she was leaving the company. Soon after came the reports that under her watch, Outdoor Voices had been burning through cash, delaying store openings, and losing seasoned executives. Employees complained, anonymously, to BuzzFeed News that having come to work for a young female founder one called "so inspiring," they instead found Haney presiding over a dysfunctional culture of favoritism.

Haney, who returned to a diminished role at Outdoor Voices, has acknowledged in an interview with *Inc.* that the brand "definitely pulled that [female founder] narrative out when it suited us ... We really leaned into that story to grow this thing, and we became press darlings. But that's all great until it's not, because we also made ourselves targets."

Like Haney and Gelman, many of the female entrepreneurs who have resigned or come under criticism recently founded consumer-oriented brands and became the very public faces of their companies in a way that's more common if you're selling leggings than, say, cloud-based enterprise software. These businesses often "get more press, because they're more relatable to the general reader," says Theresia Gouw, founding partner of Acrew Capital. "That can cut both ways." And while there are certainly women who start hard-tech companies, they are in the minority: Last year, 30% of the VC investments in retail and consumer companies went to startups with at least one female founder, according to data from PitchBook and All Raise. Among tech startups, that share drops to 19%.

The retail/consumer space is a crowded one, so embracing the idea of founder as star and adopting a marketing message that preaches feminist uplift has been one way for women-led startups to cut through the noise. But it also publicly ties female founders to their companies' failings, especially around promises of creating better spaces for underrepresented customers and employees. "It's a very, very difficult territory to walk, to build a unicorn-scale business based on feminism. To be seen as inauthentic around that is dangerous," says Catherine Connors, a serial entrepreneur.

Several entrepreneurs told me that this sort of founder-centric, by-women-for-women marketing is often a mandate from the VCs who invest in startups—forcing founders to choose between pitching their startups as another girly lifestyle business or not getting funding at all. "We're the pink portfolio," Connors says. "The assumption is that we'll use femininity and access to the female customer for the bottom line—and to get to the $1 billion exit."

Mauskopf says that while she and her female cofounder were raising money for their software platform, one potential investor asked why they "weren't out there in the press more" and asked if they could try "to build a brand like TheSkimm"—a media company with little in common with Winnie, aside from its being founded by two women. "We just need people to use Winnie," Mauskopf

30%

SHARE OF VC INVESTMENT IN RETAIL AND CONSUMER STARTUPS WITH A FEMALE FOUNDER

For tech companies, that percentage drops to 19%.

says. "They don't need to care about me or my cofounder."

Which brings us to the tech industry's love/hate relationship with the press. Many in the startup ecosystem blame reporters for building up young, photogenic female founders only to eventually tear them down. And it's true that the rise of these women has been partially enabled by business publications including *Fortune* and by the largely female journalists who cover women in business, including me. (Before joining *Fortune*, I edited the *Inc.* package on female founders tied to Gelman's pregnant cover photo.) It's also our responsibility to report on the failings of these companies—but when a woman is in charge, such reporting often draws accusations of bias or clickbait.

In December 2019, after the Verge reported on intense and "bullying" Slack messages that Away CEO Steph Korey sent to employees late at night and her expectations that they cancel holiday vacations to work, Korey briefly stepped down. This summer she hit back on Instagram: "The incentive isn't to report what's happening. It's to write things that will be shared on social media," she wrote. "Why are women being targeted specifically? Because readers find their takedowns even juicier."

Korey, who in January returned as co-CEO and in October stepped back again, declined to comment. But many startup insiders argue that male leaders get away with similar demanding behavior—or worse—all the time. (See also Elon Musk, *Fortune*'s 2020 Businessperson of the Year.) "The dirty secret is that being in a growth-stage company, it's not for everyone. And a lot of these companies have problematic cultures," says Leslie Feinzaig, founder of the Female Founders Alliance, a startup community.

Instead, the rare women who secure significant VC money—whether they opt to lean in to the idea or not—are inevitably put on what All Raise's Kostka calls "the perfection pedestal," closely scrutinized by media, workers, and investors. With that spotlight comes the visceral fear that they could be next.

"Every time there's a teardown, I get text messages from female founders that are just like, 'What the hell?' And, 'When is it going to be me?'" says Vanessa Larco, a partner at venture capital firm NEA. "It's scary—and it's just not fair."

EVEN SOME OF THE STARTUP employees whose complaints have led to founder resignations acknowledge that they expect more from female founders—in part because the few who do reach the "perfection pedestal" tend to be privileged white women who often promise that their business will be the one to finally provide better opportunities to the Black and brown hourly workers they employ.

"Women are a lot more harshly held accountable. That's part of being a woman in a male-dominated society," says Leslieann Elle Santiago, a former assistant store manager at Reformation who is a Black woman. "But they have a responsibility to create businesses that are not only for white women."

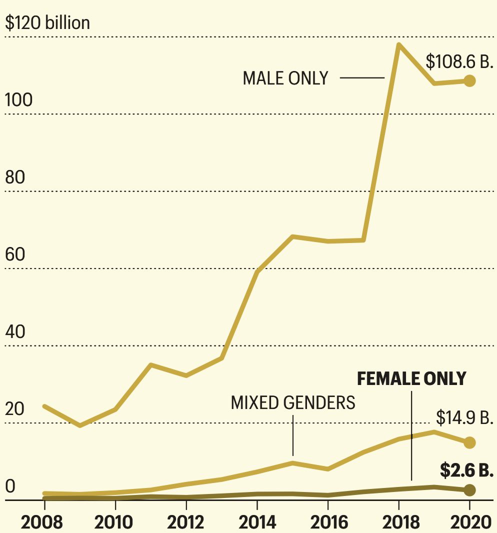
The anti-racist reckoning of 2020 has both accelerated the female founder backlash and provided more of a window into how the gender double standard plays out. Direct comparisons between male- and female-led companies aren't easy to make, but the case of Reformation comes close. Founded by former model Yael Aflalo, the "sustainable fashion" startup is a celebrity favorite that in 2019 claimed it was on track to post more than $150 million in revenue. Last July, Aflalo sold a majority stake to private equity firm Permira Advisers, telling the *New York Times* that her company catered to "a powerful customer who wants to be both brand- and style-conscious but also be a good person."

But in June, after Reformation expressed social media support for Black Lives Matter, Santiago responded fiercely on Instagram, alleging that Aflalo had treated Black employees with "disgust" and denied them professional opportunities, including promotions and travel, that were offered to white Reformation employees. A week later, after Aflalo apologized and said she had "failed all of you," she resigned as CEO. (Reformation says a third-party investigation later cleared Aflalo of being "racist"; she remains on the board.)

FALLING FUNDING

VC dollars invested in companies founded by women dropped to $434 million in the third quarter of 2020, its lowest level in three years.

U.S. VC DEAL FLOW BY FOUNDERS' GENDER



2020 DATA AS OF 11/19/2020

SOURCE: PITCHBOOK

The outcome was a bit different at Everlane, another venture-backed retailer that promises "radical transparency" and that this summer also faced employee allegations that it had allowed anti-Black language and behavior. In June, cofounder and CEO Michael Preysman acknowledged on Instagram that he had "fallen short of addressing issues of institutional racism both inside the company and in how we present ourselves to the world." He remained CEO and, three months later, LVMH-backed private equity giant L Catterton led a new $85 million investment in the company.

Preysman—like Pinterest's Ben Silbermann and Carta's Henry Ward, both of whom have also weathered allegations of discrimination this year—is proof that male founders who rely on marketing that touts their companies' social missions are also vulnerable to damaging charges of hypocrisy. But unlike Aflalo, none faced significant consequences.

"Female founders 100% deserve to be removed from their posts for horrific behavior, but the fact that there are no repercussions for men who are running these companies is crazy," says Ifeoma Ozoma, a former Pinterest public policy manager whose claims of racism have been widely reported. "I can't imagine a situation where a woman in Ben's position would still be there." (A Pinterest spokesperson says the company is conducting an independent review of its culture.)

The two men most often trotted out to refute claims that women founders are more likely to be ousted are former Uber CEO Travis Kalanick and former WeWork CEO Adam Neumann. Both were pushed out of their companies in the midst of reports of bad behavior, but only after months or years of being able to shrug off the allegations—and amid circumstances that went beyond claims of "toxic culture" or employee mistreatment. Kalanick, whose company was the subject of well-chronicled regulatory and customer complaints by 2014, didn't step down as CEO until 2017, months after former employee Susan Fowler's blog post about the company's rampant sexual harassment went viral. At WeWork, a stalled IPO did what internal and external reports of Neumann's hard-partying leadership and fostering of a "frat-boy culture" couldn't, and WeWork's board finally pushed him out in September 2019. (Uber did not respond to a request for comment; WeWork declined to comment.)

The cases of Kalanick and Neumann are a harsh reminder that it takes more than some bad press and a soured public opinion to fire a founder. Ultimately, the most power to purge or protect lies with investors, especially those who make up the company's board of directors. "Boards do have an accountability and a responsibility here," says All Raise's Kostka. "There's just a different standard. When something does happen, it seems like they will allow more evidence and more time for a man."

Further complicating the issue is the question of how much control a founder has managed to retain after selling stakes to investors. Both Kalanick and Neumann maintained controlling stakes in their companies throughout fundraising, from investors willing to grant "founder-friendly" terms that few women say they feel able to ask for. (According to a study last year, the average female founder owns 48¢ in equity for every dollar owned by a male founder.) That means the bias women face while raising money can come back to bite them later by placing them at the mercy of their board.

4%

SHARE OF STARTUPS VALUED AT $1 BILLION OR MORE RUN BY FEMALE FOUNDER-CEOS

That's smaller than the percentage of female CEOs in the *Fortune* 500, which stands at 7.4%.

For many of those watching the female-founder shakeout, the real question is what comes next. Investors have a long history of giving disgraced men—including Kalanick, who has raised more than $700 million for his new venture, CloudKitchens—another shot. But while some of the women who have left their CEO roles in the past 18 months have rejoined their companies in some less influential form, none have yet moved on to their next big thing.

And none would speak on the record, expressing fear and fragility about how closely they now know they're being watched. "This is not just a 'dust off your pants' experience. It's really psychologically scarring," says one founder who was forced to resign from her company.

While this founder wasn't ready to discuss her next move, she, like many of the other women who have spent their careers trying to navigate a system stacked against them, says she's worried about the long-term implications of her public downfall. If women leaders come to be seen as a risky bet for funders, what little money is going their way could dry up. And then there's the effect on would-be entrepreneurs themselves.

"Is watching all of this go down this massive deterrent for women to start companies?" this founder asks. "They're watching all these other women and wondering: 'If that's the price of admission, why do I want to do it?'" ■

Workplace Culture Drives Good Business

"Passion for our People" is more than just a motto at **Wireless Vision**—it guides the company's management practices.

AT WIRELESS VISION, A BLOOMFIELD HILLS, Mich.–based company that operates more than 550 T-Mobile–branded retail stores nationwide, fun is a mandate.

"You should enjoy coming to work," says CEO Saber Ammori, who founded Wireless Vision in 2004 alongside Mark Denha, Omar Ammori, Kevin Denha, and Mike Lakich, and grew it into the largest T-Mobile–exclusive partner in the country. "If you don't put people first, then you won't be successful."

"Our culture is our best asset," says COO Byrne Doyle. Regular team-building events and companywide recognitions, such as an all-expenses-paid trip to a tropical destination for top performers, contribute to the positive company vibe. The company also offers competitive pay and benefits, including a tuition reimbursement program, 401(k) match, and medical, dental, and vision coverage. And once someone is hired, Wireless Vision is a great place to grow. The company boasts a 75% internal promotion rate, thanks to Journey, a development program for women in leadership, and other training experiences, such as Leadership Academy and Level Up Learning Paths, that support ongoing skill development at all levels.

While a big part of the company's strategy is taking care of its employees, Wireless Vision is also invested in giving back to its communities. From shaving heads to support the St. Baldrick's Foundation, which raises funds to find cures for childhood cancer, to an annual backpack drive, which donates thousands of supplies to local schools, Wireless Vision employees regularly show their passion for giving back.

Actively engaging with the community and the company's workforce is a key part of the culture at Wireless Vision. Leadership holds regular listening sessions during which employees across the country can meet with leaders to provide feedback and ask questions. This year, these sessions proved to be a crucial tool in navigating the pandemic, providing corporate with a clear understanding of the challenges the sales teams were facing on the front lines.

The year 2020 has brought unique challenges to the retail space, but it also happens to be the year Wireless Vision celebrated its 16th anniversary—and a year that Yolanda Royall-Williams, VP of people and engagement, feels is a win. "Our employees are saying that we're a great place to work," she says. "So this is the best Sweet 16. When you create a culture that's fun for people, it allows them to deliver their best work." ■

TOP: WIRELESS VISION OWNERS AND FOUNDERS CELEBRATE THE 2017 GRAND OPENING OF THEIR 500TH LOCATION, IN CLARKSON, MICH. **BOTTOM:** IN 2019, WIRELESS VISION DONATED 700 HYGIENE KITS AND $5,000 TO DISABILITY NETWORK WAYNE COUNTY DETROIT IN SUPPORT OF LOCAL VETERANS.

PROGRESS IN THE CIRCULAR ECONOMY

Closed-loop processes that upcycle ink and toner printer cartridges and ocean-bound plastic bottles into new products are **reducing plastic waste** and creating sustainable impact for local communities.

AN ESTIMATED 8 MILLION METRIC TONS OF PLASTIC flow into the ocean every year—on top of the 150 million metric tons already floating around, according to scientific studies by Ocean Conservancy. Eradicating this waste is one of the world's most pressing challenges, and companies in every industry are implementing circular-economy processes that revive "end of life" materials for other purposes.

HP Inc. has pioneered circular models for more than two decades through efforts including HP Planet Partners, a print cartridge recycling program enabled by networks HP built around the world. So far, the program has recycled more than 875 million HP ink and toner cartridges and turned them into new supplies. The effort—which lets customers return spent supplies free of charge—spans 68 countries and territories.

Partners Sims Lifecycle Services, PDR, Butler-MacDonald, and Lavergne have contributed to HP's advances in recycling, disassembly, shredding, and resin development. "We believe collaboration is essential to achieve the scale, innovation, and speed necessary to address the plastics impacting our oceans," says Guillaume Gerardin, global head and general manager of print supplies at HP.

Four years ago, HP started gathering and processing ocean-bound plastic waste in Haiti that was at risk of contributing to ocean waste. In October, HP expanded that work by opening a new facility and a $2 million washing line built to support local collectors under coordination of NGOs First Mile and Work. To date, they have diverted nearly 770 metric tons of plastic and created more than 1,100 local income opportunities, while providing children with quality education, food, and medical assistance. "The community impact is crucial to creating a system that can endure and deliver on the significant potential of this program as it scales," says Ellen Jackowski, chief sustainability and social impact officer at HP.

HP's 10-year goal, which the company has been working toward since 2016, is to recycle 1.2 million metric tons of hardware and printing supplies by 2025. At last count, the company was almost halfway there. Today, 82% of HP ink cartridges and 100% of HP toner cartridges include recycled content. HP development teams are designing recovered materials into other PC, print hardware, and printing supplies products.

HP's focus on sustainable impact is tied to a growing portion of its new sales—$1.6 billion in 2019. The company is sharing best practices with NextWave Plastics, an open-source initiative, so its circular-economy work can be scaled and replicated elsewhere. "HP is working to set the industry standard for sustainability practices, and as a member of NextWave Plastics, is ensuring that the lessons they have learned are shared among other industry leaders to make an even greater impact," says Dune Ives, CEO of Lonely Whale, the convening entity of NextWave. "HP's creativity and commitment to their work in Haiti in the face of a global pandemic is making waves of positive change that simultaneously benefit local communities, the ocean, and our future."

STEALING (MARKET SHARE) FROM THE RICH

ROBINHOOD'S NEXT ADVENTURE

The startup's stock-trading app is a runaway hit. But can Robinhood persuade wealthier customers to trust it with serious money?

By **JEFF JOHN ROBERTS**

VLAD TENEV, like so many CEOs these days, is working from home. A thin 33-year-old with jet-black hair down to his shoulders, Tenev has joined a video call to discuss how his company—Robinhood, maker of the wildly popular eponymous stock-trading app—plans to capitalize on its recent growth.

But he also has other transitions on his mind. A father of two, Tenev explains that his younger child is in the final stages of potty training—a milestone that feels especially significant given Tenev's own upbringing. "When I grew up, in Bulgaria, there were never enough diapers available," he recounts. "So there was huge pressure to move on from diapers."

Though he now lives in tony Palo Alto, Tenev brings up his childhood experience with Communism frequently, invoking the economic hardships and deprivations that the system inflicted. In his view, the failures of Communism validate Robinhood's über-capitalist mission, which is to help neophyte investors build wealth by buying stocks.

Robinhood is only seven years old, but its pursuit of that mission has shaken up the brokerage industry in profound ways. Its sleek app-based features have made it the go-to investing platform for people under 40. The upstart boasts 15 million accounts, according to investment bank JMP Securities, on par with decades-old rivals like Charles Schwab and TD Ameritrade; it added 5 million accounts in the first three quarters of 2020 alone. Its rapid rise has forced incumbents to emulate its innovations, most notably zero-commission trading, which virtually all brokers now offer. And its ease of use and unabashed cheerleading for stocks have made it synonymous with a new species of investor dubbed the "Robinhood trader"—a cohort disparaged by many financial pros, but one whose influence is reshaping assumptions about how to invest.

For Tenev and his 35-year-old cofounder, Baiju Bhatt, long-term success—including profitability and a public offering—depends on guiding those traders toward affluence. Robinhood believes it can emulate what Schwab did two generations earlier, acquiring younger customers that the rest of the industry has

PHOTOGRAPH BY **WESAAM AL-BADRY**

MERRY MEN
Cofounders Vlad Tenev (left) and Baiju Bhatt have turned Robinhood into a hit and become billionaires on paper. Finding a path to profitability could prove to be a greater challenge.

ignored, then providing more lucrative financial services as those customers mature.

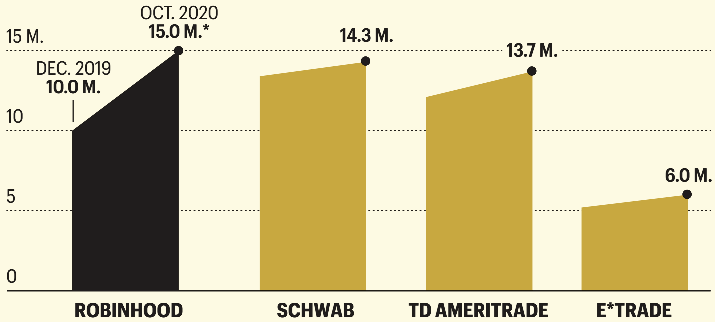
For this strategy to work, however, Robinhood must prove it can attain maturity itself. The company's stumbles on tech execution, regulatory compliance and customer service have prompted skepticism about its ability to offer products and advice to wealthier clients. Other critics have faulted the Menlo Park, Calif., startup for promoting risky trading. Even as Tenev wrangles toddlers at home, he'll need to bring discipline to a company prone to behaving like a hormone-addled teenager.

A BIG BET ON SMALL ACCOUNTS

Robinhood has capitalized on a surge in stock trading among young "retail" investors. Its challenge: getting them to park more money with the firm.

Robinhood is attracting customers faster than rivals...

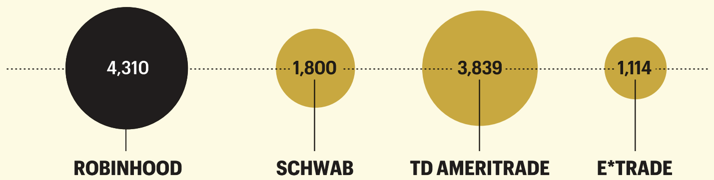
CHANGE IN THE NUMBER OF ACCOUNTS, DEC. 2019 TO OCT. 2020



* ESTIMATE

...and those customers love to trade...

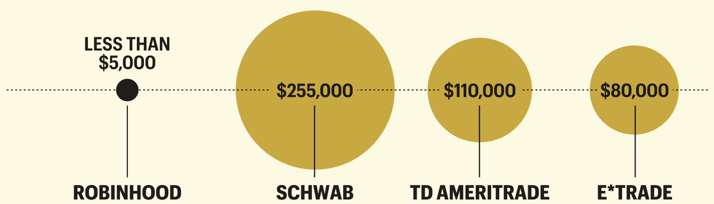
AVERAGE DAILY TRADES,* JUNE 2020



* TRADES THAT GENERATED FEES

...but they're playing with small stakes.

ESTIMATED AVERAGE ACCOUNT BALANCE, OCT. 2020



SOURCES: COMPANY FILINGS, JMP SECURITIES

SIGNING UP for Robinhood can feel like navigating a lazy mobile video game. Exuberant screens promise, "There's free stock waiting." Others offer a "Robin's reward" digital scratch-and-win ticket—which in my case deposited $3.24 worth of an obscure health care stock into my new account. Within 10 minutes, I was able to trade stocks and stock options. It's all a quantum leap from the last time I opened a brokerage account, five years ago. That process took days, involved fax machines, and, needless to say, offered no scratch-and-win prizes.

I've since experienced the design nudges that Robinhood uses to encourage trading. Flurries of notifications arrive, unbidden, to alert me to price moves in stocks I own. (I receive frequent pings about that health care stock.) When I do something new, an on-screen confetti shower celebrates my move.

Little wonder, then, that Robinhood has grown so quickly and generated such feverish activity. In the second quarter, its users traded nearly 60 billion shares of stock, a 150% year-over-year increase, eclipsing totals at Schwab and E*Trade. In June, the startup outstripped its rivals for the first time on a widely watched metric called daily average revenue trades, posting an average of 4.31 million, half a million more than runner-up TD Ameritrade.

Robinhood's dominance is no fluke. It caught on by deploying the right technology at the right time: It launched in 2013, just as smartphones became ubiquitous. Bhatt and Tenev, who met at Stanford University, also absorbed the Silicon Valley ethos that design is king. The pair labored over Robinhood's interface, teaching themselves typography and iOS design while riding Caltrain commuter rail and fine-tuning the app by asking countless strangers to try it. They also pulled off the startup trick of persuading early customers to refer friends, creating buzz without the expense of a marketing campaign. It didn't hurt that their Stanford circle featured a who's who of future Valley moguls, including Snapchat founders Evan Spiegel and Bobby Murphy, Instagram's Kevin Systrom, and media gadfly and venture investor Josh Constine, who could serve as the duo's informal brain trust.

Robinhood also employed customer-acquisition tactics that other brokerages had seldom tried. Commission-free trading has attracted the most attention but equally important was requiring no minimum investment, which meant customers with very little cash could immediately assemble stock market stakes.

Its strategy is reminiscent of San Francisco–based Charles Schwab, the former upstart that made stock trading accessible to smaller investors in the 1970s with lower commissions and everyman marketing campaigns. Incumbents took a dismissive view of Schwab, says Chip Roame of Tiburon Strategic Advisors; heavyweights like Merrill Lynch let Schwab hoover up small investors while they catered to "priority households" with far more assets. "Now, Schwab has four times as many clients because they grabbed them while they could," says Roame. "That's what Robinhood is doing."

Five decades later, the pattern could be repeating itself—dismissiveness included. In interviews, executives from older brokerages praise Robinhood's app but express doubt that the company can provide the guidance customers will demand. "Gamification and confetti might get new traders in the door, but investors need a lot more from a firm they trust with their money," says Barry Metzger, SVP of trading and education at Charles Schwab. "The app is just one part of it."

IN A YEAR of unprecedented financial shocks, few were more surprising than the wave of retail investors—investors trading from personal accounts—that sloshed into stocks in 2020. Piper Sandler's Rich Repetto, a veteran brokerage-stock analyst, estimates that retail investors' share of trading has jumped from a longtime baseline of 10%–15% up to 20%–25%, as amateurs homebound by the pandemic ride the ups and downs in stocks. That leap is one reason the average daily volume of shares traded soared from 7 billion in 2019 to 11 billion this year.

Tenev and Bhatt's company has undeniably contributed to that increase, so much so that "Robinhood traders" has become disparaging shorthand for investors who pile into stocks without regard for business fundamentals. And indeed, Robinhood users helped fuel recent bubbles in shares of bankrupt brand names like Hertz and J.C. Penney. Still, Robinhood insists that caricatures of its customers are unfair, and that most aim to buy and hold stocks—behaving like investors, rather than traders.

Robinhood customers are younger than the industry norm, with a median age of 31; 70% are millennials or Gen Z. They're also more ethnically diverse. According to a survey Robinhood commissioned, 60% of their customers are white, compared with 78% at other brokerages. Nineteen percent of Robinhood users are Hispanic, 10% are Asian, and 9% are Black—figures close to the makeup of the U.S. as a whole. (Women remain underrepresented at Robinhood and its rivals, accounting for about a third of customers.)

This young clientele may be buying stocks, but they're not building much wealth yet—at least not at Robinhood. Investment bank JMP Securities estimates that the average Robinhood account balance is less than $5,000. Robinhood declines to comment on this estimate, but if accurate it's a far cry from its competitors: The average balance at Schwab, for instance, is $255,000. Still, Robinhood executives say that their young customers have a different approach to investing than earlier generations—and that Robinhood's tools could suit their needs well as they acquire more assets.

Inexpensive, low-maintenance index funds and ETFs were the democratizing force in investing in the 2000s and 2010s. But Howard Lindzon, an early Robinhood backer and founder of investing site Stocktwits, says that many young investors avoid index funds—which may own controversial assets like oil or tobacco stocks—and instead buy shares of brands they trust, like Netflix and Disney. Tenev, meanwhile, notes that buying fractional shares of pricey stocks like Google and Amazon is particularly appealing to this generation. Through Robinhood, they can arrange to automatically purchase partial shares of such blue chips every payday.

These à la carte tactics don't offer the diversification and protection against risk that index funds do. But with zero-commission trading, building a portfolio by buying dozens or hundreds of individual stocks is no longer cost-prohibitive. And customers who prefer funds and ETFs can still buy them on Robinhood. Whatever approach they employ, Tenev says he anticipates more customers will direct automatic paycheck deductions into Robinhood

CHIP ROAME • TIBURON STRATEGIC ADVISORS

"Schwab has four times as many clients [as older competitors] because they grabbed them while they could. That's what Robinhood is doing."

accounts, the way savers do with IRAs and 401(k)s. That will keep them in the fold as they grow wealthier, offering Robinhood an opportunity to sell them profitable products and services.

Robinhood executives are tight-lipped about what those products and services will be or when they'll arrive. But Tenev tells *Fortune* that Robinhood could eventually take a more active role managing customers' assets, and a 2019 deck about the company's future describes plans to offer IRAs, mortgage lending, and property and life insurance. "When you see the products roll out, it will fit into a coherent long-term narrative," says Tenev.

THOSE WHO KNEW TENEV and Bhatt at Stanford say the pair were more bookish than boorish. Tenev says personal wealth has never been their primary motivation—notwithstanding that they will likely become billionaires if Robinhood goes public. "We both wanted to be physics or math professors," says Tenev. "You don't do that because you want money." (Bhatt was on paternity leave and unavailable for interviews during the reporting of this story.) When they launched Robinhood, the duo said they were inspired by the ideals of Occupy Wall Street; their corporate namesake, of course, is a folk hero who stole from the rich.

Still, like many of their tech-startup forebears, the founders have been criticized for forsaking populist principles in the pursuit of hyper-growth. For Robinhood, that criticism has revolved around both its gamified, casino-like design and its business model. And in the arena of options trading, the combination of those factors has put the startup on the defensive.

Robinhood earns more than 70% of its revenue through a process called "payment for order flow" or PFOF, which generated $453 million for the startup in the first three quarters of 2020, according to securities filings. (The remainder of Robinhood's revenue comes primarily from lending securities and from Gold, a $5-a-month premium service whose features include margin trading and more-detailed market data.) PFOF involves routing customer trades through market-making firms, in return for a fee; the market makers benefit by earning money on the spread between bid and ask prices when they execute the trades. Routing orders through market makers can also help customers get more favorable prices on their trades, but it's usually an either/or proposition; if the brokerage gets a PFOF fee, the customers won't get price improvement.

While controversial, PFOF is commonplace: Larry Tabb, a markets analyst at Bloomberg Intelligence, notes that PFOF fees are what allow brokerages to offer free trades in the first place. The situation is murkier, though, when it comes to PFOF for options—contracts that give investors the right to buy or sell shares at a fixed price in the future. Options offer alternative ways to profit from share-price movements, but their pricing can be fiendishly complicated, and trading them is usually the province of professionals. Market makers offer considerably higher PFOF payments for options trades, in part because they generate higher margins—and options-related fees account for 62% of Robinhood's PFOF revenue, according to Piper Sandler.

Not coincidentally, Robinhood's app frequently reminds users that options are an option. During my test-drives (albeit after I selected "I know what I'm doing" during sign-up), hitting "trade" on any stock called up a large "Trade Options" button that appeared above the more pedestrian "Buy" or "Sell" choices. Selecting "Trade Options" leads to invitations to select puts and calls—the most basic contracts—but also to try exotic "multi-leg" strategies involving multiple contracts, with names like "straddle," "strangle," and "Iron Condor," tactics that wouldn't sound out of place at a pro-wrestling match.

These nudges irk critics, who say the options game is one novices shouldn't play, not least because pros can take advantage of newbies' inexperience. Ranjan Roy, a former Bank of America options trader, wrote a widely shared essay explaining why veterans refer to amateurs as "the gravy." "If you trade options all day, you're going to lose money," Roy tells *Fortune*. Benn Eifert, founder of an investment fund that uses options to ride out market volatility, says that successful options trading requires sophisticated software and substantial math proficiency. He expresses dismay over Robinhood's tempting interface. "It's totally shocking to me that it's not a major legal issue for them," he says.

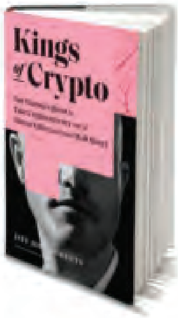
Robinhood has, in fact, been fined by both

VLAD TENEV • CEO, ROBINHOOD

Most people aren't yearning for a call to customer support. They don't want to talk to an agent. They just want the quickest solution to their problem."

BOOK EXCERPT: FINTECH & WALL STREET COLLIDE

WHEN COINBASE MET CANTOR FITZGERALD



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SINCE JOINING Coinbase as employee No. 5, Adam White had risen to run GDAX, the company's exchange for professional cryptocurrency traders. By the fall of 2017, Coinbase was steaming toward $1 billion in annual revenue, and White was ready for a new challenge. He figured he could handle anything the business world threw at him. Coinbase's CEO, Brian Armstrong, threw Cantor Fitzgerald at him.

The famous firm embodied Wall Street's clubby culture. Working at Cantor Fitzgerald meant wearing suspenders and three-piece suits. It meant spending hours over expensive steak dinners and fine Scotch, braying about how much you made. It also meant enjoying a coveted status: Cantor is one of only a few firms designated as a market maker for federal securities, which means acting as Uncle Sam's bond broker.

It was White's job to sell Cantor on crypto and Coinbase. The fabled firm, he hoped, might want Coinbase's help in offering Bitcoin to clients, or in someday using blockchain—the technology underlying cryptocurrency—to clear securities. A Coinbase-Cantor tie-up, meanwhile, would go a long way toward legitimizing a crypto industry many still saw as disreputable.

White met reps from the firm on 59th Street in a tower overlooking Central Park. CEO Howard Lutnick—the leader who had brought Cantor back from the tragedy of losing 658 employees in the attack on the World Trade Center on Sept. 11, 2001—stood at the head of a phalanx of his staff. White did not meet phalanx with phalanx. He brought the friendly, self-effacing, and easygoing disposition of a native Californian and little more. Lutnick quickly noticed White wore no tie and arrived with no retinue. And then he saw the title on his business card: general manager.

In Silicon Valley, titles—like clothes—are often informal, sometimes creative, like "digital prophet" or "innovation Sherpa." Many startups treat titles like a rack of hoodies—pull one off the rack, try it on, try another. Find one you're comfortable with. Old-line finance firms, on the other hand, treat titles as critical badges of power and status. Ranks like "executive managing director" and "senior managing director" send important signals about who is worth investing time in, who is serious, and who can be ignored. Lutnick scoffed at the idea that Coinbase would send a "general manager"—whatever that was—to waste his time. Didn't they know who he was?

"So I sat down with this big, sharp-elbowed financial company, trying to work a deal," White recalls. "The CEO laughs at me and goes, 'Hey, GM, are you going to make my coffee?' I came out to New York and got my ass handed to me by old-school traders."

White went home without a new client. But he would get the last laugh. One year later, he would join a cryptocurrency venture launched by Wall Street giant Intercontinental Exchange, becoming its president soon after—a sign that even the most traditional financial firms were coming around to crypto.
—Jeff John Roberts

industry group FINRA and the SEC for lack of transparency about its PFOF practices around options. And scrutiny of how it encourages options trading has increased in the wake of the June suicide of one of its customers, who left a note blaming the company for letting him accumulate over $700,000 of debt while trading options. (It later emerged that the 20-year-old had failed to understand that the negative balance he saw on-screen was much higher than his actual debt.)

Robinhood has promised to overhaul its options platform and to offer better disclosure about PFOF practices and more educational material for traders. Tenev says that stories about options trading don't reflect the habits of most customers: Only 13% trade options, and fewer than 2% of those try multi-leg strategies. Others connected to Robinhood are less apologetic, seeing condescension in the criticism. "There's a shocking level of sophistication in the order flow," says an executive at one of Robinhood's market-making partners. "It's not like it's Aunt Millie in Nebraska trading puts and calls." Lindzon, the early Robinhood backer, acknowledges that some customers make bad decisions—but argues that it's paternalistic to stop them. "You're going to let a kid drive a car or buy a Juul, but you're not going to let a kid decide what stock they're going to buy?" he asks.

Other public relations scrapes have dented Robinhood's reputation, as have technical meltdowns that left users unable to access the site during peak trading days. By mid-July of this year, Robinhood had been the subject of 473 complaints to the Federal Trade Commission, compared with 126 for Schwab and 69 for Fidelity—which have comparable numbers of customers. The discontent has arguably been aggravated by Robinhood's approach to customer service. Unlike traditional brokerages, which field armies of agents to hold clients' hands, Robinhood does not provide customers with even a phone number, leaving them to seek help via the app.

Tenev appears to have internalized the tech credo that auto-

COURTESY OF HARVARD BUSINESS REVIEW PRESS mated solutions are preferable to the old-fashioned (and expensive) alternative of hiring humans. "Most people aren't yearning for a call to customer support," he says. "They don't want to talk to an agent. They just want the quickest solution to their problem." Nonetheless, in a bow to reality and to its own future ambitions, Robinhood is hiring hundreds of agents to staff call centers in Arizona and Texas. The company says these agents are now making outbound calls in response to digital requests for help—but it has no immediate plans to publish a phone number.

ROBINHOOD'S AWKWARD adolescence hasn't kept it from raising very grownup sums. In September, the company announced it had raised $660 million in a new funding round from prominent venture capital firms including Andreessen Horowitz and Sequoia Capital. Following two earlier rounds this year, Robinhood has raised $2.2 billion in total, with a current valuation of $11.7 billion. The gusher of cash amounts to a bet that Robinhood will challenge or even eclipse the old guard.

It is also a bet that Tenev is ready to run a public company. Robinhood is expected to announce an IPO in the coming months, and the company said on Nov. 20 that Bhatt would step down as co-CEO, leaving Tenev as sole chief. (Bhatt will remain on Robinhood's board and work on product development.) Tenev is reading history to find leaders to emulate. "Alexander the Great was a leader who led from the front," he enthuses. "That courage and boldness is inspirational. Alexander was on his horse and going to battle while his generals were still talking." His own supporting cast of generals, meanwhile, now includes more seasoned executives, including Jason Warnick, an Amazon veteran who became CFO in 2018, and Dan Gallagher, a former SEC commissioner who is now Robinhood's top lawyer.

For now, the team has momentum on its side. The pandemic-driven surge in trading has produced a bigger pie for all brokers: TD Ameritrade and E*Trade recently posted record quarterly trading revenues (each had PFOF in part to thank). Even so, Robinhood's progress stands out: Investors are downloading its app at a pace 10 times as great as those of rivals.

Still, impressive scale doesn't guarantee Robinhood will evolve into a Fidelity or Charles Schwab. Those companies' diverse, profitable revenue streams include asset management and banking services, as well as interest earned from customers' cash balances. The incumbents are also beefing up their offerings by consolidating: Charles Schwab is in the final stages of acquiring TD Ameritrade, while E*Trade has just been absorbed into Morgan Stanley.

Building a comparable suite of services at Robinhood will take time and money—and it's no sure thing that current customers will embrace them. Some market-watchers suspect that many investors use Robinhood for entertainment, wagering small amounts on its zippy platform while keeping the bulk of their wealth elsewhere. Robinhood's small account sizes lend credibility to that theory. "A lot of people use it as a secondary brokerage—like a play account," says Casey Primozic, who runs a site called Robintrack that compiles data about the most popular stocks on Robinhood. (Robinhood stopped sharing data with Robintrack in August, in part because the site's users included hedge funds scanning for trading patterns they could profit from.)

Financial threats loom, meanwhile, for all brokers. Repetto, the brokerage analyst, predicts that trading volumes will decline as the pandemic eases. And payment for order flow, Robinhood's main artery, may itself be at risk. Tabb, the Bloomberg Intelligence analyst, expects that pressure from consumer advocates will lead the SEC to require brokerages to display prices differently for the "odd lots" that include many retail trades. Those changes would narrow the bid-ask spread on such trades—hurting market makers' margins and leaving less revenue for PFOF. Tabb says that such changes, along with fierce competition, may eventually even lead brokerages to reimpose commissions, undoing the era that Robinhood ushered in.

Warnick, Robinhood's CFO, flatly rejects the idea that the company might charge commissions. But for now, Robinhood continues to keep its actual revenue-generating plans close to the vest, even as it grabs customers at a breakneck pace.

The likelihood of Robinhood turning those traders into profit-generating, long-term customers seems uncertain—especially given the incumbency and deep pockets of its competitors. But Joe Grundfest, a Stanford Law School professor and former SEC commissioner who knows Tenev and Bhatt, says such skepticism underestimates the power of a true innovator. "By that logic, Walmart should be kicking Amazon's ass, CBS should be wiping the floor with Netflix, GM should be kicking the corn out of Tesla," he says.

All Vlad Tenev has to do now is execute like Jeff Bezos, Reed Hastings, and Elon Musk. F

$11.7B

ROBINHOOD'S VALUATION
on the private market, based on a funding round in September. The valuation implies that venture capital investors believe Robinhood can both keep growing and become profitable.

THE SUPPLY CHAIN'S DIGITAL DESTINY

To meet ever-rising standards, digital technology is key.

FOR COMPANIES ACROSS THE GLOBE, AGILITY, SPEED, and efficiency are markers of superior execution, especially during a pandemic, when market conditions require pivoting on a dime. But if a company isn't leveraging everything that digital technology has to offer, it is losing ground to the competition fast.

Take supply chain management. Even when firms use digital technology like data analytics, process automation, and forecast models to drive performance in select departments, organizational silos routinely prevent the benefits from spanning the entire supply chain, according to an April 2020 report from Boston Consulting Group (BCG).

A more holistic approach—scooping up all knowable data from sensors, inventory snapshots, labor patterns, and other key inputs—can help optimize decision-making and yield lucrative rewards. BCG found that the comprehensive digital transformation of a supply chain can reduce manufacturing, warehousing, and distribution costs by up to 20%. It can also boost revenue by 4% to 6%.

CSCMP

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"Because we now have digital information that's better and more accurate, we can forecast better," says Rick Blasgen, president and CEO of the Council of Supply Chain Management Professionals. "That means less inventory, lower warehousing costs, and fresher product."

At a time when flexibility is key, many companies would rather tap into an existing cutting-edge supply chain than build their own. That's driving business to Ryder, where approximately 100 data analysts help customers boost productivity, lower costs, and be ready for the unexpected.

"What our customers care about is [whether they are] doing better than planned, did an exception occur, and what's going to happen in the future," says Gary Allen, vice president of supply chain excellence at Ryder. "If you can't manage the data and see it, then you can't drive performance improvements."

For Ryder customers, enhanced transparency is power. Do it Best hardware company, for instance, uses the RyderShare™ platform to track shipments and proactively manage expectations, which has significantly increased its call center productivity. Typically, users of RyderShare™ have seen increased productivity from 10% to 50% due to reduced redundant emails and phone calls. This is accomplished as RyderShare™ mines data and transforms it into insights that companies wouldn't be able to access individually. Through its notification capabilities, RyderShare™ also helps companies communicate with all stakeholders when an issue occurs and allows all users to manage the exception immediately. This results in significant increases in customer satisfaction.

The digital advantage also plays out at Ryder warehouses, where visibility and automation can deliver immediate payoffs. At one paper products maker, for example, the addition of autonomous forklifts has delivered a jolt to inventory accuracy, which is up from 60% to 90%.

As digital transformations give supply chains a makeover, companies are discovering what's possible—and partnering up with specialists to make sure they stay one step ahead of their competition. ■


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THE FUTURE 50

TOMORROW'S GROWTH CHAMPIONS

Every successful business starts with an act of imagination. But the most innovative companies are those that continually reimagine their potential—even if it means embracing radical shifts in strategy. And that relentless focus on the future typically pays off handsomely for investors. Three years ago, *Fortune* teamed up with management consulting firm BCG to create the Future 50, a system that analyzes dozens of factors to identify companies with the most robust long-term growth potential. The picks from each of the first three years have easily outpaced the market. Read on for this year's ranking.

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FINDING ADVANTAGE IN ADVERSITY

Businesses with the most "vitality" thrive in times of crisis and beyond. And in the fourth edition of the Future 50 index, we used our proven formula to identify global companies best positioned for growth in the years to come.

By **MARTIN REEVES & KEVIN WHITAKER**

IN STABLE TIMES, sticking with a proven formula makes sense. For successful companies, it's a good bet that the products and models that are working well today will continue to work in the future. But in volatile and uncertain times—when the need for resilience rises to the forefront—adapting to new circumstances and reinventing businesses become central challenges.

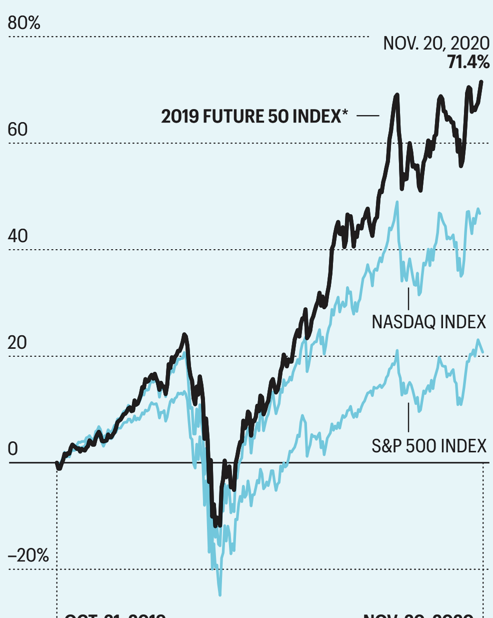
The events of 2020 have reminded us how quickly the pattern of challenge can change. When the COVID-19 pandemic first swept across the world, companies focused primarily on the immediate problems of how to maintain operations and survive. But as time has passed, business leaders have shifted their attention back to longer timescales, such as what it will take to succeed in the postcrisis future and how to rebuild their businesses accordingly.

Even before the pandemic, however, change and uncertainty were on the rise. That's why BCG and *Fortune* created the Future 50 index together more than three years ago. We wanted to identify companies with the greatest capacity to continually reinvent their businesses and sustain long-term growth—what we call corporate "vitality." The past year has shown that vital companies don't just survive adversity. They use it to create a competitive advantage.

THRIVING THROUGH CHAOS

Last year's portfolio has tripled the S&P 500's return and outpaced the tech-heavy Nasdaq as well.

TOTAL RETURN SINCE PUBLICATION FOR THE 2019 FUTURE 50 INDEX



* EQUALLY WEIGHTED

SOURCES: BLOOMBERG; S&P GLOBAL

A PROVEN FORMULA

THIS IS THE FOURTH ANNUAL EDITION of our Future 50 index, which assesses the long-term growth prospects of large public companies and identifies who comes out on top. It is intended as a forward-looking companion to traditional business metrics, which generally show only what has happened in the past.

The index is based on two pillars: a "top-down" market-based assessment of a company's potential, and a "bottom-up" analysis of its capacity to deliver growth. For the bottom-up view, we have quantified and tested numerous theories about what drives long-term success across four dimensions (strategy, technology and investment, people, and structure), and we use machine learning to select and weight factors based on their empirical contribution to long-term growth.

Our analysis incorporates a wide range of financial and nonfinancial data sources. For example, we assess the growth and quality of each company's patent portfolio as an indicator of technology advantage. And we define metrics for strategic orientation, such as long-term focus and tendency to serve a broader purpose beyond financial returns, based on natural language processing analysis of each company's annual reports.

As we have done previously, we screen out companies that have sustained negative operating cash flow, indicating businesses that are highly vulnerable to unfavorable disruptions. We have also stratified our ranking to account for companies that have elevated uncertainties, such as reputational risk or a discontinuity in the direction of the business. (For more on the methodology, see page 125.)

Vitality operates over long time periods, so it will not always be reflected in immediate performance. In particular, one might have reasonably expected highly vital companies to struggle to deal with the COVID-19 crisis, given the short-term nature of the challenges involved. Yet our index has greatly outperformed the market amid the turbulence of 2020—the 50 companies we identified last year have produced a cumulative shareholder return of 71% since publication, compared with 18% for the MSCI World stock index. This demonstrates that vitality is a critical part of sustaining success in bad times as well as good times.

A WINDOW TO THE FUTURE

AGGREGATE PATTERNS in our ranking reveal clues about where vital companies are most likely to be found—and where trends have shifted.

The technology sector is well represented—more than 50% of Future 50 companies are in the IT, communications, or e-commerce industries—but diverging patterns within the industry are visible. On one hand, the acceleration of trends such as digital transformation and online shopping are evident: Seven of our top 10 companies are now B2B software businesses (including No. 1 ServiceNow), and several e-commerce companies across different regions joined this year's list. On the other hand, many companies that digitally facilitate congregation in the physical world (such as travel or live events platforms) fell out of the ranking.

There has also been a clear shift toward health care, which increased from 12% of last year's list to 22% this year. Some of these are companies that may directly see demand increase as a result of COVID-19 in areas such as ICU equipment or drug development. Others were hurt in the short term by the postponement of nonessential procedures but still have strong long-term potential, especially in a world where consumers may be more health conscious.

Our ranking points to a bipolar global economy: More than 80% are based in North America or Greater China, in line with recent corporate growth patterns. Compared with last year's ranking, North America has increased its share slightly (from 56% to 58%), while China's share has fallen somewhat (from 32% to 24%). However, a deeper look shows that this divergence is likely driven by the dynamics of select companies and industries (such as real estate and premium liquor); when expanding our list to the top 200 companies, we find that the relative share of Chinese and U.S. companies is roughly unchanged from the prior year.

Our index once again demonstrates that diversity is a key ingredient for long-term success. Diversity data is difficult to find publicly, but one consistently reported aspect is gender diversity. While still far from achieving true gender equality, highly vital companies have more diverse executive teams than their peers—women represent at least one-quarter of leaders at 50% of Future 50 companies, compared with 24% of others—and our analysis also shows that gender diversity among the entire employee base is a predictor of growth.

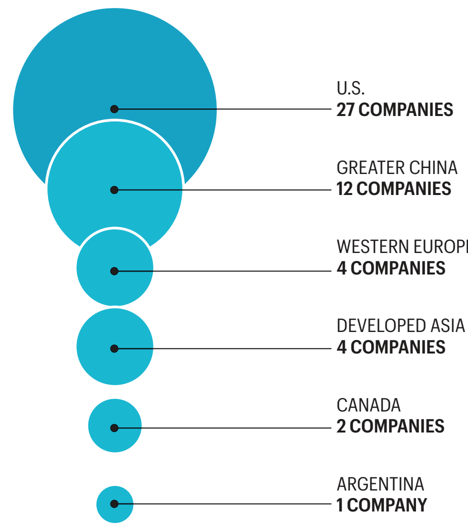
Finally, even though some segments are better positioned than others, highly vital companies can be found in all sectors and geographies: Our list spans five continents and includes not just tech giants but education, restaurants, and construction-materials companies. In other words, vitality can be achieved everywhere—and even amid a crisis, opportunity awaits companies that are willing and able to look to the future.

Martin Reeves is a senior partner at management consulting firm BCG and chairman of the BCG Henderson Institute. Kevin Whitaker is head of strategic analytics at the BCG Henderson Institute.

THE INDEX BY THE NUMBERS

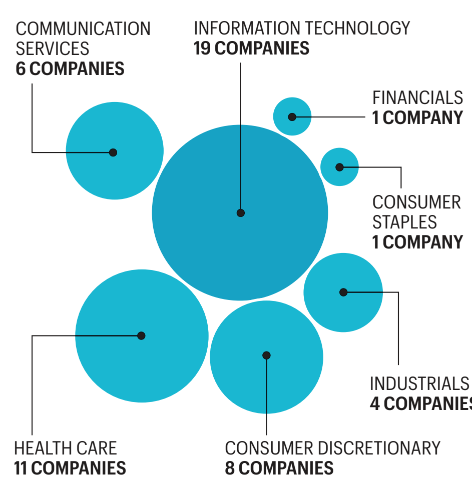
More than 50% of the companies on this year's list are from technology-related industries.

GEOGRAPHIC BREAKDOWN



PROPORTION OF WOMEN IN THE EXECUTIVE TEAM

SECTOR BREAKDOWN



SOURCES: S&P GLOBAL; BCG HENDERSON INSTITUTE

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MARKED FOR SUCCESS

We used our proprietary methodology to identify the 50 global companies best positioned to deliver above-average gains to investors. They're presented here in two ways: below, ranked in order by overall "vitality" score; and on the pages that follow, grouped by business focus.

THE 50 COMPANIES BY SECTOR

COMMUNICATION SERVICES
CONSUMER DISCRETIONARY
CONSUMER STAPLES
FINANCIALS
HEALTH CARE
INDUSTRIALS
INFORMATION TECHNOLOGY

Rank	Company	Vitality score	Sector
1	ServiceNow	3.4	INFORMATION TECHNOLOGY
2	Veeva Systems	3.3	HEALTH CARE
3	Atlassian	3.3	INFORMATION TECHNOLOGY
4	Workday	3.3	INFORMATION TECHNOLOGY
5	Splunk	3.2	INFORMATION TECHNOLOGY
6	Adyen	3.1	INFORMATION TECHNOLOGY
7	MercadoLibre	2.9	CONSUMER DISCRETIONARY
8	DexCom	2.8	HEALTH CARE
9	Square	2.8	INFORMATION TECHNOLOGY
10	Spotify	2.8	COMMUNICATION SERVICES
11	TAL Education Group	2.8	CONSUMER DISCRETIONARY
12	WuXi AppTec	2.6	HEALTH CARE
13	Shopify	2.5	INFORMATION TECHNOLOGY
14	Haidilao International Holding	2.5	CONSUMER DISCRETIONARY
15	Contemporary Amperex Technology	2.3	INDUSTRIALS
16	Vertex Pharmaceuticals	2.3	HEALTH CARE
17	Luxshare Precision Industry	2.3	INFORMATION TECHNOLOGY
18	Tesla	2.2	CONSUMER DISCRETIONARY
19	Xiaomi	2.1	INFORMATION TECHNOLOGY
20	Lululemon Athletica	2.1	CONSUMER DISCRETIONARY
21	Shenzhen Mindray Bio-Medical Electronics	2.1	HEALTH CARE
22	Nvidia	2.1	INFORMATION TECHNOLOGY
23	Twitter	2.1	COMMUNICATION SERVICES
24	Pinduoduo	2.0	CONSUMER DISCRETIONARY
25	Salesforce	2.0	INFORMATION TECHNOLOGY
26	Align Technology	2.0	HEALTH CARE
27	CoStar Group	1.9	INDUSTRIALS
28	Foshan Haitian Flavouring & Food	1.9	CONSUMER STAPLES
29	Adobe	1.8	INFORMATION TECHNOLOGY
30	Autodesk	1.8	INFORMATION TECHNOLOGY
31	ASML Holding	1.8	INFORMATION TECHNOLOGY
32	Palo Alto Networks	1.8	INFORMATION TECHNOLOGY
33	Naver	1.8	COMMUNICATION SERVICES
34	PayPal	1.8	INFORMATION TECHNOLOGY
35	Dassault Systèmes	1.7	INFORMATION TECHNOLOGY
36	M3	1.7	HEALTH CARE
37	Amazon	1.7	CONSUMER DISCRETIONARY
38	VMware	1.7	INFORMATION TECHNOLOGY
39	Intercontinental Exchange	1.6	FINANCIALS
40	Alibaba Group Holding	1.6	CONSUMER DISCRETIONARY
41	Ansys	1.6	INFORMATION TECHNOLOGY
42	Jiangsu Hengrui Medicine	1.5	HEALTH CARE
43	Copart	1.5	INDUSTRIALS
44	Intuitive Surgical	1.5	HEALTH CARE
45	Tencent Holdings	1.4	COMMUNICATION SERVICES
46	Fastenal	1.4	INDUSTRIALS
47	Illumina	1.4	HEALTH CARE
48	Match Group	1.3	COMMUNICATION SERVICES
49	Celltrion	1.9	HEALTH CARE
50	Facebook	1.5	COMMUNICATION SERVICES

Celltrion and Facebook are ranked lower than their vitality scores would indicate because each faces special circumstances that place it in a "higher uncertainty zone."

BIG TECH PLATFORMS

Naver

2020 RANK: 33
SOUTH KOREA (KS: 035420, $252)

• Naver, which runs the biggest search engine in South Korea, has lately been focused on fast-growing businesses like fintech, cloud storage, and digital comics (its cartoon platform has nearly 70 million monthly users)—moves that helped it grow operating revenue 24% in the most recent quarter. The company is in the midst of merging its messaging app with SoftBank's Z Holdings (formerly Yahoo Japan) in a deal slated to close next year.

Amazon

37 U.S. (AMZN, $3,099)

• E-commerce and cloud-storage giant Amazon has been one of the biggest beneficiaries of changing consumer behavior during the COVID-19 pandemic. Its sales jumped 35% to more than $260 billion in the first nine months of 2020, as people stopped going to stores and spent more online. The company's market-leading cloud-computing division, Amazon Web Services, has also benefited in 2020 as the hosting platform for everything from Netflix to Zoom.

Alibaba Group Holding

40 CHINA (BABA, $271)

• **Alibaba retained its majority share of China's massive e-commerce market throughout the worst of the pandemic, and the behemoth still has room to grow. Live-streaming—in which brand representatives broadcast to viewers who can purchase items featured in the video—was key to its pandemic strategy. In February it removed service fees for new merchants on its live-streaming platform Taobao Live, and saw the number of new sellers spike 719% compared with the previous month. In April, Alibaba announced it will invest $28 billion in cloud-computing infrastructure over the next three years, a clear signal of its focus on international expansion.**

▲
RACKING UP IN RETAIL
Employees sit next to "pass" and "fail" bins on a garment production line at Alibaba's new A.I.-enabled "smart factory" in Hangzhou, China.

ALIBABA: QILAI SHEN—BLOOMBERG VIA GETTY IMAGES

Intercontinental Exchange

39 U.S. (ICE, $101)

• The parent company of the New York Stock Exchange operates a range of regulated financial marketplaces for trading everything from agricultural commodities to credit derivatives. In February, ICE made a surprising $30-billion-plus takeover offer for online retailer eBay, but quickly abandoned the deal after investors expressed their skepticism by bidding down the stocks of both companies. Still, ICE's share price has nearly doubled over the past five years.

Tencent Holdings

45 CHINA (HK: 700, $76)

• Tencent has a dominant share in China's gaming market—which surged during COVID-19 lockdowns in China—and owns super-app WeChat, which has 1.2 billion users. Together, Tencent's operations constitute the largest online community in China. Growth in gaming helped boost Tencent's sales 29% in the third quarter. But its stock fell from recent highs in early November after Beijing proposed new rules to prevent antitrust behavior by China's tech giants.

HEALTH & MEDICINE

Veeva Systems

2 U.S. (VEEV, $274)

• The cloud-computing revolution has at last come for life sciences, thanks to Veeva's industry-targeted offerings that help companies manage data-intensive processes such as clinical trials, regulatory submissions, and sales operations. The company, which counts leading biopharma companies like Pfizer, GSK, and Moderna as customers, has a market cap of $41 billion and has grown sales at a robust 26% annual rate over the past three years.

DexCom

8 U.S. (DXCM, $316)

• DexCom makes medical devices that regularly track users' glucose levels and can send those readings to a smartphone. The technology—called continuous glucose monitoring, or CGM—offers an alternative to people with diabetes who have long had to measure their blood sugar through finger-sticking. Adoption of DexCom's devices drove revenue up 43% last year, but the company is finding a new market during COVID-19. Hospital staffs have been using the devices to remotely monitor COVID patients' glucose levels. Over the past five years, the stock is up 266%.

WuXi AppTec

12 CHINA (SS: 603259, $17)

• Shanghai-based WuXi helps global drugmakers discover, develop, and manufacture small molecule drugs as well as cell and gene therapies. Serving the world's top drugmakers, WuXi is a leader in the pharma outsourcing sector, which continues to boom. The world has looked to the pharma sector this year to develop treatments and vaccines for COVID-19. WuXi has played a part in responding to the pandemic; it joined a global philanthropic alliance to discover novel antiviral therapeutics for COVID-19.

Vertex Pharmaceuticals

16 U.S. (VRTX, $215)

• **In the fall of 2019, Vertex launched Trikafta, the latest of its breakthrough therapies for people with cystic fibrosis. Capable of treating up to 90% of those who suffer from the progressive, life-threatening disease, the drug has already been used to treat thousands of patients in the U.S. and recently won approval in the EU. The company's sales—$4.2 billion in 2019—have averaged 35% annual growth over the past three years. One setback: The biotech's stock fell 23% in October after it scrapped a new drug in Phase II clinical trials.**

▸
TOTALLY TUBULAR
A Vertex manufacturing facility in Boston.

Shenzhen Mindray Bio-Medical Electronics

21 CHINA (SZ: 300760, $53)

• Mindray is the biggest medical device company in China by far, with triple the market value of the sector's second-largest firm. The global surge in demand for ventilators during the initial wave of the COVID-19 pandemic saw Mindray ramp up production, first for domestic needs, as the virus ravaged Wuhan, and then globally, as COVID-19 spread around the world. Sales shot up accordingly. China largely has the pandemic under control right now, but Mindray is still getting new orders in its home market, thanks to a $6.6 billion government stimulus package to upgrade ICU facilities across the country.

Align Technology

26 U.S. (ALGN, $446)

• The pandemic initially caused a lot of frowns at medical-device maker Align Technology as dentists' offices around the globe temporarily shut down. But by October, the company was reporting record sales of its 3D scanners, which are used by dentists and orthodontists, as well as the company's popular Invisalign clear plastic teeth straighteners. Third-quarter sales were up 21% over the year earlier. Align has long dominated the clear-aligners market with Invisalign, which is increasingly challenging the hegemony of traditional metal braces. Now Align is seeking to fend off competitors with high-profile endorsements from teen influencers, including TikTok superstar Charli D'Amelio and *Black-ish* actor Marsai Martin.

VERTEX: COURTESY OF VERTEX PHARMACEUTICALS

Intuitive Surgical
44 U.S. (ISRG, $731)

• **As the maker of the pioneering da Vinci surgical systems, which use robotics to make surgery minimally invasive, Intuitive is on the cutting edge of health care. Now the question is whether the Sunnyvale, Calif., company can fend off a growing roster of rivals. The pandemic has temporarily slowed demand for the elective surgeries for which da Vinci systems are used. But the company is looking to make its $2 million surgical robots more affordable in order to extend their reach further in hospitals nationwide. Intuitive's stock has quadrupled over the past five years.**

▲ **MEDICAL ARTISTRY** An Intuitive Surgical da Vinci robotic system.

Illumina
47 U.S. (ILMN, $301)

• This maker of genetic sequencing equipment had a year of lows—and highs—thanks to COVID. Both revenue and net income were down in Q3 from the same period a year ago, yet the company's dominant position in the fast-growing genetic sequencing market gives investors plenty of reason to be bullish. Illumina's rapid COVID test received emergency use authorization in July, and the company believes sequencing will become an important part of tracking the virus, pointing to Australia's first national COVID-19 tracking system—which aims to sequence the virus genomes of all positive tests across the country. On the third-quarter earnings call, Illumina CEO Francis deSouza said the company is "making progress incorporating genomics into the standard of care in noninvasive prenatal testing, oncology therapy selection, and genetic disease diagnosis." In September, Illumina's stock dipped after it said it would spend $8 billion to reacquire a former spinoff, cancer blood test–maker Grail. DeSouza said he believes the unit will "catalyze a new era of early cancer detection, transforming cancer survivability and opening up the largest clinical application of genomics we've seen."

M3
36 JAPAN (T: 2413, $79)

• The Sony-backed, online health care firm—whose name stands for "Medicine, Media, and Metamorphosis"—has dozens of subsidiaries that serve both pharma companies and 5.8 million physicians, with services ranging from marketing solutions to A.I.-based diagnostics. Over the past three years, M3 has averaged a 60% shareholder return.

Jiangsu Hengrui Medicine
42 CHINA (SS: 600276, $13)

• Jiangsu Hengrui is the largest pharmaceutical company in China and a leader in cancer treatment drugs and anesthetics for surgery. Its profit rose 14% in the first nine months of 2020, alongside a 15% jump in revenue. The company's status as a domestic pioneer in novel drug development—its recent drug successes include immunotherapy medications and long-lasting insulin treatments—means it's been hurt less than some of its peers by the Chinese government's efforts to drive down generic drug prices. Over the past five years, Jiangsu's stock is up some 350%.

COURTESY OF INTUITIVE SURGICAL

CHIP-MAKERS

Nvidia

22 U.S. (NVDA, $524)

• **Currently the most valuable U.S. chipmaker by stock market value, Nvidia keeps surging thanks to more and more customers using its video gaming graphics processors for artificial intelligence and machine learning applications. The newest chips from Nvidia powering its Ampere line of gaming graphics cards have a staggering 28 billion transistors each, while a boosted-up version for A.I. and data analysis called the A100 has 54 billion. Up next, CEO Jensen Huang hopes to expand into more common processors via the $40 billion acquisition of chip design pioneer ARM.**

ASML Holding

31 NETHERLANDS (AS: ASML, $428)

• It's good to be a virtual monopoly. ASML, a Dutch semiconductor specialist, has effectively cornered the market for "extreme ultraviolet" photolithographic machines, which are required for advanced chipmaking. Silicon stalwarts such as Intel, Samsung, and TSMC rely on the company's highly expensive, bus-size circuit-printers. ASML's share price has increased 11-fold over the past decade.

▲
SEMI STALWART Nvidia CEO Jensen Huang speaking at the Consumer Electronics Show in Las Vegas in 2018.

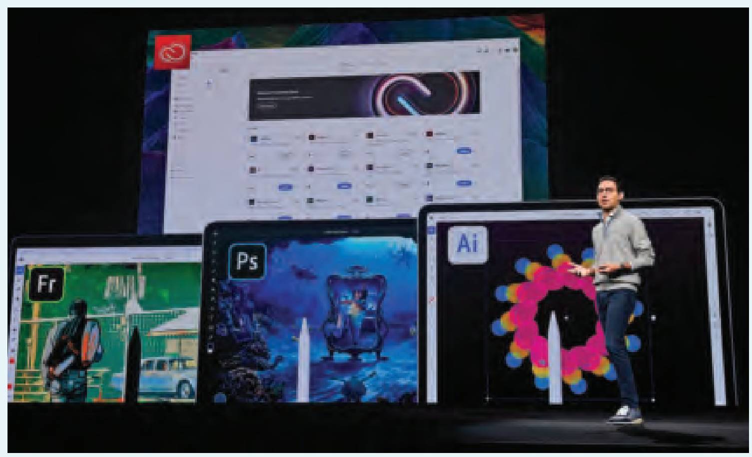
NVIDIA: DAVID PAUL MORRIS—BLOOMBERG VIA GETTY IMAGES; ADOBE: COURTESY OF ADOBE

DESIGN TECH

Adobe

29 U.S. (ADBE, $463)

• The software giant continues to evolve. In its most recent quarter, Adobe's digital media segment, its largest, grew by 19% year over year. The company's subscription-based suite of tools for designing and publishing content and its software for document creation and electronic signatures (yes, PDFs are still big business) were largely responsible. And Adobe's diverse mix of customers is also helping to future-proof its business. Sales of the company's Advertising Cloud products have flattened lately, owing to increased competition from large players and a "significant global decline in advertising spending." But the stock is up 150% over three years.



▲

SCREEN TIME
Adobe's chief product officer, Scott Belsky, at the Adobe MAX event in 2019.

Autodesk

30 U.S. (ADSK, $255)

• Computer-assisted design and manufacturing software (a.k.a. CAD and CAM) is invaluable in fields like construction and architecture, and pricey as a result. Autodesk has boosted its leadership in the field by putting CAD and CAM in the cloud, making them more affordable, while still growing sales at 15% to 20% annually. Recent forays into A.I.-powered construction-analytics tools have further strengthened Autodesk's position.

Dassault Systèmes

35 FRANCE (PA: DSY, $188)

• Dassault Systèmes is known for its 3D visualization software, used by designers and engineers across a swath of industries. Its 2019 acquisition of Medidata Solutions made Dassault a player in clinical trial software just before the onset of the pandemic. Now the company is at the forefront of a wave of digitization across industrial systems and health care alike.

Ansys

41 U.S. (ANSS, $318)

• When engineers, designers, and researchers at some of the top industrial companies seek to innovate, they turn to Ansys. The software company, with a recent market value of $27 billion, helps users create digital simulations of their soon-to-be products. Ansys is a dominant player in the space, owning 40% of market share and generating $1.5 billion in revenue in 2019. The stock has doubled over the past three years.

DIGITAL LIFESTYLE

Spotify
10 SWEDEN (SPOT, $260)

• **Daniel Ek's pioneering audio platform has always been a clever piece of Swedish kit—a two-sided marketplace that makes money both from listeners and creators. With the live-entertainment industry on its knees, thanks to a pandemic, Spotify has a fresh window of opportunity to double down on artist services and exclusive content (such as podcasts) and has proved effective at wooing customers away from competitors like Apple.**

▲
X MARKS THE SPOT(IFY)
Lil Nas X performs at a Spotify event in Los Angeles in January 2020.

Twitter
23 U.S. (TWTR, $45)

• Twitter is never far from the headlines as it continues to face heavy scrutiny from politicians, regulators, and the wider public for how it moderates hate speech and misinformation on its service. But despite that ongoing struggle, the social media network has increased its revenue 11% on average over the past three years. Led by CEO Jack Dorsey, Twitter reported $3.5 billion in sales last year, and was valued at $35.5 billion in November of 2020.

Match Group
48 U.S. (MTCH, $131)

• First-time subscribers flocked to Match Group's apps in the wake of spring lockdowns, as singles looked for ways to connect while stuck at home. The company, which became a stand-alone entity in July, seized the moment, rolling out new features like video-chat. With its biggest app, Tinder, alone bringing in close to $1.4 billion in revenue this year, investors are crushing hard: Shares have nearly doubled over the past 12 months.

SOFTWARE

ServiceNow
1 U.S. (NOW, $518)

• **An enterprise software firm that helps businesses manage digital workflows, ServiceNow's stock has been on a tear, rising 108% from its low in April. Though the company now boasts a market cap of $101 billion, it is still consistently growing revenues at or near 30% per quarter. One recent client success story? ServiceNow partnered with the NBA and WNBA to ensure those leagues could operate safely during the pandemic, winning plaudits from NBA commissioner Adam Silver, who said, "We would not have been successful without them." Service Now CEO Bill McDermott (who previously ran SAP) tells *Fortune:* "The future of work is being redefined. We're hungry, humble, and passionate about making the world of work, work better for people."**

▲
Former SAP CEO Bill McDermott took the reins at ServiceNow in 2019.

SPOTIFY: FRAZER HARRISON—GETTY IMAGES; MCDERMOTT: COURTESY OF SERVICENOW

POWERING BUSINESS

Atlassian

3 AUSTRALIA (TEAM, $208)

• The Australian maker of popular software development, planning, and collaboration tools Jira and Trello has been having a good pandemic. Revenues are up 12.4% since the end of 2019, although the company has forecast slower growth for the coming year. Atlassian's gross profits have expanded in line with sales, but the need to account for some $889 million in outstanding bonds has dented its earnings, with the company recognizing a net loss in the past three quarters.

Workday

4 U.S. (WDAY, $209)

• A dominant force in cloud-based programs for HR management and financial planning, Workday's reach belies its size. Though it brought in a relatively modest $3.6 billion in revenue in 2019, its customers employ some 45 million people worldwide. Workday's sales rose 29% last year, and analysts anticipate continued growth as the company expands its suite of tools. Another promising project: helping corporate clients take part in "talent marketplaces" that connect displaced workers with new positions.

Splunk

5 U.S. (SPLK, $199)

• Investors have a big appetite for Big Data. Splunk, which helps companies turn data into usable information via A.I. and machine learning, has seen its stock rise an impressive 108% since its low in March. The company, which counts 91 of the *Fortune* 100 as clients, recently conducted a survey that found 57% of respondents fear that the volume of data is growing faster than their organizations' ability to keep up. No wonder Splunk's annual recurring revenue from its cloud subscription business was up 89% in the most recent fiscal quarter.

Salesforce

25 U.S. (CRM, $258)

• The pandemic hasn't tripped up cloud software pioneer Salesforce, whose shares are up 59% year to date. Two new platforms have helped Salesforce attract customers during the crisis: Work.com, which helps companies manage scheduling and safety logistics around reopening; and Tableau data-visualization software, which powers contact-tracing efforts. Wall Street has high hopes: Morgan Stanley analysts believe the $17-billion-in-revenue company could nearly double that figure by 2024.

Palo Alto Networks

32 U.S. (PANW, $292)

• Palo Alto Networks spent the past couple of years knitting together a one-stop cybersecurity shop. The digital defender has spent nearly $3 billion on acquisitions since CEO Nikesh Arora took the helm in June 2018. As the pandemic pushes workers remote, Palo Alto is capitalizing on the trend by helping companies protect assets outside the traditional corporate firewall. Investors have apparently forgiven the company for being unprofitable as total shareholder returns averaged 19% over the past three years through Sept. 30.

VMware

38 U.S. (VMW, $148)

• Four years ago, VMware pivoted: Instead of viewing Amazon's cloud service AWS as a threat, it linked up with the service and made it one of the company's greatest strengths. Since then, VMware's cloud-computing and virtualization software continues to gain momentum, helping grow annual revenue by an average of 21% over the past three years. The company, led by CEO Pat Gelsinger, generated $10.8 billion in 2019, and, as of November, boasted a valuation of $62.1 billion.

THE FUTURE 50 METHODOLOGY

TO IDENTIFY THE FUTURE 50, the BCG Henderson Institute examined more than 1,000 publicly traded companies with at least $20 billion in market value or $10 billion in revenue in the 12 months through the end of 2019.

Thirty percent of a company's score is based on market potential—defined as its expected future growth as determined by financial markets. This is assessed by calculating the proportion of its market value that is not attributable to the earnings stream from its existing business model.

The other 70% is based on a company's capacity to deliver against this potential. This score comprises 19 factors, selected for their ability to predict growth over the following five years, which fall into four categories:

STRATEGY

Our A.I. algorithm relies on natural language processing to detect a company's strategic orientation from its SEC filings and annual reports. We assess the clarity of a company's strategy from earnings calls. We also assess a company's commitment to sustainability from its governance rating by Arabesque, a data-analytics firm.

TECHNOLOGY AND INVESTMENTS

A company's capital expenditures and R&D (as a percentage of sales) measure its investment in the future. Technology advantage is assessed through the growth in a company's citation-weighted patent portfolio and that portfolio's digital intensity (share in computing and electronic communication). To account for external innovation, a company's portfolio of startup investments and acquisitions is compared with the best-performing global venture capital funds.

PEOPLE

The value of youthful and focused leadership is assessed by the age and stability of a company's executives and directors and the size of its board. The company's diversity is assessed by its share of employees and of management that is female, as well as the geographic backgrounds of its directors.

STRUCTURE

A company's age and (revenue-based) size are correlated with vitality loss. But three-year and six-month sales growth are predictive of future growth as signs of revitalization.

Companies with negative cash flow from operations over the prior three years on average, indicating elevated performance risk, were excluded from the ranking.

NEW INDUSTRIALS

Contemporary Amperex Technology

15 CHINA (SZ: 300750, $38)

• CATL, a battery supplier to electric-vehicle makers like Tesla and Nio, says it has designed a battery with a million-mile guarantee over 16 years—far surpassing most of its competitors. Such tech could help it keep its edge in China, where the government is cutting manufacturer subsidies.

Luxshare Precision Industry

17 CHINA (SZ: 002475, $8)

• Luxshare, already the sole manufacturer of Apple AirPods Pro and a key supplier of Apple's basic AirPods model, is now set to become Apple's first iPhone manufacturer headquartered in mainland China. The Dongguan-based Luxshare acquired an iPhone assembly plant from Taiwan's Wistron in July and will reportedly be responsible for fulfilling 20% of iPhone 12 Mini orders. Over half of Luxshare's revenue comes from Apple, and the manufacturer's track record as a supplier for multiple components puts it in prime position to take on more responsibility.

Tesla

18 U.S. (TSLA, $490)

• Elon Musk's EV and battery manufacturer leaps up the ranking as it becomes one of the world's most valuable companies. Why such potential? Furious expansion of its global manufacturing capacity should allow Tesla to begin producing greater volumes of cars, thus improving cash flow and justifying its eye-watering valuation, and perhaps even dragging the auto industry into a fossil fuel–less future. (See our profile of Musk in this issue.)

CoStar Group

27 U.S. (CSGP, $892)

• Even when commercial real estate prices cratered during the 2008 financial crisis, CoStar, which provides analytics to the industry, remained resilient; its revenue dropped just 1% in 2009. The company's tech-focused strategy is core to its stability. CoStar's revenue has continued to rise despite the pandemic, as landlords with fresh vacancies crowd to its online marketplace, Apartments.com—helping push revenues in the third quarter to a new record of $426 million.

Copart

43 U.S. (CPRT, $114)

• While auto salvage might seem like one of the most low-tech businesses imaginable, Copart, which began as a single salvage yard, has grown into a digital force by connecting would-be buyers with companies looking to sell damaged vehicles online. The company, which sells more than 2 million vehicles a year, has experienced rapid growth as cars have become more technically complex, and therefore less economically viable to repair: In fiscal 2019, Copart opened 11 new U.S. facilities and eight abroad. Copart's profits hit nearly $700 million in its most recent fiscal year, up more than 18% year over year.

▲

FROM BIG TO BITTY
A Copart auto salvage lot (above); Apple's AirPods Pro earbud (top).

Fastenal

46 U.S. (FAST, $47)

• When the coronavirus emerged in early 2020, the company, based in Winona, Minn., had a head start. A distributor of factory floor supplies, including personal protective equipment, Fastenal reacted quickly to the virus's rise in China, adapting its supply chains and becoming a major supplier of PPE. That helped it set itself apart even as industrial activity softened amid lockdowns. Its next challenge will be whether it can manage both a surplus of PPE and a still-soft industrial base going into 2021.

COPART: COURTESY OF COPART, INC.; EARBUD: COURTESY OF APPLE

CONTENT FROM VERTIV

THE TECHNOLOGY POWERING TOMORROW'S MOST ADVANCED SOLUTIONS

Investing in back-end IT infrastructure will help your business make the leap to the cloud.

DESPITE RISING UNCERTAINTY AND economic disruption, many companies plan to increase or maintain digital transformation spending, with the global digital transformation market expected to grow 22.5% annually through 2027, according to Grand View Research. But as important as prioritizing cloud migration and on-demand app development has become, companies must invest in building out back-end IT infrastructure solutions to seamlessly scale up.

"As more commercial activity shifts online, organizations transitioning to cloud and edge computing solutions need comprehensive IT tools and technologies that can help them alleviate technical concerns while improving service levels and speed to market," explains Rob Johnson, CEO of critical digital infrastructure technology provider Vertiv. "It's important to work with partners who can help you the entire way, from project planning, testing, and delivery to the management of day-to-day operations."

Major telecom providers are already leveraging Vertiv's DC power systems and integrated enclosure solutions to deploy infrastructure at cell phone towers in record time. Big-box retailers are using Vertiv's edge computing and monitoring solutions to support the compute that processes thousands of local customer deliveries seamlessly. Data center development and maintenance are important too, which is why Vertiv partnered with connected building provider Honeywell to provide sustainable, efficient data center solutions.

Three in four organizations are currently making long-term changes to their IT strategy, according to research from analyst group Spiceworks Ziff Davis, and spending on cloud and managed services is only expected to grow in 2021. To maintain network uptime, minimize disruption, and ensure on-demand service, companies on this path must consider implementing client-facing solutions.

That means not only thinking about innovation in terms of new business lines and opportunities but also rethinking how to design IT frameworks and network solutions to best support these efforts—and staying flexible enough to support big-picture strategy objectives. "With digital transformation, every business is now a technology business, and every business must have a digital strategy to survive and thrive in this new digital world," says Gary Niederpruem, chief strategy and development officer for Vertiv. "Organizations need to tap teams with the right expertise to ensure that their critical digital applications are always available and delivered as efficiently as possible." ■

RIDING CHINA'S GROWTH

TAL Education Group

11 CHINA (TAL, $74)

• TAL's stock dipped earlier this year after a short-seller alleged it had inflated its net income, an accusation TAL denies. But the after-school education firm bounced back strong; shares are up close to 54% this year as the pandemic helped boost its nascent online tutoring business. Analysts at HSBC project the online unit's revenue will continue to roughly double on an annual basis.

Haidilao International Holding

14 CHINA (HK: 6862, $7)

• After opening its first outlet in China's Sichuan province in 1994, Haidilao has built a $38 billion hot pot empire by focusing on unique services and efficiency. Robots, introduced in 2018, buzz around restaurants to deliver ingredients to diners, and employees dole out free gift bags and manicures to customers waiting for tables. As the Chinese hot pot market reaches saturation, Haidilao is counting on continued growth abroad. The company now has outlets in nearly a dozen countries and hopes to hook overseas diners on one of China's most popular culinary experiences.

▼

A HOT STOCK
Diners indulge in a hot pot meal at one of Haidilao's outposts in Hong Kong.

Xiaomi

19 CHINA (HK: 1810, $3)

• Rising tensions between China and India threatened to derail the Chinese smartphone maker's growth prospects this year. But Xiaomi, which derives roughly 20% of its revenue from India, has weathered the storm thus far. Globally, the company recently surpassed Apple in phone sales and hopes its burgeoning smart-home device business will sustain its growth.

Foshan Haitian Flavouring & Food

28 CHINA (SS: 603288, $25)

• China's biggest soy-sauce maker is already beloved by home cooks, but the rising popularity of restaurants and food delivery should be good for business too. The pandemic dented Foshan's catering arm, but its retail sales helped make up for those losses.

HAIDILAO: ANTHONY KWAN—BLOOMBERG VIA GETTY IMAGES

CUTTING-EDGE COMMERCE

MercadoLibre

7 ARGENTINA (MELI, $1,417)

• MercadoLibre was already on a tear—with sales up nearly 60% last year—as the biggest player in Latin America's nascent but fast-growing e-commerce market capitalized on the region's expanding middle class and its increased access to the Internet. But the pandemic has only turbocharged the company's growth. Revenue in the third quarter was up 85% year over year to $1.1 billion. The company also offers services like an online payment platform, logistics, and online advertisements. Now it just needs to keep Amazon, which currently has a small presence in its biggest markets, in check.

Shopify

13 CANADA (SHOP, $989)

• **Canadian tech company Shopify, which helps provide merchants with a digital sales platform, has emerged as a key resource for local retailers looking to counter Amazon's e-commerce dominance. Last quarter, the volume of online sales facilitated by Shopify's engines doubled to $31 billion. Meanwhile, more businesses are signing up for its growing suite of e-commerce services, and analysts expect revenue growth to increase by 50% a year or so for the foreseeable future.**

▼

SKYLINE IN THE SIX Taking in the views at Shopify's Toronto office.

Lululemon Athletica

20 CANADA (LULU, $346)

• Lululemon has weathered countless challenges to its dominance in premium athletic casual wear, a category it invented years ago. It has done so with a steady stream of new products and lots of R&D into fabric development. The retailer this year bought home fitness system Mirror, telegraphing a longer-term move beyond apparel as it looks to continue the fast growth that has seen sales double to $4 billion in the past four years.

Pinduoduo

24 CHINA (PDD, $144)

• China's e-commerce market is crowded with behemoths, but Pinduoduo has made inroads by chasing less sought-after consumers in China's lower-profile cities and by adding social and gaming elements to the online shopping experience. A group-buying function, for instance, encourages customers to find friends to go in on bulk purchases. Pinduoduo's sales boomed during the COVID-19 lockdowns in 2020, but a development later in the year—Beijing's proposed antitrust regulation that targets tech—represents an emerging threat.

COURTESY OF SHOPIFY

▲
RING ME UP
A shopper uses her phone to access Adyen's payment network.

COURTESY OF ADYEN

FINTECH

Adyen

6 NETHERLANDS (AS: ADYEN, $1,906)

• **Amsterdam-based Adyen has built a reputation as the go-to payments provider for businesses that need to operate globally, with customers ranging from McDonald's to Microsoft to Uber. It can process payments using hundreds of methods and currencies. Adyen uses its own payments infrastructure, combined with machine learning, to minimize chargebacks and fraud. It processed about $284 billion worth of payments in 2019, and experienced 23% growth in payment volumes in the first half of 2020 and a 27% increase in net revenue, despite the pandemic.**

Square

9 U.S. (SQ, $196)

• Square, which was once best known for its little white plug-in credit card swipers—as well as being Twitter CEO Jack Dorsey's side hustle—has grown into a major force in payments and banking in its own right. With a stock price that has tripled so far in 2020, Square's market value has surpassed that of Goldman Sachs. What has investors so revved up? Likely its shiny new banking license (approved in March) and its Cash App, a peer-to-peer payments and cryptocurrency-trading service whose rapid growth has made it a rival to PayPal's Venmo. Next up: a possible acquisition of Credit Karma's tax-preparation business.

PayPal

34 U.S. (PYPL, $193)

• The former subsidiary of eBay has definitely come into its own in its past five years of independence. Poised to reap the benefits of consumers' growing reliance on digital payments, PayPal has excelled during the coronavirus pandemic, growing revenues nearly 20% in the first three quarters of the year—exceeding even its average three-year growth rate of 18%. Now one of the largest small-business lenders, PayPal is also expanding its offerings to include buying and selling cryptocurrency, both through its flagship product and its peer-to-peer payments app, Venmo.

APPROACH WITH CAUTION

No company is problem-free, but some fly more red flags than others. From a big bet on COVID-19 drugs that may or may not pay off, to a booming business still plagued by misinformation, consider these two players high-risk, high-reward.

Celltrion

49 SOUTH KOREA (KS: 068270, $266)

• The pandemic has pushed South Korea's Celltrion to further expand beyond its core business of making "biosimilars," or cheaper generic versions of name-brand "biologic" drugs and treatments. In October, the U.S. Food and Drug Administration granted emergency use authorization for Celltrion's rapid COVID-19 testing kit, Sampinute, which promises to deliver results within 10 minutes and with a 94% sensitivity rate. The company is also developing a COVID-19 antibody treatment, to reduce the severity of the coronavirus once patients are infected, and has received South Korean regulatory approval to begin Phase III clinical trials of the drug.

Facebook

50 U.S. (FB, $270)

• Last but not least, the social media player's underlying business remains strong. And new business opportunities continue to emerge: A global e-commerce strategy (including WhatsApp Pay) shows signs of promise, for example. Analysts project 17% to 20% future, long-term growth. At the same time, reputational risk is high—as is the very real threat of regulatory crackdowns across different regions, including the United States. Perhaps even more ominous, the Facebook core product is seeing declining engagement levels with younger demographics. In short: There is a reason the social network is on this list, but also a reason it comes in at No. 50.

BUSINESS PERSON OF THE YEAR

ELON THE BOLD

Brilliant? Unquestionably. Belligerent? Occasionally. Resilient? Remarkably. Tesla and SpaceX CEO Elon Musk is redefining what it means to be a successful business leader. For better or worse.

+ The full BPOY top 20 rankings

BY ANDREW NUSCA AND MICHAL LEV-RAM

THINGS GET SERIOUS inside the 45-minute mark. That is a relative term, of course, because there is nothing unserious about placing a $62 million, 208-foot-tall rocket on a launchpad with plans to send it beyond Earth's atmosphere. It is a balmy Sunday in November. NASA's Kennedy Space Center in Florida teems with technicians nervously running through checklists. Nightfall has come and gone, and the disappearance of the sun's warm hues lend the proceedings a clinical cast. Four astronauts—three from NASA; one from JAXA, the Japanese space agency—serenely sit in a row inside a Dragon spacecraft, which is in turn perched atop a Falcon 9 rocket that will carry it. Both are manufactured by Space Exploration Technologies Corp., otherwise known as SpaceX, the L.A.-area aerospace company led by Elon Musk.

SpaceX and NASA have partnered on this launch, which is not unusual—over the past decade SpaceX has completed more than 100 launches with its Falcon rockets, and SpaceX regularly transports government payloads. What is unusual, however, is that SpaceX, a private company, would be allowed to ferry American astronauts to and from orbit. NASA certification for that capability came less than a week before the planned mission. Launchpad 39A, where this SpaceX launch will take place, is the same spot where Neil Armstrong, Buzz Aldrin, and Michael Collins left Earth on the Apollo 11 spaceflight. A successful mission today will take the astronauts to the International Space Station for six months of science experiments. It will also offer further evidence demonstrating that commercial spaceflight is viable.

At T-minus 44:55, a male voice breaks the silence. "The team is ready for crew access, arm retract, propellant loading, and launch," the launch director says.

T-minus 1:47. Fueling is complete. With a roaring hiss, the rocket and capsule are consumed by a gigantic white cloud, the result of gaseous oxygen colliding with the coastal air.

T-minus 0:42. A voice crackles over the intercom: "Go for launch." Another, from inside the capsule: "This is Resilience," the name of the Dragon capsule. "Roger 'Go.'"

Three. Two. One. The rocket's rear ignites with the unholy scream of burning chemicals. Its deafening blast drowns out the radio. "And Resilience rises!" a ground observer excitedly proclaims as the thundering column of light races toward the stars. "Not even gravity contains humanity when we explore as one for all."

At 8:09 p.m. Eastern, as the four astronauts hurtle toward low-earth orbit at 17,000 miles per hour and become the first operational flight of SpaceX's Crew Dragon spacecraft, Musk—unusually out of sight, owing to a possible COVID-19 infection—publishes a new tweet: ❤️

Just another day in the life of Elon Musk. Some executives play golf in their spare time; others read, meditate, or go for a hike. Musk catapults people into space—and that's only his night gig. At SpaceX, where he is founder and CEO, the 49-year-old Musk has built a private company currently valued at $46 billion—and projected to be worth much more—that is hell-bent on colonizing Mars. (Rekindling the storied U.S. space program? Just a side effect.)

Then there's Tesla, which, with a recent market capitalization of north of $520 billion, is now one of the world's most valuable companies, worth more than quintuple the combined value of U.S. auto icons General Motors and Ford. Through sheer force of will and a healthy dose of operating genius, Musk has built an electric-auto maker and battery manufacturer that is seemingly dragging an entire industry into the 21st century—and captivated investors around the world. Over the past three years,

FREDERIC J. BROWN—AFP/GETTY IMAGES

FUTURE MAN Musk introducing Tesla's all-electric Cybertruck on Nov. 21, 2019. The design is partly inspired by the sci-fi film *Blade Runner*.

Tesla has averaged revenue growth of 52% and it recently reported its fifth straight quarterly profit. In November, it was announced that Tesla would be added to the S&P 500 index as of Dec. 1—giving the stock a further boost. That rocketed Musk's personal net worth even higher to nearly $128 billion, according to Bloomberg—making him the world's second wealthiest person behind Amazon's Jeff Bezos, and slightly ahead of Bill Gates.

Elsewhere, Musk's Boring Co. aims to dig tunnels to relieve urban traffic congestion. His Neuralink Corp. is working to realize implantable brain-machine interfaces. OpenAI, which he cofounded and funds but no longer holds a board seat at—owing to possibly competing work at Tesla—is trying to develop "friendly" artificial intelligence that won't threaten society. And Hyperloop? Just a sci-fi transportation idea he decided to open-source to the greater technology community.

Elon Musk, it's worth stating, has the same number of hours in the day as the rest of us.

If Musk had accomplished any one of these feats, he would have a strong case to be *Fortune*'s Businessperson of the Year. (And indeed he was once before, in 2013, when we dubbed him a "triple threat.") But this five-tool player—yes, even Elon Musk can get an upgrade—has managed to achieve it all in the face of some long odds. And he's far from finished. Ask chief executives in any industry which CEO most inspires them, and far and away it is Musk's name that most often crosses their lips. They say Elon

Musk is the rocket man, the iron man, the savior of the sins of a fossilized auto industry. He is an ambition-emitting entrepreneur who has enough executive aptitude to make the impossible possible. He is a designer, a technologist, and a Renaissance man without peer. He is a turnaround artist with astonishing verve and little apparent fear.

Yet ask executives which CEO vexes them the most, and Musk's name is first again. To some he is a con, a bully, a toxic male messiah who can't take criticism. To others he is a hypocrite, a fake, a reckless distraction unfit to lead us into the future. Musk is a taskmaster who plays fast and loose with the rules. He's a homeless billionaire who takes us all as fools.

But those who know the man best say the reality is somewhere in between. Elon Musk is complicated. Human, even. (Perish the thought.) And that truth, paired with Musk's audacious successes this year, tells us more about the state of business in 2020 than anything else.

ELON THE BRAIN.

THE SEDANS ARE LINED UP in tidy rows at socially distant intervals, 12 deep and two dozen wide, midday sun gleaming off hoods of silver, white, blue, and red. Every single vehicle is a brand-new Tesla Model S.

A 21st-century drive-in movie for the Silicon Valley set? Not quite. It is Battery Day here at Tesla's factory in Fremont, Calif., and the drivers assembled on this warm September afternoon have come to hear Elon Musk review the company's annual performance and offer a glimpse into what's in store for the future—including, they'll soon discover, a racetrack-ready version of the Model S called Plaid, named not for its sartorial treatment but after the top speed of the spacecraft in the 1987 spoof movie *Spaceballs*. (No one said Musk didn't have a sense of humor.)

Cheers and triumphant fists appear from rolled-down windows as Musk, in a black graphic T-shirt, takes the stage. Car horns blare in greeting. The CEO responds with a delighted chuckle. "Hi everyone," he says, grinning, as he surveys the scene before him. "It's a little hard to read the room with everyone being in cars, but it's the only way we could do it." Musk laughs at the apparent absurdity. This year's event in the age of COVID is a far cry from last year's traditional slide-deck session held indoors.

And Musk is in far better spirits than he was a year ago—for good reason. In September 2019, Tesla's stock price had slumped by one-third in nine months, depressed by sluggish sales of its pricier models, a Walmart lawsuit (since settled) over fires involving solar panels made by Tesla subsidiary SolarCity, and escalating trade tension between the U.S. and China that threatened to affect the company's soon-to-be-opened manufacturing plant outside Shanghai. When Musk took the stage then, his remarks were muted and aimed to reframe the conversation: "It's been a hell of a year, but a lot of good things are happening."

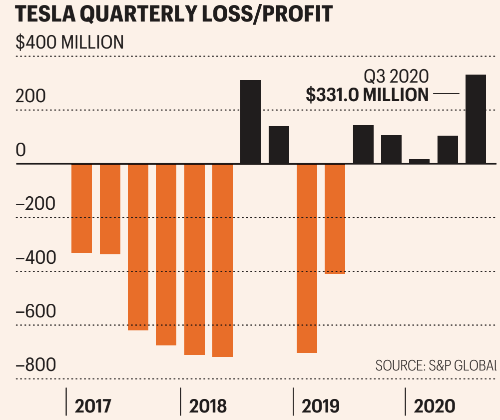
That, it turns out, was an understatement. As Elon addresses the car-bound crowd on this day, Tesla's stock price has shot up eight-

CHARGING UP

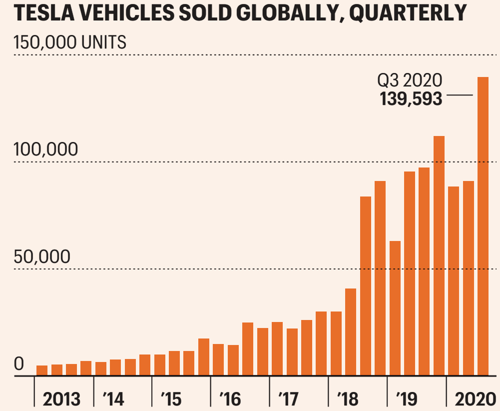
Tesla's rapidly rising vehicle production numbers and recent profitability have contributed to its electric market returns.

TESLA STOCK GROWTH

TESLA QUARTERLY LOSS/PROFIT

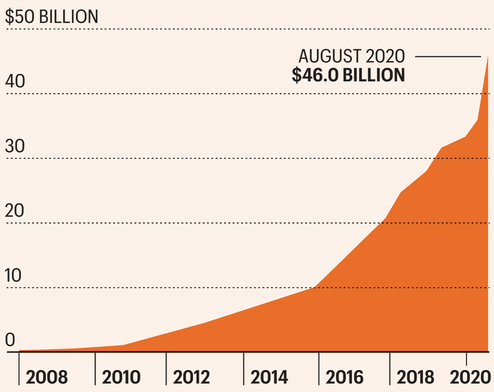


TESLA VEHICLES SOLD GLOBALLY, QUARTERLY



JOE BURBANK—ORLANDO SENTINEL/ TRIBUNE NEWS SERVICE/GETTY IMAGES

SPACEX VALUATION



SOURCE: PITCHBOOK

WHAT A BLAST The SpaceX Falcon 9 rocket launches from Kennedy Space Center in Florida on Nov. 15, 2020, carrying a crew of four to the International Space Station.

fold in 12 months, in part owing to an August stock split that whipped investors into a frenzy. And there is plenty more good news. Reports suggest that partner Panasonic will increase its investment in Tesla's Gigafactory 1, outside Reno, by $100 million. With its Shanghai plant online, the company is on track to produce and deliver a record number of vehicles. Construction of a Berlin factory—boosting the company's capacity and further insulating it from global trade tensions—is well underway.

In other words, things are going according to plan—a plan that has led to Tesla controlling roughly a third of the nearly $200 billion global electric-vehicle market, which itself is slowly but steadily gaining ground in the broader, multitrillion-dollar automotive market.

This is no small feat. Tesla's vertical integration, software orientation, and product differentiation—the result of years of loss-inducing investment in automation, battery science, and other proprietary technologies—are starkly different from that of its more conventional automotive peers. Tesla has navigated the trickiest of financial tracks as it has worked to secure the tremendous capital necessary to start and scale a new automotive manufacturer. Along the way Musk has fought a prolonged war against short-sellers and survived a near-brush with bankruptcy between 2017 and 2019 as his company scaled up to begin producing its least expensive vehicle, the Model 3. The skeptics are persistent: According to financial data firm S3 Partners, nearly 6% of Tesla's tradable shares are sold short—a massive $22 billion bet against Tesla that has not paid off so far.

There are plenty of Silicon Valley technology startups that craft a business plan, raise money, and fail. With Tesla, SpaceX, the Boring Co., and so many others, the scale, timelines, and stakes are exponentially greater. Though Musk will bend over backward to insist that the tens of thousands of people in his employ are responsible for the innovations he is credited with—and for the most part, they are—it is his executive aptitude that has kept such big bets on track through so many challenges. (Musk declined to comment on this story, stating: "I don't wish to receive awards or recognition.")

Matt Desch, chief executive of the McLean, Va., satellite company Iridium Communications, says he first met Musk 12 or 13 years ago, years before SpaceX logged its first successful launch. Today Iridium is SpaceX's largest commercial customer, having launched 75 of its satellites on eight SpaceX rockets.

"No matter who we talked with or what issue was being discussed, Elon's fingerprints were clear on the matter at hand," Desch says. "Even as he was building Tesla and other ventures, he was still behind every critical strategic decision."

And when you find yourself working directly with the man himself? You have to have all your ideas buttoned up—because Musk will politely interrogate you, says a former executive of one of Musk's companies who, bound by a non-disclosure agreement, declined to be named. If you didn't properly prepare, he will know. And he will remember—to your detriment.

"He really is, most of the time, the smartest guy in the room," the executive says. "He will think through decision trees quickly and thoroughly—10 to 15 chess moves in advance. He will close his eyes, flip his head back, and you can see his eyes darting. It can last for a while."

That dynamic can go awry, too.

"Elon sees himself as the smartest guy in the room," the executive adds. "Most of the time he is—but not all of the time. His mistakes come from this. He doesn't defer to others with more expertise."

ELON THE EMBATTLED.

MUSK MAY be brilliant and shrewd. But his personality can sometimes be a liability to his success, just as easily as it can be a boon. "Part of maintaining innovation over time is that your tenacity doesn't become pigheadedness, and that your optimism doesn't disconnect you too far from reality," says Gregory Shea, an adjunct professor of management at the Wharton School.

Like everything else Musk does, his flubs—whether internal or public-facing—are larger-than-life. Some people shrug these off as the eccentricities often associated with brilliance. Others aren't so quick to dismiss his behavior as an example of "geniuses will be geniuses." Sometimes, Musk gets taken to task. And when it happens, the world gets a front-row seat.

In mid-November, as COVID numbers broke all sorts of horrifying records in the U.S.—1 million cases were counted in just the first 10 days of the month—Musk took to Twitter to tell the world that he, too, has COVID. Or not.

"Something extremely bogus is going on," tweeted the CEO, who had publicly downplayed the virus for months. "Was tested for Covid four times today. Two tests came back negative, two came back positive. Same machine, same test, same nurse. Rapid antigen test from BD [a leading provider of diagnostic tools]."

Musk did have a point: So-called rapid antigen tests have been found to be inaccurate

THE RISE OF ELON—A CAREER TIMELINE

1995

Brothers Kimbal and Elon Musk start **Zip2**, a company that sells city guide software to newspapers, in Palo Alto. It sells to Compaq for about $300 million in 1999.

1999

Musk starts **X.com**, an early online bank. The following year, it merges with PayPal parent Confinity, founded by Peter Thiel, Max Levchin, and Luke Nosek.

2002

Musk starts **SpaceX**. Later that year, eBay buys PayPal for $1.5 billion. Musk's payout is about $180 million.

2004

Musk invests $6.5 million in electric-auto maker **Tesla Motors** and becomes chairman of its board.

2006

Peter and Lyndon Rive start solar panel installer **SolarCity** with a $10 million investment led by cousin Musk.

FROM TOP: PAUL SAKUMA—AP PHOTO; JOHN B. CARNETT—POPULAR SCIENCE/GETTY IMAGES if a person isn't oozing with the virus. That, albeit with a slightly more scientific choice of words, is what the Food and Drug Administration said in a letter to health providers dated Nov. 3. That's also what Emma Bell, a bioinformatics scientist in Canada who responded to Musk's tweet, clarified in her own public post, which mocked the CEO's seeming ignorance of how these rapid tests work—and don't work. "What's bogus is that 'Space Karen' didn't read up on the test before complaining to his millions of followers," Bell wrote in a tweet that quickly went viral. (A "Karen," for those who don't know, is a pejorative term for entitled white women.)

"Space Karen" became a meme, spawning images on the Internet of Musk with a blonde bob. But it was just the latest piece of work in Musk's larger oeuvre of public relations kerfuffles, many of them also hatched on Twitter.

Like President Donald Trump, Musk has used the social media site as his own personal megaphone to the world, with mixed results. He is both prolific and unfiltered with his more than 40 million followers, subjecting them to his bold and often bizarre musings, his spats with competitors and Tesla skeptics, and his declarations of often unrealistic and unmet timelines for product deliveries. "It's interesting, as an engineer, to find out about a new deadline via a late-night tweet," says one former Tesla executive.

Musk has had to pay a heavy price—in some cases literally—for his social media rants. In May of this year, he took to Twitter to proclaim that Tesla's stock price was "too high imo [an acronym for "in my opinion"]." This short string of words managed to shave an impressive $14 billion off Tesla's market cap, including $3 billion from Musk's own stake in the company. And who can forget his debacle with the U.S. Securities and Exchange Commission? In August 2018, Musk tweeted that he was considering taking Tesla private. "Funding secured," he wrote. The SEC moved quickly, charging the CEO with securities fraud for his "misleading tweets." The two sides

HOW TO LEAD LIKE ELON: 4 KEY LESSONS

We asked business experts, Musk-watchers, and former colleagues what makes him such an effective, if unconventional, executive.

1

NEVER INNOVATE FROM THE STATUS QUO.

To solve the biggest problems, don't start with existing infrastructure—throw everything out the door and begin anew. True moonshots rethink the problem, not the solution. Everything else follows.

2

HIRE BRILLIANT PEOPLE—THEN CHALLENGE THEM TO SHINE.

When you work for Musk, you embrace the notion that creative engineers can solve anything and nothing is impossible. The executive has been known to give young engineers tremendous responsibility to solve problems, leaving them overnight in airplane hangars, for example, to tackle a complex technical challenge on a rocket.

3

UNDERSTAND YOUR CUSTOMERS' PROBLEMS.

Musk's candid, quippy tweets often trigger news headlines for all the wrong reasons—"Area Executive Says Impolitic Thing"—but closer inspection of his communications reveals a rambling, unfiltered conversation between a CEO and his customers. That two-way street drives both Musk's popular appeal and his occasionally unorthodox solutions.

4

MANNERS MATTER.

Despite the brash reputation he has on the Internet, people who know Musk best say he is extraordinarily polite and well-mannered, even under great pressure—"a credit to his parents," one longtime colleague says—and an unheralded superpower when it comes to negotiating deals.

"Elon sees himself as the smartest guy in the room. Most of the time he is—but not all of the time. His mistakes come from this."

reached a settlement, which included a $20 million fine, and forced Musk to step down from his position as the chairman of Tesla's board, at least for three years.

It's not clear whether there is a method to Musk's tweet storms—or if he just can't help himself. "I think he probably does care about his brand and reputation," says Judy Smith, the renowned crisis management expert and CEO of Smith & Co. "But what one person wants to be known for and the way they want to be portrayed is different for the next person."

Whatever his intentions may be, it's clear that Musk's public persona is uncensored to a level very few public-company CEOs allow themselves to reach. Internally, within his companies, he is also known for his candor—for better or worse. That brutal honesty, coupled with a demanding and fast-paced atmosphere that former employees say they have yet to experience anywhere else, has made it hard for many execs to stick around for too long.

Especially at Tesla, Musk has cycled through an alarming number of executives. The departures aren't always voluntary. "There was a culture of fear," says one former human resources staffer from Tesla who did not want to be named. "Anyone could get fired at any point. He [Musk] is ultimately the man at top. He is the king. He can fire, behead anyone he wants. He holds all the cards." Musk owns some 20% of Tesla's shares, and the company's board is stacked with loyalists.

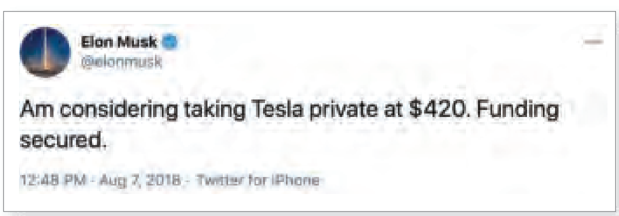
Of the five men who made up the original executive team at Tesla, only Musk remains. (JB Straubel, Tesla's former chief technology officer, departed in July 2019 after 15 years with the automaker.) Many other key people have left, too—from George Blankenship, the VP of worldwide retail, to Greg Reichow, the former VP of operations and production. With every departure, there is presumably a loss of institutional knowledge. And perhaps there is also a ding to the company's ability to attract yet another round of seasoned executives. One of Tesla's most recent general counsels (three departed in a 12-month period), Todd Maron, was previously also Musk's divorce attorney. That's not to say Maron wasn't qualified. But it does raise some questions about how wide a pool of A-list candidates Musk is fishing from these days as Tesla's growth accelerates.

And yet: In interview after interview with employees who used to work for Musk, not one said they regretted having joined any of his companies. "For me, it was like getting a gig with Eddie Van Halen," says Rik Avalos, a former recruiter at Tesla and ex-head of talent at Neuralink, the A.I. startup cofounded by Musk (Avalos is also a longtime musician). "But it takes a lot of mental toughness to be part of an Elon Musk company."

Shea, the Wharton professor, says that Musk's propensity to cycle through executives may actually have some positive by-products. He brings up a term called "creative abrasion," coined by Jerry Hirshberg, who, apropos of Tesla, was an automotive designer. The

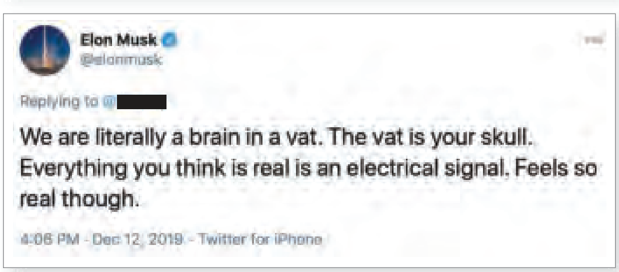
HE TWEETED WHAT?!

Most CEOs don't use Twitter as a brain-machine interface for public relations because of fear of blowback. Most CEOs aren't Elon Musk. Below, some recent tweets of note.


Elon Musk
@elonmusk

Am considering taking Tesla private at $420. Funding secured.

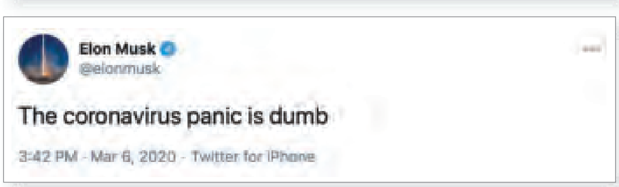
12:48 PM · Aug 7, 2018 · Twitter for iPhone


Elon Musk
@elonmusk

Replying to @[redacted]

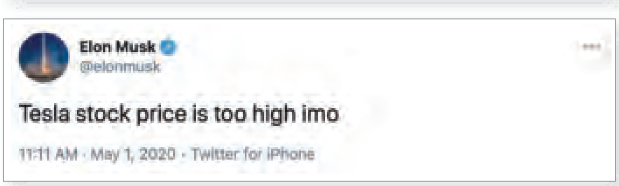
We are literally a brain in a vat. The vat is your skull. Everything you think is real is an electrical signal. Feels so real though.

4:06 PM · Dec 12, 2019 · Twitter for iPhone


Elon Musk
@elonmusk

The coronavirus panic is dumb

3:42 PM · Mar 6, 2020 · Twitter for iPhone


Elon Musk
@elonmusk

Tesla stock price is too high imo

11:11 AM · May 1, 2020 · Twitter for iPhone concept is that creativity flourishes when ideas are constantly challenged and people clash, albeit in a productive way. "One of the things that characterizes people who are creative over time is that they end up with a creative network around them," says the professor. Perhaps Musk's way of staying innovative is to not just come up with new ideas but to introduce new people into the mix—and exit some of those who have been around for a while.

Whatever the strategy, or lack of one, Musk's drive for creative undertakings is relentless, and he seems to approach virtually everything in his life with the same level of tenacity, whether he's right or wrong. That has certainly created detractors along the way. But it's also spawned loyal fanboys and fangirls.

The devotion to Musk is particularly strong among some Tesla owners, who watch for any signs of new product developments with Apple-like fervor. (Even a line of Tesla-branded tequila, which started out as a practical joke on—where else?—Musk's Twitter account, sold out within hours in early November.)

Indeed, one of Tesla's biggest challenges to date has been for supply to meet demand; the company has been plagued by production delays for years. To that end, the automaker has invested heavily in new manufacturing plants, including in China and Europe, where customers are waiting up to four months for new vehicles to be delivered. "Moving beyond, we believe that 2021 is shaping out to be a pivotal year for Tesla as it begins production at two new facilities and launches a number of new products in the lineup," a trio of Deutsche Bank analysts wrote in a recent report.

Musk has said that he expects Tesla to hit its production target for 2020, delivering 500,000 cars. And Wall Street analysts seem to agree that it's plausible. In the third quarter of 2020, even as COVID-19 raged, Tesla delivered 139,300 vehicles, an all-time record. (True to form, Musk defied a California order and restarted production at the company's Fremont plant before a stay-at-home order was officially lifted. "If anyone is arrested, I ask that it only be me," he tweeted on May 11. No one was arrested, but several workers later tested positive for the virus.)

Tesla still has a lot to prove—not just its capacity to significantly ramp up production, but also its ability to deliver on promises of fully self-driving vehicles, which have also faced delays. And yet, these aspirations are exactly why the 17-year-old company has quickly surpassed traditional carmakers in the eyes of investors. And that's just the mark Musk is leaving on terra firma.

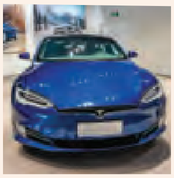
2008
After investing millions more in Tesla, Musk becomes its CEO. Later that year, SpaceX achieves its first successful rocket launch.

2013
Musk shares plans for a high-speed urban transportation system called Hyperloop.

2016
Tesla acquires SolarCity for $2.6 billion. The same year, Musk cofounds brain-machine implant company Neuralink and starts tunnel construction outfit the Boring Co.

2018
Musk tweets that he seeks to take Tesla private at $420 per share; he eventually settles SEC fraud charges and steps down as chairman. A month later, Musk smokes marijuana during a podcast interview, shocking shareholders and board members.

2020
After posting five straight quarters of profits, Tesla joins the S&P 500 index.



FROM TOP: TOM ROGERS—REUTERS; COSTFOTO/BARCROFT MEDIA/GETTY IMAGES

ELON THE BUSINESSPERSON OF THE YEAR.

IN 2012, MUSK APPEARED on *60 Minutes* to talk about his vision for commercial space travel. Correspondent Scott Pelley asked the entrepreneur how he felt about criticism from astronauts Neil Armstrong and Gene Cernan, who had gone before Congress to protest the commercialization of space, arguing that the American government's reliance on private space vehicles could threaten U.S. space dominance.

"I was very sad to see that," Musk responded as his eyes teared up and his voice trembled. "Those guys are heroes of mine, so it's really tough. I wish they would come and visit ... see the hard work that we're doing here, and I think that it would change their mind."

Fast-forward to 2020 and it's clear that NASA's launchpads are busier than ever, in large part thanks to SpaceX. Musk may not have had time to change the astronauts' minds—Armstrong died later in 2012, and Cernan, the last man to walk on the moon, died in 2017—but it is clear that he successfully sold his vision to the space agency that made them famous.

In a statement celebrating the Resilience mission and the milestone that it represents for SpaceX and NASA, Musk, perhaps expectedly, set his sights even higher: "This is a great honor that inspires confidence in our endeavor to return to the Moon, travel to Mars, and ultimately help humanity become multi-planetary."

Sound far-fetched? Undoubtedly. But a controversial businessman who made electric cars cool and turned reusable rockets into reality is not to be underestimated. Even with so many critics rooting for him to fail, it's hard to bet against Elon Musk and his out-of-this-world ambition. And if Musk gets his way—as he so often does—he will not only leave his mark on earth. His legacy, warts and all, will be multi-planetary.

THRIVING THROUGH ADVERSITY

In a year dominated by crisis and uncertainty, these leaders stood out.

To create our annual ranking of star executives, we first screen for 10 metrics ranging from return on capital to total return to investors. Then we identify those who achieved the remarkable. Here, the rest of the top 20:

2. LISA SU
CEO **ADVANCED MICRO DEVICES (AMD)**

• Su's strategic vision to lift Advanced Micro Devices from near-bankruptcy to the pinnacle of PC processors has taken a few years to realize. But now that the high-performance Zen chip design AMD first envisioned six years ago is in its third generation of actual products, sales are booming, reaching almost $9 billion over the past 12 months, a 44% gain from the prior year. And AMD's stock price, under $2 a share in 2016, recently crossed $85—giving the company a stock market value of more than $100 billion. Su is looking to stoke further gains by using AMD's stock to buy rival Xilinx for $35 billion to crack the chip market for cars and 5G mobile devices.
—**Aaron Pressman**

3. JENSEN HUANG
CEO **NVIDIA**

• Nvidia has sold the fastest graphics processing chips for playing video games for most of its 27-year history. But the reason Nvidia overtook Intel in 2020 as the most valuable U.S. chipmaker started with CEO and cofounder Jensen Huang's realization that those same kinds of chips would also be well-suited for machine learning, artificial intelligence, and big data analysis—not to mention mining cryptocurrency too. Nvidia's stock price has gained 122% this year, giving Huang the currency to make a big acquisition. For $40 billion, he's betting on chip-design powerhouse ARM to help Nvidia get even deeper into cloud computing and smart devices.
—**A.P.**

4. REED HASTINGS
CO-CEO **NETFLIX**

• Over the past year, a host of formidable new competitors have challenged Netflix in the streaming wars—from Disney+ to NBC's Peacock to Apple TV+ to HBO Max. But the company was prepared, having made big investments in original programming and its deep content library. It's a strategy that's proved especially prescient during the pandemic, with Netflix set to emerge a winner. The company added 28 million subscribers in the first nine months of 2020—more than it gained for all of 2019—and is on track to hit a new annual record. The share price has also been hitting new highs, with the stock returning 60% over the past 12 months.
—**Beth Kowitt**

5. ELIZABETH GAINES
CEO **FORTESCUE METALS GROUP**

• Gaines defied the odds in a year defined by a global pandemic and fast-souring relations between Australia and China, Fortescue's main market. In fact, the $12.8 billion iron ore producer had a banner year, posting record-breaking financial results, and a 137% total return for investors over the past 12 months. Those results owe much to the speedy recovery and soaring demand of China's steel industry, which despite the pandemic, will have its biggest year ever in 2020. Meanwhile, Gaines implemented safeguards to make sure the virus didn't hobble her operations; so far there have been zero cases of Covid at Fortescue's mining sites.
—**Erika Fry**

BUSINESSPERSON OF THE YEAR • 6–20

6. LEONARD SCHLEIFER
CEO **Regeneron Pharmaceuticals**

7. JEFF BEZOS
CEO **Amazon**

8. SHANTANU NARAYEN
CEO **Adobe**

9. AJAY BANGA
CEO **Mastercard International**

10. TRICIA GRIFFITH
CEO **Progressive**

11. KEN XIE
CEO **Fortinet**

12. PETER WENNINK
CEO **ASML Holding**

13. DAVID POWERS
CEO **Deckers Outdoor**

14. JULIE SWEET
CEO **Accenture**

15. KRISTIN PECK
CEO **Zoetis**

16. SASAN GOODARZI
CEO **Intuit**

17. DANIEL ZHANG
CEO **Alibaba Group Holding**

18. ADENA FRIEDMAN
CEO **Nasdaq**

19. BRUCE BROUSSARD
CEO **Humana**

20. CYNTHIA WARNER
CEO **Renewable Energy Group**

SEE FULL PROFILES OF ALL OUR 20 BUSINESSPEOPLE OF THE YEAR AT FORTUNE.COM.

FROM LEFT: MARK LENNIHAN—AP PHOTO; PATRICK T. FALLON—BLOOMBERG/GETTY IMAGES; ERNESTO S. RUSCIO—GETTY IMAGES/NETFLIX; CLAIRE MARTIN

GROWING THE GAME

The PGA TOUR's drive to lead with **diversity and inclusion** has only increased in 2020.

A TUMULTUOUS 2020 HAS BROUGHT ABOUT a reckoning with systemic racial and social injustice in our country. Organizations across industries are prioritizing the need for greater diversity and inclusion (D&I). For some, this has meant an awakening. For the PGA TOUR, it has meant a deeper commitment to important matters that were already top of mind—and a decisive plan of action.

Six years ago, the PGA TOUR, led by then-Commissioner Tim Finchem, launched a renewed, formalized focus on diversity and inclusion, both within the organization and in its tournaments and host communities. The mission was to reflect the diversity of the regions and communities where the TOUR plays, to encourage diversity of background and thought, and to build an inclusive, welcoming culture throughout the organization. The TOUR commissioned a workforce diversity study of sports leagues, and the survey results showed that while the TOUR was in line with its peers in terms of gender representation, it lagged in ethnic diversity. The TOUR partnered with intern networking organization INROADS to develop an initial D&I plan that included strategies to attract top minority candidates, and it also worked with leading global organizational consulting firm Korn Ferry to update its diversity mission statement.

By 2016, the entire TOUR workforce had received D&I training. Companywide D&I goals were established—so, too, was a multicultural fan development team with a Latinx focus. Female leadership was increased on the Tournament Advisory Committee, and the Tournament Leadership Initiative was also launched. Individual tournaments' host organizations were required to develop and implement their own D&I plans. In 2017, Commissioner Jay Monahan signed a pledge supporting CEO Action for Diversity & Inclusion, the largest CEO-driven business commitment of its kind, which today represents more than 1,000 CEOs and presidents standing up for more inclusive workplaces.

"THE EVENTS OF 2020 HAVE REALLY MOTIVATED US TO WORK WITH OUR TOURNAMENT TEAMS TO DETERMINE HOW WE CAN, THROUGH A RACIAL EQUITY LENS, SUPPORT LOCAL PROGRAMS AND DO MORE."

MARSHA OLIVER
Vice President, Community and Inclusion, PGA TOUR

In early 2020, the PGA TOUR launched its Inclusion Leadership Council to further develop its key inclusion goals, collaborating with each TOUR department and building dedicated cross-functional teams. Then came the tragic deaths of George Floyd, Ahmaud Arbery, and Breonna Taylor, and the massive social injustice protests that ensued. The TOUR immediately took action.

"The first thing we saw was a letter from Commissioner Monahan to all employees on how we could come together to be about more than just golf," says Marsha Oliver, vice president of community and inclusion. "He was candid and said that it wasn't going to be easy. It's going to require all of us to participate, and commitment to diversity, equity, and inclusion is going to be throughout the fabric of the entire organization."

At May's Charles Schwab Challenge, the TOUR's first event after the pandemic-related stoppage, the 8:46 a.m. tee time was left open, and players, caddies, and everyone else on-site were asked to take a moment of silence to respect the memory of George Floyd. At the Tour Championship at Atlanta's East Lake Golf Club—a city and course that have long been at the forefront of racial equity and social justice efforts—the TOUR announced a minimum $100 million pledge to support nonprofit organizations whose work addresses the disparities disproportionately affecting Black Americans and other underserved populations.

These actions build on and broaden efforts the TOUR has made since its founding, with charitable giving surpassing $3 billion this past January. Its new social justice campaign promises to support a range of services—including youth development, education, health and human services, community/economic growth and empowerment, and racial equity and social justice—by tapping into longstanding relationships with local nonprofits via the 130 events that the TOUR runs across its six different tours.

"We host tournaments every week, and we have tournament teams that live and work and

PHOTOS BY TRACY WILCOX

raise families in all those different communities," Oliver says. "The events of 2020 have really motivated us to work with our tournament teams to determine how we can, through a racial equity lens, support local programs and do more."

In addition to increasing its charitable impact, the PGA TOUR continues to try to grow and diversify golf more generally. This includes continuing its two-decades-plus work with the venerable youth-golf organization First Tee and expanding its collaboration with historically Black colleges and universities, including support for varsity golf programs and targeted job recruiting.

The TOUR has also created a new initiative with another longtime partner, Advocates Pro Golf Association (APGA), a minority-focused nonprofit organization and developmental tour, whereby top Black collegiate golfers will receive scholarships onto the APGA Tour; upon completion, these players will receive exemptions into the qualifying school for the Korn Ferry Tour, the gateway to the PGA TOUR.

The TOUR is also reaching out to find new partners. Its relationship with 100 Black Men of America will see a five-year commitment to help that national organization expand its youth mentoring programs. On top of these initiatives, the PGA TOUR is growing its vendor and supplier engagement programs to ensure greater diversity through minority-owned businesses within the industry's economic engine.

"There's a lot we want to do. We won't get to do all of it, but [we're playing] the long game," says Oliver. "We're in it not to tick boxes, but to change the world we live in." —***EVAN ROTHMAN***

TOP: THE PGA TOUR HAS BEEN A LONGTIME SUPPORTER OF THE EAST LAKE FOUNDATION AND DREW CHARTER SCHOOL. IN 2019, ITS GOLF TEAM (PICTURED HERE WITH BRYSON DECHAMBEAU) BROKE BARRIERS BY BEING THE FIRST-EVER ALL-AFRICAN-AMERICAN GOLF TEAM TO WIN THE GEORGIA STATE CHAMPIONSHIP. **BOTTOM:** TODD ANDERSON, PGA, DIRECTOR OF INSTRUCTION AT PERFORMANCE CENTER—TPC SAWGRASS, GIVES A LESSON TO APGA GOLFER KAMAIU JOHNSON.


Courtney & Stephanie
Socialfly and
Entreprenista Media
Brand Builders & Role Models

TIME WELL SPENT

PASSIONS

Holiday Gift Guide

The 2020 holiday season is going to be a little different, to say the least. We won't be traveling. We won't be hosting cocktail parties or soirees. And many of us won't be able to visit our loved ones. But what we can still do is give a special gift, and let those near and dear to us know we're thinking about them. **BY DANIEL BENTLEY**

PASSIONS

THE FOODIE

EXPLORE A WORLD OF NEW TASTES

CLOCKWISE FROM TOP LEFT: **East Fork Pottery "The Mug"** Handmade in Asheville, N.C.; $36. **Trade Coffee** Pair coffee lovers with beans from the country's top roasters; $60 for three bags. **Winc** A wine subscription based on a personal flavor profile; from $60. **Snowe** Wineglasses; $60 for four. Marble cheese board; $75. **Russ & Daughters American Caviar Sampler** Three 50-gram tins of the finest domestic caviar, complete with crème fraîche and blinis. Decadent; $345.

STYLING BY ALEX SILVA

PHOTOGRAPHS BY **JARREN VINK**

PASSIONS

THE HOMEBODY

MORE THAN EVER, 'TIS THE SEASON TO GET COZY

CLOCKWISE FROM TOP LEFT: **Our Place The Always Pan** The pan that took Instagram by storm. Sauté, steam, sear, or sizzle; $145. **Poketo** Jazz up a picnic or dinnertime at home with these designer bamboo plates in a variety of bold designs; $48 for four. **Group Partner Faces Planter** Whimsy up a houseplant. Designed in Brooklyn and made in Portugal. Available at thevictorianatlanta.com; $65. **Sabah Shearling Babas** Turkish-made slippers for warming winter toes; $205. **Our Place Drinking Glasses**; $50 for four. **Vellabox** A subscription that sources hand-poured candles from across the country; starts at $10 per month.

THE CREATOR

FOR AN ASPIRING YOUTUBER, PODCASTER, OR MUSIC PRODUCER

CLOCKWISE FROM TOP LEFT: **Fender Player Mustang** An updated mid-century classic; $599. **Teenage Engineering OP-1** A synthesizer, sampler, and sequencer from Sweden; $1,299. **Apple iPhone 12** Stream to the world with 5G cellular and improved cameras; from $799. **Neewer Ring Light**; $25. **Fujifilm X-S10** Incredible film simulation modes make this camera a vlogger's dream; $1,500 with 18mm–60mm kit lens. **RØDE PodMic**; $99. **RØDECaster Pro** A self-contained podcast studio; $599. **Apple iPad Air** Blazing fast performance makes it ideal for the creator on the go; from $599. **Apple Magic Keyboard**; $299.

PASSIONS

THE AUDIOPHILE

TURN OFF YOUR MIND, RELAX, AND FLOAT DOWNSTREAM

CLOCKWISE FROM TOP LEFT: **Pro-Ject VT-E Vertical Turntable** With an Ortofon OM5e cartridge, this turntable isn't just stylish but sounds great too; $400. **Nebula by Anker Solar Projector** With built-in Android TV and Chromecast; $599. **McIntosh MA252 Integrated Amplifier** There's nothing quite like the vintage sound of vacuum tubes; handmade in Binghamton, N.Y.; $3,500. **Focal Stellia headphones** French audio firm Focal's flagship closed-back headphones utilize a beryllium dome driver to reproduce beautiful treble and articulate bass. Like honey being dripped in your ear; $2,990.

PASSIONS

THE **DRIVER**

GIFTS TO INSPIRE THE NEXT CARROLL SHELBY OR LEWIS HAMILTON

CLOCKWISE FROM TOP LEFT: **AMMO Hoseless Car Wash Kit** Keep the salt off this winter when you really don't want to run the hose; $150. **Autodromo Intereuropa** A hand-wound watch with a dial inspired by the gauges of vintage Italian race cars; $1,250. **Ettinger Key Ring** Because your car deserves better than the free key chain from your last oil change; $100. **CXC Simulations** The most advanced racing simulators for the home; from $57,000. **Lego Technic Lamborghini Sián** Features Lamborghini's iconic scissor doors, a faithful V-12 engine, and eight-speed gearbox; $380.

FIVE STAR AWARD WINNERS

You Need to Know

FIVE STAR WEALTH MANAGERS » FIVE STAR INVESTMENT PROFESSIONALS

You work hard and want your money to work hard for you! You're likely seeking solid investments and financial strategies that fit your family and your situation. These days, finding the right wealth manager is an integral part of securing your financial freedom and well-being. But where should you turn to find the adviser who can start working for you?

Five Star Professional employed a rigorous research process to identify the Five Star award winners in cities across the United States. Award-winning professionals were carefully selected from among thousands of wealth managers for their knowledge, service and experience (see list and disclosure for full list of cities covered).

Winners featured here represent some of the country's most dedicated wealth managers and investment professionals, each committed to pursuing professional excellence and providing exceptional service to their clients.

Five Star Professional identified award candidates based on industry data and nominations received from industry firms and individuals (self-nominations are not accepted).

For the full list of Five Star award winners and an overview of the research methodology, visit fivestarprofessional.com.

FIVE STAR WEALTH MANAGER CRITERIA

Award candidates who satisfied 10 objective eligibility and evaluation criteria were named 2020 Five Star Wealth Managers.

Eligibility Criteria – Required:
1. Credentialed as a registered investment adviser or a registered investment adviser representative. 2. Actively employed as a credentialed professional in the financial services industry for a minimum of five years. 3. Favorable regulatory and complaint history review. 4. Fulfilled their firm review based on internal firm standards. 5. Accepting new clients.

Evaluation Criteria – Considered:
6. One-year client retention rate. 7. Five-year client retention rate. 8. Non-institutional discretionary and/or non-discretionary client assets administered. 9. Number of client households served. 10. Education and professional designations.

FIVE STAR INVESTMENT PROFESSIONAL CRITERIA

The investment professional award goes to estate planning attorneys, insurance agents and select others in the financial industry.

Eligibility Criteria – Required:
1. Credentialed with appropriate state or industry licensures. 2. Actively employed as a credentialed professional in the financial services industry for a minimum of five years. 3. Favorable regulatory and complaint history review. 4. Accepting new clients.

Evaluation Criteria – Considered:
5. One-year client retention rate. 6. Five-year client retention rate. 7. Number of client households served. 8. Recent personal production and performance (industry specific criteria). 9. Education and professional designations/ industry and board certifications.
10. Pro Bono and community service work.

Planning Today for Tomorrow

Paul Gassel

Managing Partner, Certified Fund Specialist®, Accredited Investment Fiduciary®

Paul Gassel is a financial advisor and managing partner of WWM Investments, LLC and has served his clients since 1995. Paul assists with the accumulation and protection of personal wealth tailored to meet the complex and rapidly evolving financial markets. He works to continuously develop the depth and quality of his long-lasting consultative relationships with his clients and enhance his reputation for accessibility, professionalism and performance.

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Wealth Manager Award Winner

Entrepreneurs

Grant H. Ulrick

CAP®, CLU®, CFP®, Wealth Advisor, Partner

Grant has over 23 years' experience in the financial services industry, and he uses a comprehensive, goals-based approach when helping his clients seek their financial dreams. Grant engages strategies designed to help clients maximize their retirement income and pass wealth on to their families and favorite charities. A strong focus on Social Security and Medicare planning allows him to bring confidence into his clients' retirement years.

Stratos Wealth Partners

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gulrick@stratoswp.com • grantulrick.com

Securities offered through LPL Financial, member FINRA/SIPC. Investment advice offered through Stratos Wealth Partners, Ltd., a registered investment advisor and a separate entity from LPL Financial.

Wealth Manager Award Winner

The Five Star Wealth Manager award, administered by Crescendo Business Services, LLC (dba Five Star Professional), is based on 10 objective criteria. Eligibility criteria – required: 1. Credentialed as a registered investment adviser or a registered investment adviser representative; 2. Actively licensed as a registered investment adviser or as a principal of a registered investment adviser firm for a minimum of 5 years; 3. Favorable regulatory and complaint history review (As defined by Five Star Professional, the wealth manager has not; A. Been subject to a regulatory action that resulted in a license being suspended or revoked, or payment of a fine; B. Had more than a total of three settled or pending complaints filed against them and/or a total of five settled, pending, dismissed or denied complaints with any regulatory authority or Five Star Professional's consumer complaint process. Unfavorable feedback may have been discovered through a check of complaints registered with a regulatory authority or complaints registered through Five Star Professional's consumer complaint process; feedback may not be representative of any one client's experience; C. Individually contributed to a financial settlement of a customer complaint; D. Filed for personal bankruptcy within the past 11 years; E. Been terminated from a financial services firm within the past 11 years; F. Been convicted of a felony); 4. Fulfilled their firm review based on internal standards; 5. Accepting new clients. Evaluation criteria – considered: 6. One-year client retention rate; 7. Five-year client retention rate; 8. Non-institutional discretionary and/or non-discretionary client assets administered; 9. Number of client households served; 10. Education and professional designations. Wealth managers do not pay a fee to be considered or placed on the final list of Five Star Wealth Managers. Award does not evaluate quality of services provided to clients. Once awarded, wealth managers may purchase additional profile ad space or promotional products. The Five Star award is not indicative of the wealth manager's future performance. Wealth managers may or may not use discretion in their practice and therefore may not manage their clients' assets. The inclusion of a wealth manager on the Five Star Wealth Manager list should not be construed as an endorsement of the wealth manager by Five Star Professional or this publication. Working with a Five Star Wealth Manager or any wealth manager is no guarantee as to future investment success, nor is there any guarantee that the selected wealth managers will be awarded this accomplishment by Five Star Professional in the future. For more information on the Five Star award and the research/selection methodology, go to fivestarprofessional.com. 4,636 Chicago-area wealth managers were considered for the award; 356 (8% of candidates) were named 2020 Five Star Wealth Managers. 3,048 Connecticut-area wealth managers were considered for the award; 285 (9% of candidates) were named 2020 Five Star Wealth Managers.

FIVE STAR WEALTH MANAGERS » FIVE STAR INVESTMENT PROFESSIONALS

Wayne S. Creeden Jr.

CFP®

My goal as a financial representative is to provide comprehensive financial planning strategies for my clients and discuss how they may be able to protect their assets from the high costs of health care.

Bankers Life Securities, Inc.

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Direct: 302-376-6168 • Office: 302-736-2600
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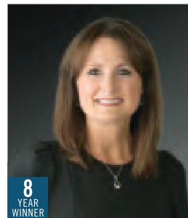
Investments are: Not Guaranteed—Involve Risk—May Lose Value.

Wealth Manager Award Winner



Kimberly J. Brumbaugh

Founder and CEO

Sound financial plans allow you to embrace the unexpected and face the future with confidence. As fiduciaries and collectively over 50 years of experience, we begin with comprehensive planning and advice. Our clients include executives, business owners, retirees, multigenerational clients and we also coordinate with other advisors.

BRUMBAUGH wealth management

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Phone: 610-458-2495
kbrumbaugh@brumbaughwealth.com
www.brumbaughwealth.com • linkedin.com/in/kimberlybrumbaugh

The Five Star Wealth Manager award is based on public obtained data from financial advisor's regulatory disclosures and FSP research and was independently granted. The recipient did not apply to receive the award. The recipient was not required to be part of an organization in order to receive this award. While the recipient did not pay to receive the award, they paid $7,060 for a standard profile and marketing package in Fortune Magazine. Working with a Five Star Wealth Manager is no guarantee of investment success.
CRN 3269687-100520.

Wealth Manager Award Winner

Seated on right: Five-year winner Michael D. Ruggiero

Michael D. Ruggiero

Financial Advisor, MBA

For 15 years, Michael has been helping his clients with progressive strategies related to investment, estate planning strategies and business succession. Michael is a 2013, 2014, 2017, 2019 and 2020 Five Star Wealth Manager.

Ameriprise Financial

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Wealth Manager Award Winner

The Lankin Group at Morgan Stanley

Eric Lankin

Managing Director, Wealth Manager, Financial Advisor

Eric and his team transitioned to Morgan Stanley in 2020 in order to have the greatest resources to continue to provide clients with the best possible customer service. The Lankin Group at Morgan Stanley is very appreciative of their clients' support and extremely grateful for the continued opportunity to serve them. He is a 2015, 2016 , 2019 and 2020 Five Star Wealth Manager award winner.

Morgan Stanley

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Phone: 215-230-2947
eric.lankin@morganstanley.com

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Wealth Manager Award Winner

To see the full list of winners, visit www.fivestarprofessional.com.

Atlanta

Wealth Managers

3,314 Atlanta-area wealth managers were considered for the award; 268 (8% of candidates) were named 2020 Five Star Wealth Managers.

Erik Tomas Anhaus · Benedetti Gucer & Associates · 404-602-0034

Randy Aufleger · Ameriprise Financial Services, LLC · 678-456-6213

Erin M. Carper · Carper Wealth Management, LLC · 678-990-0012

Michael Cordak · Optimum Wealth Management, LLC · 678-778-2694

Timothy B. Crain · Ameriprise Financial Services, LLC · 803-247-3026

Timothy P. Gelinas · Senior Financial Planning, LLC · 770-973-5220

J. Jerri Hewett Miller · Wealth Horizon · 770-840-8440

Barry V. Munro · Munro Legacy Planners LLC · 770-321-6648

David A. Sandstrom · Ameriprise Financial Services, LLC · 770-645-1996

Laura K. Schilling · Financial Innovations · 404-458-0065

Justin D. Streeter · Ameriprise Financial Services, LLC · 678-831-4532

Bryan Charles Taylor · Cornerstone Management · 770-449-7799

Kenneth J. Thomas · Capital Planning & Investments · 678-323-1440

Annette Walters · Wealth Integrity Financial · 770-495-3463

Alexander Walter Zimmerman · Morgan Stanley · 770-481-1741

Austin, San Antonio and Central Texas

Wealth Managers

1,254 Austin, San Antonio and Central Texas-area wealth managers were considered for the award; 124 (10% of candidates) were named 2020 Five Star Wealth Managers.

Craig Coker · Silver Oak Securities · 210-587-6770

Guy Draper · MML Investors Services · 512-637-6284

Kristen Margaret Palme · Ameriprise Financial Services, LLC · 210-582-1303

Greg Rychlik · Capital Strategies · 512-637-6264

Jacob JC Short · JJCS Financial Services, PLLC · 713-806-5599

Charlotte

Wealth Managers

1,488 Charlotte-area wealth managers were considered for the award; 134 (9% of candidates) were named 2020 Five Star Wealth Managers.

The Five Star Wealth Manager award, administered by Crescendo Business Services, LLC (dba Five Star Professional), is based on 10 objective criteria. Eligibility criteria – required: 1. Credentialed as a registered investment adviser or a registered investment adviser representative; 2. Actively licensed as a registered investment adviser or as a principal of a registered investment adviser firm for a minimum of 5 years; 3. Favorable regulatory and complaint history review (As defined by Five Star Professional, the wealth manager has not; A. Been subject to a regulatory action that resulted in a license being suspended or revoked, or payment of a fine; B. Had more than a total of three settled or pending complaints filed against them and/or a total of five settled, pending, dismissed or denied complaints with any regulatory authority or Five Star Professional's consumer complaint process. Unfavorable feedback may have been discovered through a check of complaints registered with a regulatory authority or complaints registered through Five Star Professional's consumer complaint process; feedback may not be representative of any one client's experience; C. Individually contributed to a financial settlement of a customer complaint; D. Filed for personal bankruptcy within the past 11 years; E. Been terminated from a financial services firm within the past 11 years; F. Been convicted of a felony); 4. Fulfilled their firm review based on internal standards; 5. Accepting new clients. Evaluation criteria – considered: 6. One-year client retention rate; 7. Five-year client retention rate; 8. Non-institutional discretionary and/or non-discretionary client assets administered; 9. Number of client households served; 10. Education and professional designations. Wealth managers do not pay a fee to be considered or placed on the final list of Five Star Wealth Managers. Award does not evaluate quality of services provided to clients. Once awarded, wealth managers may purchase additional profile ad space or promotional products. The Five Star award is not indicative of the wealth manager's future performance. Wealth managers may or may not use discretion in their practice and therefore may not manage their clients' assets. The inclusion of a wealth manager on the Five Star Wealth Manager list should not be construed as an endorsement of the wealth manager by Five Star Professional or this publication. Working with a Five Star Wealth Manager or any wealth manager is no guarantee as to future investment success, nor is there any guarantee that the selected wealth managers will be awarded this accomplishment by Five Star Professional in the future. For more information on the Five Star award and the research/selection methodology, go to fivestarprofessional.com. 521 Delaware-area wealth managers were considered for the award; 51 (10% of candidates) were named 2020 Five Star Wealth Managers. 4,148 Philadelphia-area wealth managers were considered for the award; 366 (9% of candidates) were named 2020 Five Star Wealth Managers. 4,636 Chicago-area wealth managers were considered for the award; 356 (8% of candidates) were named 2020 Five Star Wealth Managers.

FIVE STAR WEALTH MANAGERS » FIVE STAR INVESTMENT PROFESSIONALS

To see the full list of winners, visit www.fivestarprofessional.com.

Thomas J. Berger · Merrill Lynch · 704-341-5113

Dot Yandle · Triad Advisors · 704-307-7771

Chicago

Wealth Managers

4,636 Chicago wealth managers were considered for the award; 356 (8% of candidates) were named 2020 Five Star Wealth Managers.

James John Bann · Wells Fargo Advisors · 630-753-8305

Faron Daugs · Harrison Wallace Financial Group · 847-281-9898

Karen L. DeRose · DeRose Financial Planning Group · 773-867-3631

Randy Dippell · Nestegg Advisory · 312-971-5860

Nancy Ann Effert · Partnervest Advisory Services · 815-444-9560

Joseph Michael Esposito Jr. · Esposito Kiker & Associates · 630-790-9300

Erik G. Ford · Ford Wealth Management · 630-545-2800

Paul Gassel · WWM Investments · 312-356-2167 *Page 1*

Jordan M. Jacobs · Estate & Trust Advisors · 847-441-4600

Brad Jenks · LPL Financial · 847-244-0010

Joshua Kadish · 2nd Opinion Partners · 847-559-0800

David W. Latko · Latko Wealth Management, Ltd. · 815-469-8887

Russell George Luce · Planning Legacies Financial Group · 708-308-7545

Nicole Mayer · 2nd Opinion Partners · 800-596-0253

Richard A. Moras · Wells Fargo Advisors · 847-572-4320

James A. Mosteller · Liberty Asset Management, Inc. · 630-789-9653

Paul E. Novak · T2 Asset Management · 888-354-8499

Kevin Edward O'Hara · O'Hara Wealth Management · 630-799-9310

Michael Riback · WWM Investments · 312-356-2186

Noah Robinson · His Kingdom Financial Solutions · 312-604-3471

Michael D. Ruggiero · Ameriprise Financial Services, LLC · 708-226-3436 *Page 2*

Steve Shyman · Wilsave Financial · 312-796-7400

Stephen R. Todd · The Todd Group · 630-893-0990

Mark Victor Yackey · Ameriprise Financial Services, LLC · 630-955-1400

Daniel Thomas Younglove · Morgan Stanley · 630-203-6170

Cincinnati

Wealth Managers

1,406 Cincinnati wealth managers were considered for the award; 216 (15% of candidates) were named 2020 Five Star Wealth Managers.

Dwayne E. Adams · Adams Wealth Management Group · 937-433-6500

Matthew C. Bayer · The Bayer Financial Group, LLC · 937-432-6585

Mitch Edwards · The Stanley Edwards group at Morgan Stanley · 513-762-5223

Marc E. Henn · Harvest Financial Advisors · 513-779-3030

Tina T. Manion · Cambridge Investment Research Advisors · 513-469-7899

Timothy Meyer · Meyer Capital Management · 513-772-3600

Scott T. Moffitt · Summit Financial Group, Inc · 513-891-6050

Jonathan Edward Peirson · Peirson Financial Services LLC · 513-202-6228

Jeffrey David Stanley · Morgan Stanley · 513-762-5317

Mark N. Wilkins · Thrivent · 513-942-0200

Columbus

Wealth Managers

1,048 Columbus wealth managers were considered for the award; 71 (7% of candidates) were named 2020 Five Star Wealth Managers.

Ryan Bibler · Wells Fargo Advisors · 614-825-4303

Vincent Finney · Wells Fargo Advisors · 614-825-4304

Joseph Panfil · Wells Fargo Advisors · 614-825-4305

Connecticut

Wealth Managers

3,048 Connecticut-area wealth managers were considered for the award; 285 (9% of candidates) were named 2020 Five Star Wealth Managers.

Andrew Allen Agemy · Agemy Financial Strategies, Inc. · 203-738-0026

Daniel J. Agemy · Agemy Wealth Advisors · 203-738-0026

Christopher Borajkiewicz · Ameriprise Financial Services, LLC · 203-407-8188

Michael Edward Callahan · Edu4Retirement, Inc. · 860-863-4155

Brett Cavalieri · Morgan Stanley · 860-447-4861

Joe M. Cox II · Webster Wealth Advisors · 203-328-8129

Richard J. D'Amato · Six Point Wealth Advisors/Ameriprise Financial Services, LLC · 860-426-9950

Marc A. Dynder · Six Point Wealth Advisors/Ameriprise Financial Services, LLC · 860-426-9950

Elizabeth D. Eden · Diastole Wealth Management · 203-458-5220

Christopher L. Fry · Six Point Wealth Advisors/Ameriprise Financial Services, LLC · 860-426-9950

Andrew James Garstang · Six Point Wealth Advisors/Ameriprise Financial Services, LLC · 860-426-9950

Robert M. Grenus · Integrated Partners · 860-734-0458

Glenn Hottin · Wealth Management Advisers, LLC · 203-836-8506

John R. Landry · Jacobs Financial Partners · 860-657-8757

Michael J. Lehrhaupt · Strategies For Retirement · 203-372-4442

Max Solomon Leopold · Prime Financial · 860-836-9850

Jeremy M. Lobo · Lobo & Pascale Wealth Management, LLC · 203-269-3700

Giuseppe Mancini · Six Point Wealth Advisors/Ameriprise Financial Services, LLC · 860-426-9950

Leo Frank Palliardi · Jacobs Financial Partners · 860-657-8757

Christopher W. Pascale · Lobo & Pascale Wealth Management, LLC · 203-269-3700

Christopher Michael Pekala · Ameriprise Financial Services, LLC · 860-436-9444

Christopher Perry · Webster Wealth Advisors · 203-328-8130

Charles Victor Rousseau · Clearpath Financial Solutions · 860-442-9377

Richard Harrison Streisfeld · Morgan Stanley · 203-894-3001

Jane Sullivan · Sullivan Financial Advisors · 860-657-4150

Matthew Joseph Sullivan · Sullivan Financial Group LLC · 860-388-9628

Grant H. Ulrick · LPL Financial · 203-617-1501 *Page 1*

Joan M. Valenti · Valenti Wealth Management · 860-677-7790

Brian Joel Waddell · New England Financial Group · 860-313-4857

Jennifer A. Waldron · Six Point Wealth Advisors/Ameriprise Financial Services, LLC · 860-426-9950

Frank P. Zocco Jr. · Jacobs Financial Partners · 860-657-8757

Dallas/Fort Worth

Wealth Managers

4,374 Dallas-Fort Worth-area wealth managers were considered for the award; 335 (8% of candidates) were named 2020 Five Star Wealth Managers.

Marcos Andujar · Clarity Financial Group · 817-338-4150

James R. Bussey · Briley Wealth Management · 214-442-2909

Markus Gracen Byrd · Kestra Advisory Services · 214-420-9997

Terry D. Doyle · Ameriprise Financial Services, LLC · 214-389-8500

Mark K. Duckworth · Morgan Stanley · 214-661-7060

Andrew R. Gardner · Gardner Wallace Financial Solutions · 972-833-2565

Frances Rutchik Gardner · Gardner Wallace Financial Solutions · 972-833-2565

Brett W. Ginn · Ginn Wealth Managment · 817-881-1365

Gregory Robert Jones · Mass Mutual · 214-535-3917

Paul Alan Lightfoot · Optima Asset Management · 972-726-0400

Timothy H. Mebane · LPL Financial · 817-875-7664

Robin M. Pearce · Ameriprise Financial Services, LLC · 817-301-0309

Sean P. Ray · Athens Investment Center/ LPL Financial · 903-264-6878

Daniel Rogowski · Harman Rogowski & Associates · 214-556-3255

Jennifer Elizabeth Snee · Ameriprise Financial Services, LLC · 972-244-5736

Patrick K. Wallace · Gardner Wallace Financial Solutions · 972-833-2573

Erik L. Wyse · Wealthstar Advisors · 972-372-2890

Delaware

Wealth Managers

521 Delaware-area wealth managers were considered for the award; 51 (10% of candidates) were named 2020 Five Star Wealth Managers.

Jason E. Betz · Ameriprise Financial Services, LLC · 302-656-7773

Wayne S. Creeden Jr. · Bankers Life Advisory Services, Inc. · 302-376-6168 *Page 2*

Eric John Janvier · Good Life Financial Group · 302-613-2964

Denver

Wealth Managers

2,172 Denver-area wealth managers were considered for the award; 213 (10% of candidates) were named 2020 Five Star Wealth Managers.

Robert H. Bastiaans · Ameriprise Financial Services, LLC · 303-689-7424

Donna M. Boender · Wells Fargo Advisors · 303-248-0842

Andrew Clyne · Securities America Advisors · 303-300-5043

M. Katharine Collins · LPL Financial · 303-306-6639

Benita Creacy · Western Wealth Management · 303-221-2920

Derek N. Eichenwald · Triumph Capital Management · 720-399-5551

Robert L. Holland Jr. · Holland Financial, Inc. · 303-231-1017

Jeffrey A. Hutcheson · Aspen Wealth Management · 720-870-7271

Tad Michael Lyle · Planning Resources · 303-649-2162

Lori Jane Miller · LPL Financial · 630-690-0000

Daniel A. Noven · Noven Financial Group/ SRS Capital Advisors, Inc. · 303-782-9100

Alie Olsen · Ameriprise Financial Services, LLC · 303-689-7450

Adam Robinson · SevenWealth · 303-532-8394

Teresa R. Sanders · Aspen Wealth Management · 303-261-8014

William H. Shriver · Shriver Investments · 303-805-9800

Houston

Wealth Managers

3,219 Houston-area wealth managers were considered for the award; 174 (5% of candidates) were named 2020 Five Star Wealth Managers.

Zac Majors · Centric Wealth · 888-215-5888

Justin A. Makris · Wealth Design Group · 281-220-2781

Crawford "Mickey" McGill · Ameriprise Financial Services, LLC · 713-260-5855

Edward M. Pero · Wallstreet Advisors · 713-402-6121

R. Randall Rainey · Capital Management Advisors LP · 713-443-6093

Jeffrey Glynnn Rhame · Rhame & Gorrell Wealth Management · 832-789-1100

Gail Gerber Stalarow · Morgan Stanley · 713-965-5099

Leslea Stock-Lopez · Star Group Wealth Management · 713-783-3400

Cory D. Summers · Voya Financial Advisors · 361-882-8700

Donald Terry Jr. · Executive Benefit Solutions · 713-266-43

Indianapolis

Wealth Managers

1,786 Indianapolis-area wealth managers were considered for the award; 143 (8% of candidates) were named 2020 Five Star Wealth Managers.

Scott Dale Carmony · LPL Financial · 317-392-3400

Bob Dunlap · Dunlap Gill Wealth Management Group · 317-770-2266

Matthew Landini · Genuine Wealth Management · 317-477-7283

FIVE STAR WEALTH MANAGERS » FIVE STAR INVESTMENT PROFESSIONALS

To see the full list of winners, visit www.fivestarprofessional.com.

Steve Meier · Mosaic Wealth Advisors · 317-688-9500

Shellee Pietras · Promise Advisory Group · 317-887-1212

Nancy Cooper Pitt · Mosaic Wealth Advisors · 317-688-9500

David G. Yearwood · Charter Advisory Corporation · 317-844-7416

Memphis

Wealth Managers

542 Memphis-area wealth managers were considered for the award; 42 (8% of candidates) were named 2020 Five Star Wealth Managers.

Robert J. Cremerius · Prudent Financial · 901-820-4406

Jay Healy · Century Wealth Management · 901-850-5532

Milwaukee

Wealth Managers

1,092 Milwaukee-area wealth managers were considered for the award; 172 (16% of candidates) were named 2020 Five Star Wealth Managers.

Laurie Aleksandrowicz · A to Z Financial Planning LLC · 414-856-9800

Gage C. Davidson · Morgan Stanley · 414-226-3056

Ken Lobins · Ameriprise Financial Services, LLC · 262-797-8828

Elizabeth Stamatakos · A to Z Financial Planning LLC · 414-856-9800

Investment Professionals

This year, we honored 20 Milwaukee-area investment professionals with the Five Star Investment Professional award.

Terry L. Campbell · Moertl, Wilkins & Campbell, S.C. · 414-276-4366

New Hampshire

Wealth Managers

928 New Hampshire-area wealth managers were considered for the award; 91 (10% of candidates) were named 2020 Five Star Wealth Managers.

W. John Dulmage · Financial Pathways · 603-821-1450

Cynthia L. Kordys · Centaurus Financial · 603-287-8241

Philadelphia

Wealth Managers

4,148 Philadelphia-area wealth managers were considered for the award; 366 (9% of candidates) were named 2020 Five Star Wealth Managers.

James C. Baird · Compass Ion Advisors, LLC · 610-783-4270

Kimberly J. Brumbaugh · Brumbaugh Wealth Management · 610-458-2495 *Page 2*

Michael T. Cice · GWH Wealth Advisors LLP · 215-968-5838

Robert J. Cleary · Ameriprise Financial Services, LLC · 610-834-7385

Seth J. Diener · Diener Money Management · 215-259-4660

James G. Everlof · WSFS Wealth Investments · 215-864-3567

Michael Falco · Falco Wealth Management · 610-640-5822

Ian Foster · Innova Wealth Partners · 888-270-1574

James A. Gillin · Morgan Stanley · 610-408-1949

Sean Gold · Ameriprise Financial Services, LLC · 215-789-4952

Grant C. Holdren · Allied Financial Advisors, LLC · 215-874-6422

Eric Lankin · Morgan Stanley · 215-230-2947 *Page 2*

Ty Mcgilberry · Pegasus Financial Planning · 866-475-9216

Anthony S. Pastor · LPL Financial · 215-442-9400

Philip Rosenau · Rosenau Financial Advisors · 215-543-6576

Gary C. Sanson · Financial Voyages, LLC. · 215-256-7845

Steven R. Sanson · Financial Voyages, LLC. · 215-256-7845

Rick Santella · Morgan Stanley · 215-854-6018

John Simone · Secure Planning Group · 215-540-5566

Gregg Stein · Platinum Wealth Advisors · 484-368-3667

Stephen A. Tulli · LPL Financial · 610-977-2412

Yong Wang · USA Financial Securities · 215-757-2535

William R. Zeuner · Morgan Stanley · 610-260-8621

Phoenix

Wealth Managers

2,163 Phoenix-area wealth managers were considered for the award; 94 (4% of candidates) were named 2020 Five Star Wealth Managers.

Tim Amen · Brighton Jones · 602-674-7002

Howard R. Dal Monte · LPL Financial · 480-776-9670

Dewey M. Darwin · Ameriprise Financial Services, LLC · 480-922-4205

Anthony Angelo Del Pozzo · Vista Financial Group · 480-284-6547

Ronald Lee Ginter · Ameriprise Financial Services, LLC · 480-268-2345

Renee A. Hanson · Ameriprise Financial Services, LLC · 602-923-9800

Chris Hilyer · Heritage Wealth Solutions · 602-883-4300

Justin Hoyt · Hayden Royal · 480-748-9043

Christie Eileen Jones-Popour · Wells Fargo Advisors · 480-538-5013

Susan R. Linkous · The Linkous Group · 480-836-2326

Ross Wayne Luekenga · AZ Legacy Wealth LLC · 623-933-3442

Michael J. Passante · Ke Wealth Advisors · 480-467-1964

Jeffrey Jon Romero · Wells Fargo Advisors · 480-443-5775

Anthony Christopher Silva · Equitable Advisors · 480-444-3710

Scott David Sorum · Premier Southwest Planning Group, LLC · 480-661-4071

Pittsburgh

Wealth Managers

1,886 Pittsburgh-area wealth managers were considered for the award; 224 (8% of candidates) were named 2020 Five Star Wealth Managers.

John M. Angiulli · Angiulli & Associates · 412-392-3621

Thomas J. Boris · The Elder Law Offices of Shields & Boris · 724-934-5044

Michael William Figurelli · Ameriprise Financial Services, LLC · 412-374-9515

Steven Fischetti · Morgan Stanley · 412-833-0310

Brian T. Gongaware · McKinley Carter Wealth Services, Inc. · 724-940-4400

Christopher McMahon · MFA Wealth · 412-343-8700

Anthony J. Sunseri · Elder Law Management · 412-456-4700213

Philip T. Webb · Grandview Wealth Management, LLC · 724-200-7070

Investment Professionals

This year, we honored 3 Pittsburgh-area investment professionals with the Five Star Investment Professional award.

Thomas L. Bakaitus Jr. · Herbein + Company · 412-392-2345

Richmond

Wealth Managers

873 Richmond-area wealth managers were considered for the award; 69 (8% of candidates) were named 2020 Five Star Wealth Managers.

Mark A. MacInnis · Financial Services of VA · 484-888-9080

Corey L. Nesmith · Ameriprise Financial Services, LLC · 804-249-6236

Samantha "Sam" Wooton · Ameriprise Financial Services, LLC · 804-763-2570

San Francisco

Wealth Managers

2,026 San Francisco-area wealth managers were considered for the award; 40 (2% of candidates) were named 2020 Five Star Wealth Managers.

Jeff Ahrens · Oppenheimer Inc. · 415-438-3076

Michael J. Paganucci · Oppenheimer & Co. · 415-438-2902

Sean E. Peake · Morgan Stanley · 415-693-1384

Jonathan Shane · Morgan Stanley · 415-693-6174

San Francisco East Bay

Wealth Managers

1,260 San Francisco East Bay-area wealth managers were considered for the award; 88 (7% of candidates) were named 2020 Five Star Wealth Managers.

Michael David Allard · CalBay Investments, Inc. · 925-743-3360

Mark A. Greenberg · Wealth & Tax Planners · 925-938-4300

Benjamin William Wong · Viewpoint Financial Network · 925-227-8858

Sarasota

Wealth Managers

579 Sarasota-area wealth managers were considered for the award; 49 (8% of candidates) were named 2020 Five Star Wealth Managers.

Sharon Bloodworth · White Oaks Wealth Advisors · 941-361-9000

Michael E. DeMassa · Forza Wealth Management · 941-203-3748

Bryan Stephen Fazio · Wells Fargo Advisors · 904-395-5198

Christopher Charles Guido · Morgan Stanley · 941-364-3563

St. Louis

Wealth Managers

2,431 St. Louis-area wealth managers were considered for the award; 170 (7% of candidates) were named 2020 Five Star Wealth Managers.

Donald P. Aulbert II · Cornerstone Wealth Management · 636-379-6200

John J. Gallia Jr. · Gallia Wealth Management Group, LLC · 314-699-9215

J. Todd Gentry · Synergy Wealth Solutions a MassMutual firm · 314-548-4825

Troy R. Hedman · Visionary Wealth Advisors · 636-346-9045

Gary N. Kwawer · Wells Fargo Advisors · 314-991-7853

Mark W. Minton · Cornerstone Wealth Management · 314-394-1891

Matt Rufkahr · Cornerstone Wealth Management · 636-489-0821

Washington, D.C.

Wealth Managers

2,535 Washington, D.C.-area wealth managers were considered for the award; 115 (5% of candidates) were named 2020 Five Star Wealth Managers.

Vivien Balcker · Ameriprise Financial Services, LLC · 954-308-4968

Michelle L. Bender · Potomac Financial Consultants · 301-948-3900

John Choudhary · CAM Private Wealth Services · 703-956-2200

Theodore Scott Davis · Ameriprise Financial Services, LLC · 703-896-7956

Millicent P. Eubanks · Morgan Stanley · 703-556-8124

Janet M. Hroncich · Morgan Stanley · 703-394-1999

David B. Hurwitz · Ameriprise Financial Services, LLC · 301-263-8509

Jennifer Elise Myers · Sagevest Wealth Management · 703-992-7650

Thomas Palazzo · Morgan Stanley · 703-394-1996

Christine A. Smith · Ameriprise Financial Services, LLC · 540-443-9143

Mark H. Woodward · Kana Private Wealth Group · 703-999-0924

Westchester

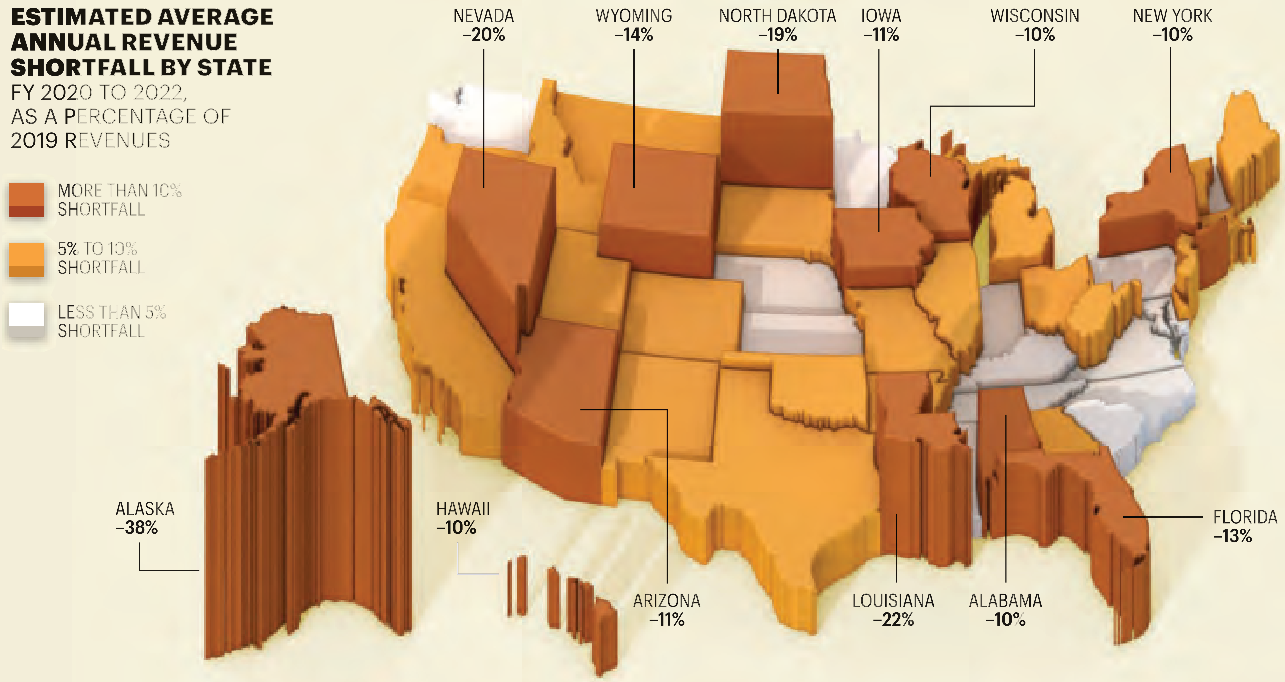
Wealth Managers

661 Westchester-area wealth managers were considered for the award; 93 (14% of candidates) were named 2020 Five Star Wealth Managers.

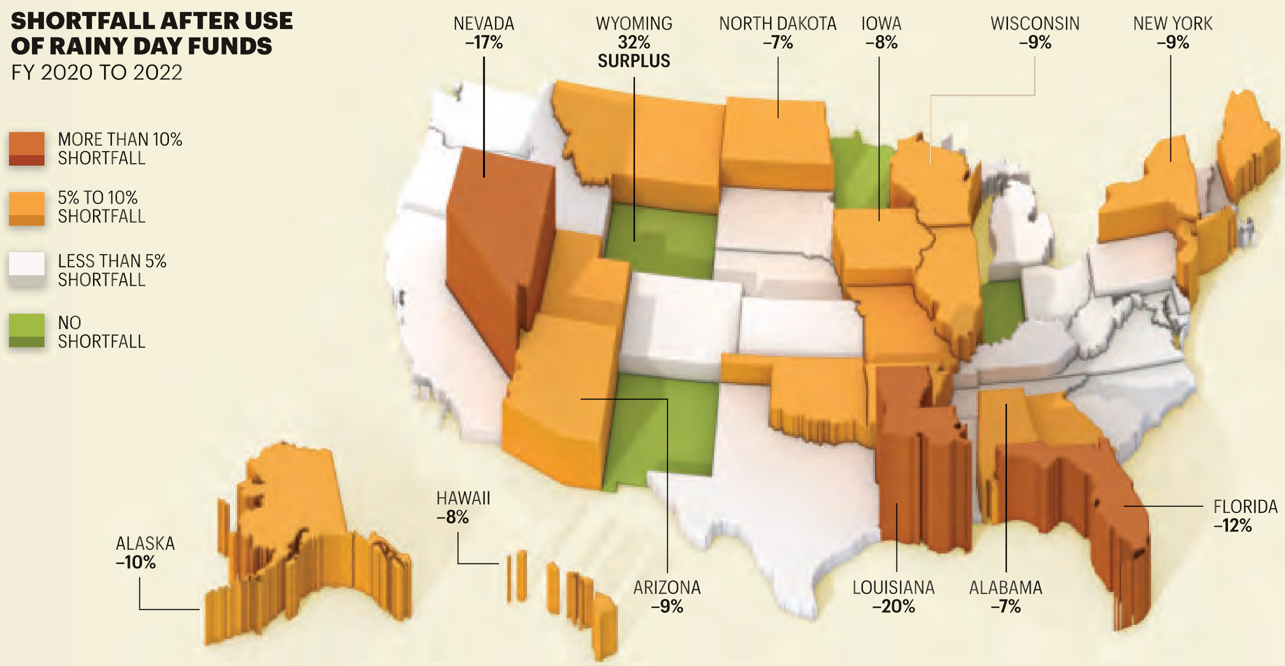
Jonathan Moore · Morgan Stanley · 914-225-5195

Ellis O. Moore Jr. · Morgan Stanley · 914-225-5339

ESTIMATED AVERAGE ANNUAL REVENUE SHORTFALL BY STATE
FY 2020 TO 2022, AS A PERCENTAGE OF 2019 REVENUES



SHORTFALL AFTER USE OF RAINY DAY FUNDS
FY 2020 TO 2022



STATE BUDGETS ON THE BRINK

BY THE DUBIOUS STANDARDS OF GOVERNMENT FINANCE, the past decade was almost a model of prudence in statehouses across the U.S. After the financial crisis of 2008—a rare instance when collective state revenue fell—many states created new (or supplemented existing) "rainy day" funds. As a result, state and local governments entered 2020 with a combined $119 billion in such savings, according to the Brookings Institution. But the economic slowdown caused by COVID-19 has blown up budgets from coast to coast, and the impact will be lasting. Moody's Analytics estimates that state and local government budget shortfalls could be a combined $450 billion over the next three years even as the economy recovers. Above, a state-by-state breakdown of the looming deficits. —**BRIAN O'KEEFE**

INFOGRAPHIC BY **NICOLAS RAPP**

SOURCE: MOODY'S

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