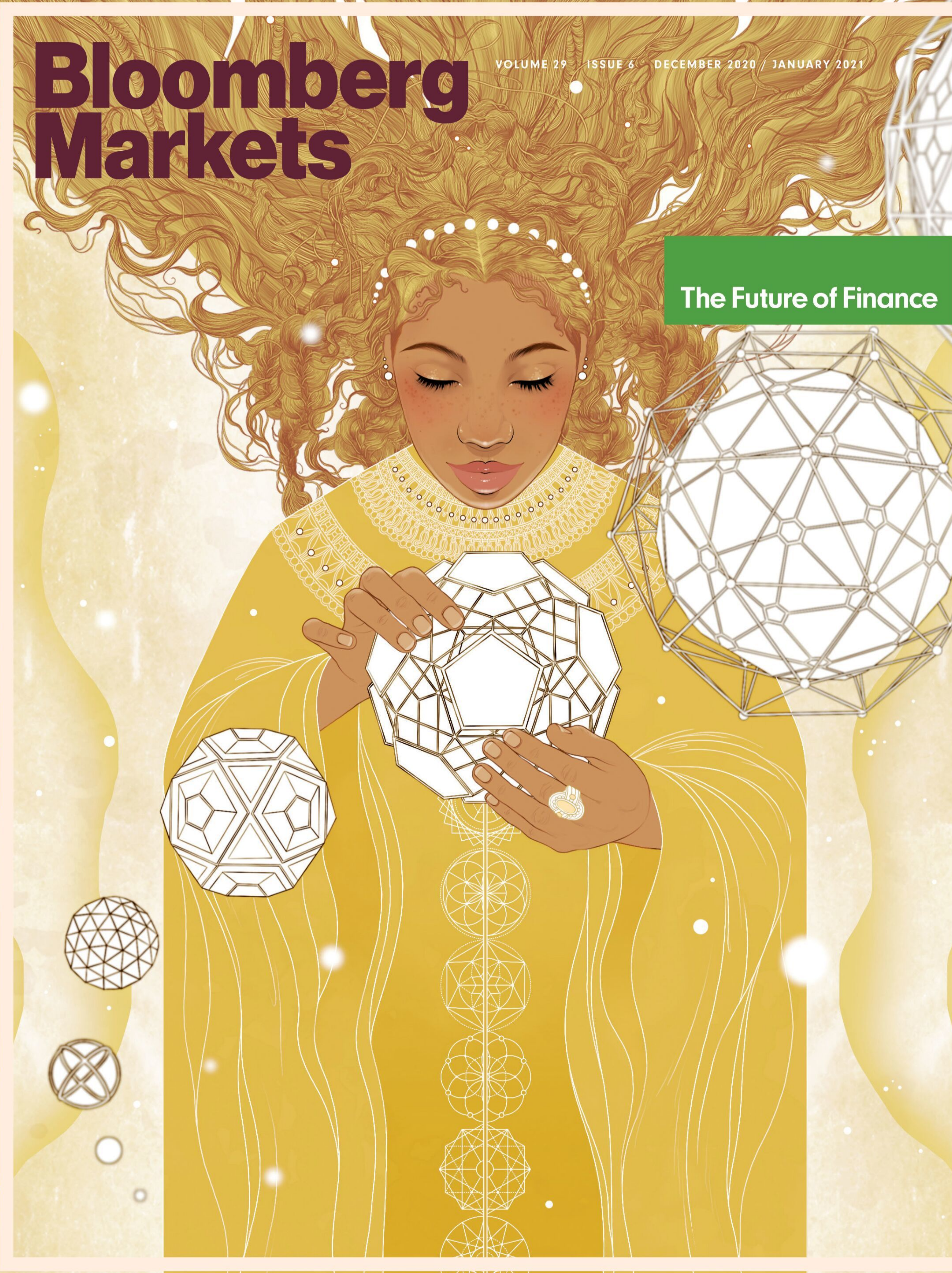


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The Future of Finance





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COVER ARTWORK BY
KRISTINA COLLANTES

*Corrections to the
Oct./Nov. issue:*

In "Has the Pandemic Ended Our Obsession With Economic Growth?" Darrick Hamilton's title and affiliation on page 11 were incorrect. He is University Professor and Henry Cohen Professor of Economics and Urban Policy at the New School. In "The Crisis Fighters," the chart on page 76 should have shown that neither Brazil nor Mexico has cut its benchmark rate below zero.

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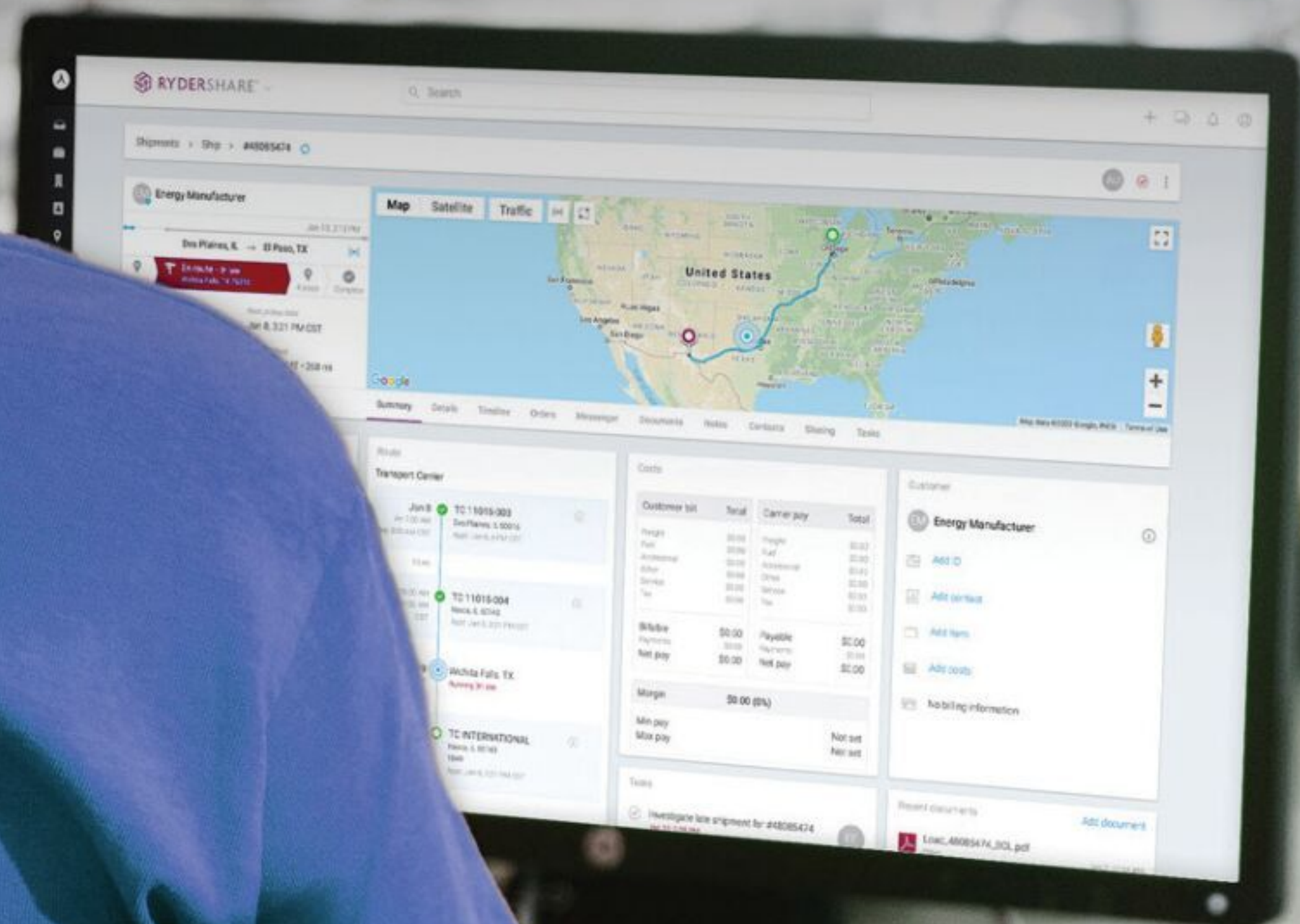
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—Christine Harper, Editor 10/30/2020

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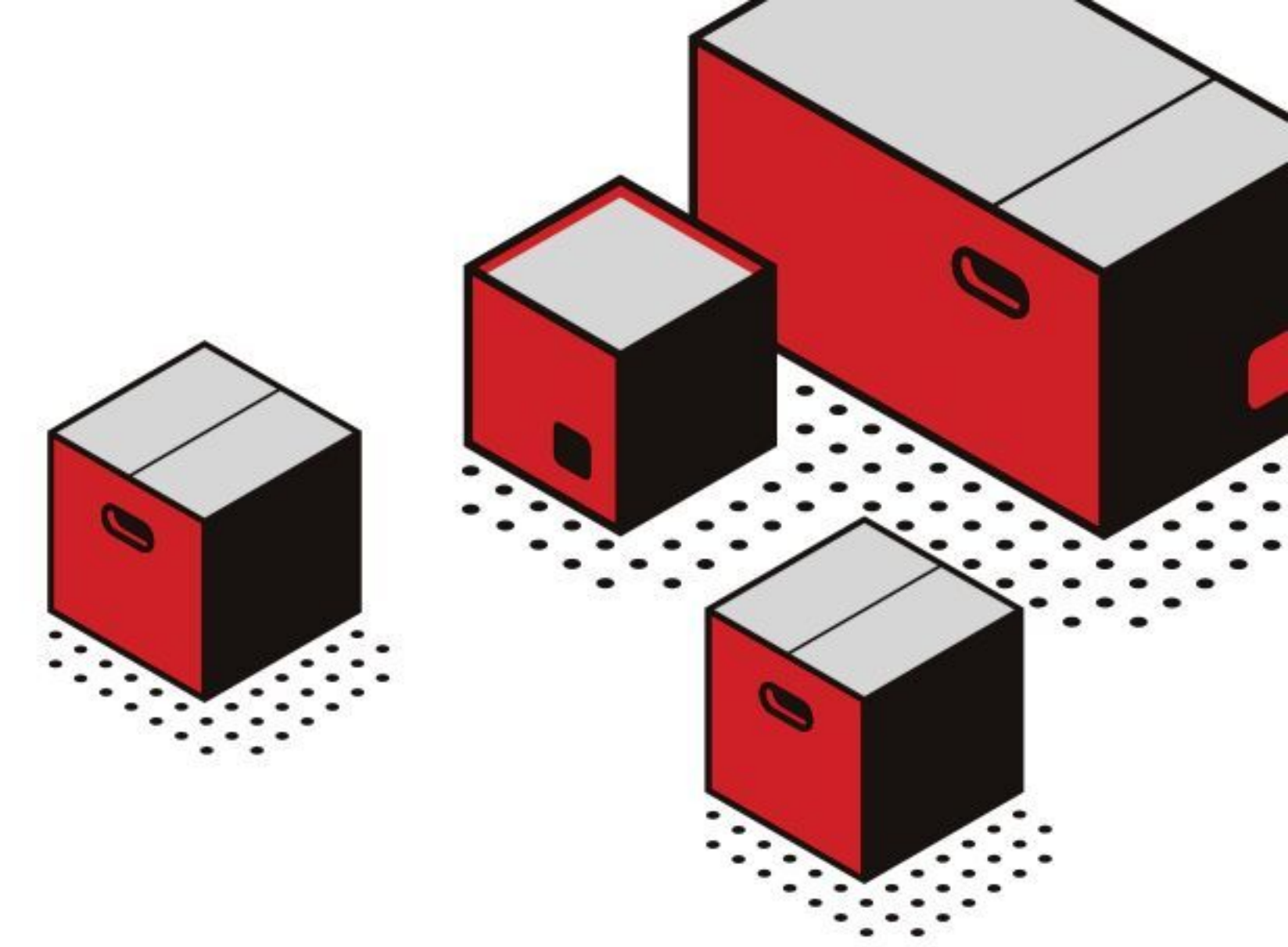
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Driving Business Forward: Three Trends Impacting Supply Chains During Covid-19

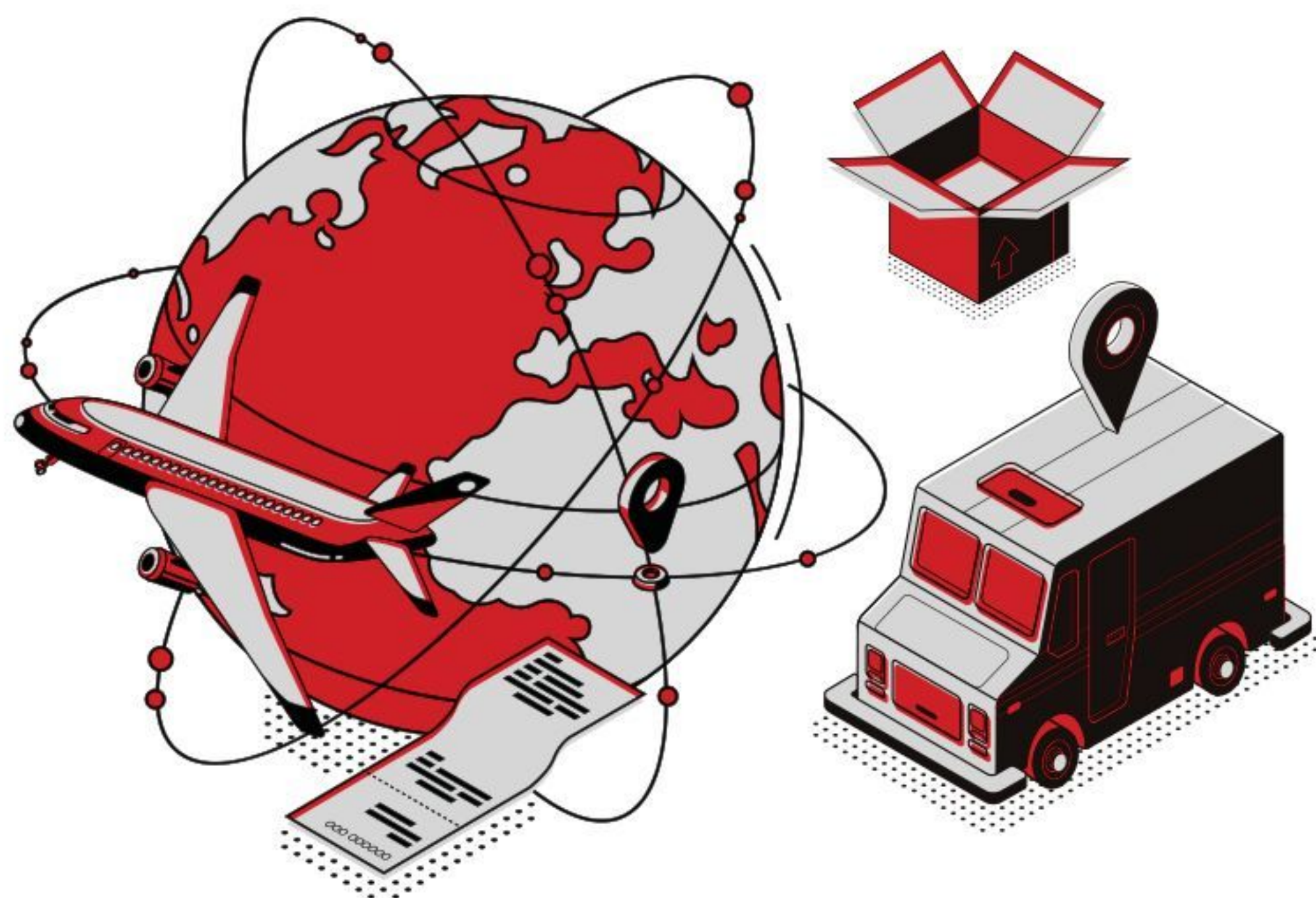


Virtually no business has escaped the supply chain disruptions wrought by the coronavirus pandemic.

In March, 95% of companies said that their supply chains had been or would be disrupted by Covid-19. But in the eight months since the pandemic's emergence, forward-thinking businesses have been able to strengthen their supply chains and seize the opportunity to prove their dependability to their customers.

Covid taught companies that they need to be flexible and quickly adapt to changing conditions across both their supply chains and transportation networks. Those that have managed to do so are poised to thrive, not only for the duration of the pandemic, but also in the "new normal" that lies on the other side of it.

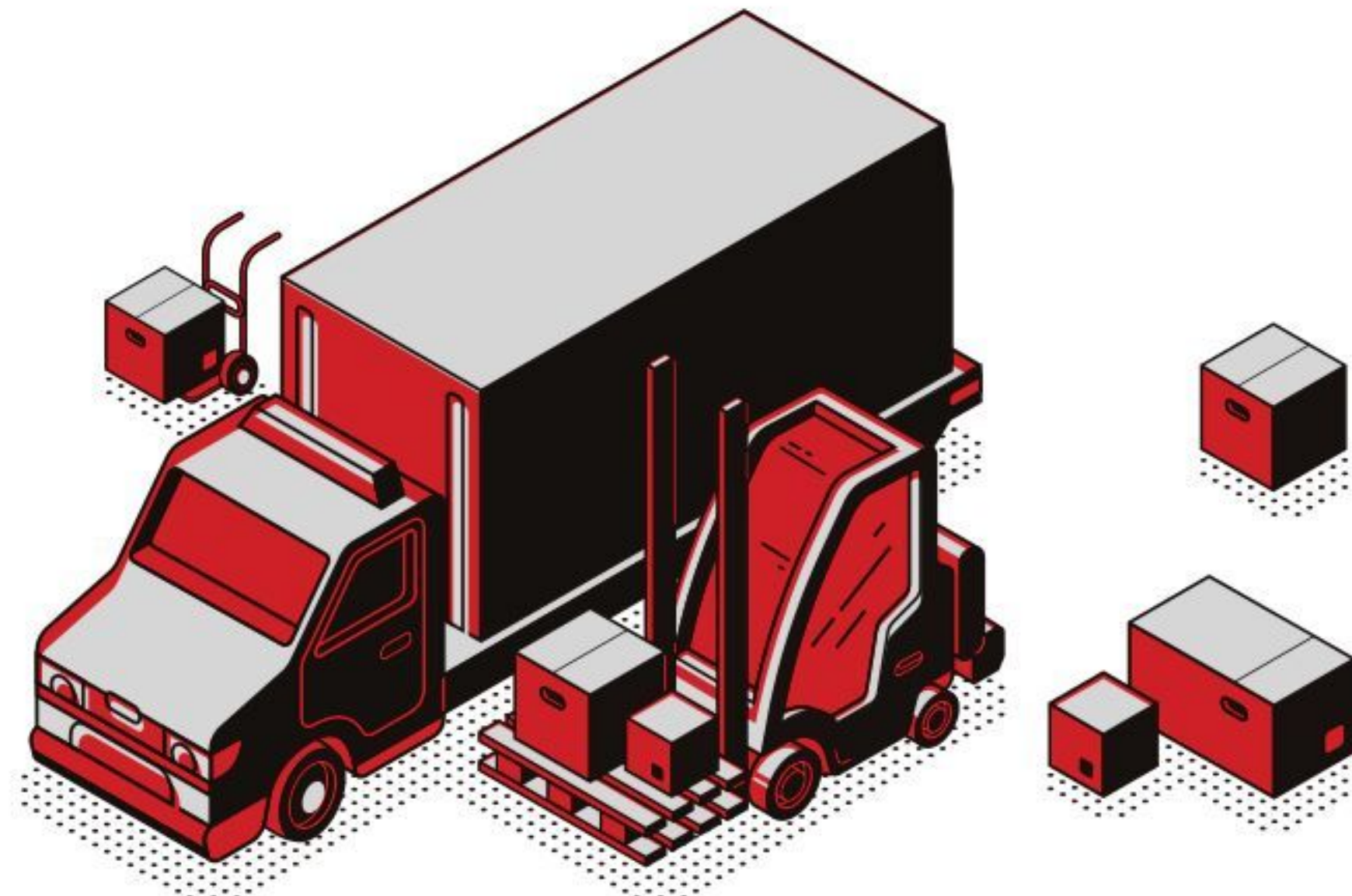
Here's a look at three trends shaping supply chains now:



1 Diverse, regional supplier networks have never been more important.

At the height of disruption last spring, companies that fared the best were those not dependent on a single supplier, and those in geographic proximity to their suppliers.

"Step one to a resilient supply chain is not having all of your eggs in one basket, and step two is being in the region with your suppliers, as much as you can be," says Steve Sensing, President, Global Supply Chain Solutions, Ryder System. "When the pandemic came, those companies that were positioned locally were in a much better position.



2 An outsourced transportation network can be a competitive advantage.

As business needs to shift instantaneously during these uncertain times, companies must be able to rely on their fleets to meet quickly changing demands. Ryder proved its reliability last spring when shipments to its consumer packaged goods (CPG) customers skyrocketed 150% as they stocked up on everything from toilet paper to thermometers.

At the same time, as many of Ryder's automotive clients shuttered temporarily due to shelter-in-place orders, Ryder was able to redirect its thousands of trucks, tractors, trailers and drivers from automotive routes to CPG runs.

"That flexibility allowed us to support those food-and-beverage customers and keep those trucks running to their warehouses and to their retail storefronts," Sensing says.

3 The shift to e-commerce has accelerated, along with customer expectations.

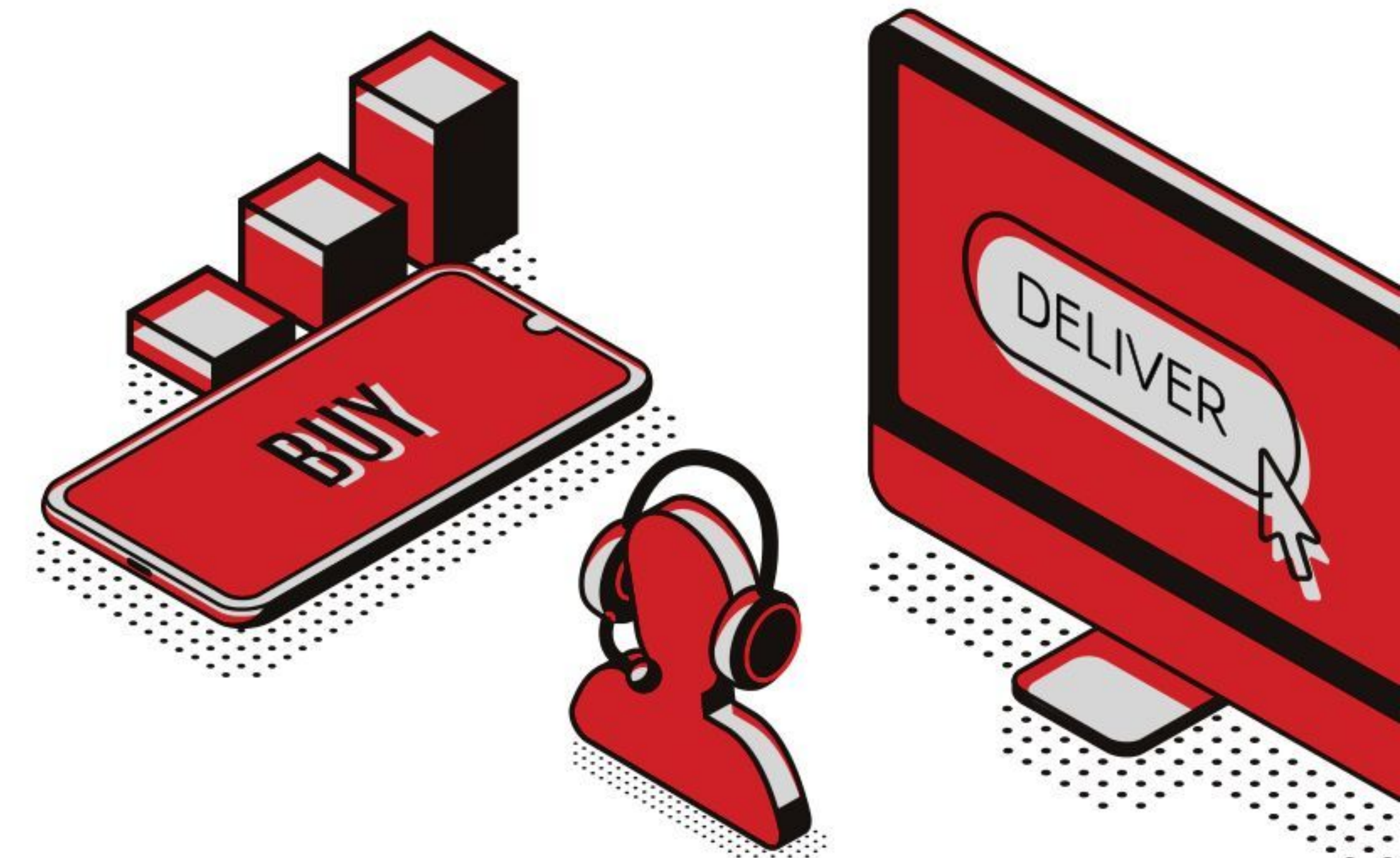
Customers nervous about visiting stores during the pandemic have shifted more of their shopping to e-commerce, with sales expected to reach nearly \$800 billion this year—a 32% increase over last year and a figure analysts didn't expect to see until 2022.

More than a thousand new retail customers have turned to Ryder since the pandemic hit to help them meet increased demand, particularly because consumers still expect total transparency in the status of deliveries. This is provided by Ryder's RyderShare™

platform, which allows retailers to give their consumers real-time insight into the location and expected timing of each delivery.

"Having that real-time visibility—to know exactly where the product is and when it will arrive—is critical to our customers and our operations team," says Sensing.

Ryder Last Mile delivery service also benefits retailers shifting into e-commerce, providing delivery of bulk items at whichever level a retail customer prefers—from simply dropping them inside the consumer's front door to a full-service setup.



Reactive data and technology evolve to become more predictive.

In addition to providing transparency around delivery, the RyderShare™ platform also generates valuable data, which Ryder uses to automate its warehouses and find other cost savings for customers.

"It's helping us drive more waste out of the system and be more effective in moving out customers' product on the right transportation mode and carrier," Sensing says.

While challenges remain as businesses rebound from the effects of the pandemic, ample opportunities exist for agile enterprises. Companies with operational flexibility, reliable partners and a focus on efficiency will adjust—and flourish—as the new normal takes shape.

Learn more at www.ryder.com

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The Future Of Finance

The Covid-19 pandemic is a humbling reminder of how suddenly plans can be upended, but we'll never stop trying to look ahead. This issue, produced with Bloomberg News's global finance team, led by Executive Editor **Caroline Gage**, brings you a few people and trends worth watching.

In February, Jane Fraser will become Citigroup Inc.'s chief executive officer and the first woman to run a major U.S. bank. She talked with New York-based finance reporter **Jenny Surane** about her career and plans in "I've Had to Think Differently" (page 72).

In "Can Antrepreneurship Survive?" (page 54), Asia investing team leader **Lulu Chen** profiles three executives who left Jack Ma's tech empire to start their own companies, and examines whether that kind of entrepreneurship will still be able to thrive in China's climate of tighter regulation.

In the U.K., 20-year-old Taiwanese college student Yoyo Chang has surprised

family and friends by building a payments startup with high-profile backers, a story chronicled by London-based reporter **Edward Robinson** in "The Prodigy" (page 60).

As China opens its bond market to foreign investors, the country's power in the financial markets could soon rival its impact on trade and manufacturing. In "Opening Up" (page 66), **Chris Anstey** and **Enda Curran** examine the potential consequences.

In "The Future of Finance" (page 50), reporters Surane, **Sridhar Natarajan**, and Bloomberg Intelligence's **Larry Tabb** show in graphics where money is being made.

We hope you find this issue illuminating. As always, we welcome your feedback.

Christine Harper,
Editor

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Christine Harper

Design Director
Josef Reyes

Features Editor
Stryker McGuire

<GO> Editor
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The Money Of Tomorrow

By OLGA KHARIF

AS THE WORLD becomes more digital and decentralized, will the same be true of money? Banks and central banks are trying to keep up with innovations that threaten their very existence. Here's a guide to some ideas that could transform the world of finance. —*With Alastair Marsh,Carolynn Look, and Ryan Williams*

Central Bank Digital Currencies (CBDCs)

Central banks already deal with electronic versions of money, but a digital currency could extend some services that central banks provide to financial institutions to the public at large. A broadly used digital currency could mean payments clear more rapidly and make banking services available to the estimated 1.7 billion people around the world who lack them. The People's Bank of China, the most aggressive of the large central banks, has held trials involving e-wallets in a few cities. Transactions with central bank currencies wouldn't be anonymous—that would make it easier for governments to crack down on money laundering and tax evasion and, as privacy advocates note, give them a powerful new tool for surveillance. The PBOC and other central banks sped up their efforts after Facebook Inc. and a slew of collaborators last year unveiled plans for a digital currency called Libra. For central bankers, currency isn't merely an economic issue; it's about sovereignty.

DeFi

What if computer code could take the place of bankers? That's the goal of the decentralized finance, or DeFi, movement that's grown out of a decade of experimentation with cryptocurrencies. A DeFi world could be one where money flows more efficiently and cheaply, its proponents say, and would create new ways for savers to earn money on their holdings. Critics say DeFi is more likely reinventing the hype, wild speculation, and money-losing possibilities of crypto. DeFi revolves around applications known as dapps that perform financial functions on digital ledgers called blockchains. Dapps let people lend or borrow funds from others, go long or short on a range of assets, trade coins, or earn interest in a savings-like account. The transactions are governed by rules embedded in the software called smart contracts. Like everything else in the realm of digital currencies, or software in general, DeFi accounts can be vulnerable to hackers. Even buggy code can destroy value. Users wiping themselves out by accident is dismayingly common, too.

Yield Farming

When you deposit money in a bank, you're effectively making a loan that earns interest. Yield farming, or yield harvesting, typically involves lending cryptocurrency in return for interest and sometimes for fees, but more importantly for handouts of units of a new cryptocurrency. The real payoff comes if that coin appreciates rapidly. The most basic approach is to lend digital coins, such as Dai or Tether, through a dapp such as Compound, which then lends the coins to borrowers who often use them for speculation. Interest rates vary with demand, but for every day's participation in the Compound service, you get new Comp coins, plus interest and other fees. If the Comp token appreciates—it almost doubled in value in June—your returns skyrocket as well, though a crash shortly thereafter showed the risk that accompanies the hoped-for reward.

Dex

A decentralized exchange, or dex, is a set of software protocols that buyers and sellers can use to find each other and carry out transactions through smart contracts, which are self-executing agreements. Teams of developers set up dexes that then run on their own. Their use has ballooned this year, largely as a result of an explosion in the issuance of DeFi coins used in yield harvesting and other schemes promising huge returns. Unlike many centralized exchanges, most dexes have welcomed new DeFi coins with open arms, letting them list with little scrutiny and for free. As these coins (including Comp, Dai, and SNX) garnered followers, so did the decentralized exchanges willing to host them. But along with the risks of hacking that all exchanges face, it remains to be seen whether regulators will let dexes—with their reluctance to check users' identities—carry on with their wide-open operating style if they continue to grow.

Governance Tokens

In a decentralized enterprise, who gets to decide all the many things that get decided? In big disputes over the future course of Bitcoin, for example, whoever gets the most computing power on their side often wins, though the losers sometimes split off their transactions to create, in effect, a new currency, such as Bitcoin Cash or Bitcoin Gold. To avoid that kind of messy battle without creating a central authority or entity, a slew of new crypto projects is instead relying on so-called governance tokens for decision-making. They're often issued to regular token users, or with investments in Libra or other projects. Holders can vote on the project's strategy and any other issues that come up. The idea is to govern projects via a distributed network of stakeholders. There's also the hope of making a newly minted variety of cryptocurrency more attractive. If the arrangement seems reminiscent of the votes that come with shares of stock, that's on purpose. A big question is whether the U.S. Securities and Exchange Commission will deem governance tokens to be so much like equity shares that it will require startups to go through a formal public offering—a hurdle that all but ended an earlier craze of raising money through ICOs, or initial coin offerings.

Kharif covers cryptocurrencies for Bloomberg News in Portland, Ore.

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By LANANH NGUYEN and YALMAN ONARAN

THE CORONAVIRUS PANDEMIC and unprecedented economic lockdowns have changed a lot of things, including how people deal with money and investing. But which shifts will prove lasting? We asked some executives for their views on what aspects of the financial industry will never look the same again.

How does the pandemic change finance forever?

It will forever change the way we handle cash. We have been expedited into what was an already coming cashless economy.

The inequality is only going to increase. If I am in a rural town in Mississippi and I'm going to the local grocery store, and they're saying, "Hey, we're not taking cash," what am I supposed to do? I can't go down the street and start a bank account.

SHEENA ALLEN

Founder and chief executive officer CapWay Inc., a mobile bank focused on underbanked communities

The pandemic is a true test of firms' values and ethics. Thankfully, financial firms need not choose between operating compliantly and endangering people's health. Cloud-based technology exists that operates from anywhere to ensure our markets are managed effectively. Widespread use of cloud-based compliance technology has had, and will continue to have, the single greatest impact on market surveillance programs long after this crisis is a distant memory. Attention to compliance along with conduct is forever changed, and cloud is here to stay.

CHRIS WOOTEN
*Executive vice president
overseeing surveillance
NICE Actimize*

If you told me a year ago that you could run a U.S. bank with almost 90% of the staff working from home, I'd say you're crazy. But it's been the case for pretty much nine months now, and it's going to be part of the new normal. Whether it will be 30%, 40%, or even more in the new normal, it's hard to say, but a lot more people will be working from home.

We were always trying to optimize our real estate footprint, but now we're speeding that up. There will be reduced need for a big headquarters space. Instead, we'll have larger satellite offices and near-shoring locations close to where people live.

By being a positive and constructive conduit for helping people cope with the pandemic, banks have recouped some of the standing in society they had lost during the previous crisis.

The coordination between central banks, governments, and the financial sector was so much better and stronger this time. It also helped the economy to recover faster. That's also here to stay.

The pandemic also accelerated the acceptance and popularity of ESG [environment, social, and governance] investing, especially the S component, social causes. Fiscal policies worldwide in the near future will support ESG and sustainable finance.

JEAN-YVES FILLION
CEO, BNP Paribas USA

Recruiting has changed forever: the way you're going to need to compete for talent, how you recruit people, and what you're offering them.

The idea of women being able to stay home and raise kids and still work hopefully has changed for the better. So I hope that's democratized and should allow us to get more diversity into all industries. I think that's a big positive.

JONATHAN KELLNER
CEO, Members Exchange

Prior to the pandemic, many of our customers resisted our digital tools (online banking, mobile deposit). Since closing the lobbies of the branches, customers were encouraged to utilize these mediums to transact their business. While these channels were always more convenient for the customer, the adoption has been seamless. These customers are not likely to utilize the branch as their main channel of communication with us in the future.

Our workforce and workflow are likely changed forever. Prior to the pandemic, remote workers were the exception to the rule. However, we have found many efficiencies in a remote workforce. I believe post-pandemic that the new generation of workers and many of our existing members of the workforce will demand the right to work remotely. While there are efficiencies in this arrangement, there are also intangible costs such as the loss of relationships among employees and building a team environment. We will get better at managing this type of workforce, but it has definitely changed and will continue to do so at a rapid pace.

DARRIN WILLIAMS
CEO, Southern Bancorp Inc.

*Nguyen and Onaran report
on financial companies for
Bloomberg News in New York.*

The Fintech Revolution Is Finally Here— And So Are the Regulators

By ELISA MARTINUZZI

ILLUSTRATION BY ROB DOBI

SPEAKING IN OCTOBER to his banking brethren at the world's biggest payments confab—the annual Sibos conference—Jamie Dimon didn't mince words. The rise of financial technology companies, warned JPMorgan Chase & Co.'s chief executive officer, will see some banks “go the way of the dinosaur.”

In the world of finance, as in many other parts of the economy, Covid-19 has accelerated a shift to digital interactions that was already under way. And it hasn't gone unnoticed by regulators. In Asia, Europe, and the U.S., central banks and other regulators are increasingly focused on how technology companies could come to dominate financial services, undermining the stability of the systems the watchdogs are entrusted to preserve.

One obvious sign of the growing importance of fintech companies is their surging market value. The valuation of PayPal Holdings Inc., the U.S. e-commerce payments giant, had exceeded \$225 billion as of early November—more than that of Europe's top four banks combined and higher than all U.S. banks bar JPMorgan. In Europe, where lenders' stock prices have plummeted to record lows this year, only HSBC Holdings Plc, with \$3 trillion in

assets and a history dating to 1865, was worth more than Adyen NV, a 14-year-old Dutch payments processor.

And of course, none compare with Jack Ma's Ant Group Co., the Chinese financial giant that at the end of October was proceeding with an initial public offering set to value it at \$315 billion—bigger than Dimon's JPMorgan. But then China's regulators stepped in to halt the IPO at the eleventh hour, demanding that Ant adhere to stricter capital requirements and provide at least 30% of the funding for loans it underwrites, just like the banks it competes with. Analysts at Morningstar Inc. and other firms estimated the rules could cut the company's value in half. China's top banking watchdog also warned that it will step up probes to ensure fair competition where monopolies can be spotted. Ant and Tencent Holdings Ltd., which owns the WeChat Pay platform, are luring customers away from commercial banks in the consumer-loan market.

While the news was dramatic and shocking, thwarting the world's biggest-ever IPO, the truth is that China isn't alone in expressing new concerns about the regulatory advantage provided to the

digital finance industry. The collapse of fintech poster child Wirecard AG after billions of dollars went missing from the Bavarian startup has prompted a review of how regulators in Germany and Europe oversee payment companies.

In the U.K., the banking supervisor is considering tougher demands on so-called neobanks, including that they bolster their capital cushions, and once-hot fintechs such as Monzo and Revolut that are struggling. In the U.S., the New York Department of Financial Services has sued to bar the Office of the Comptroller of the Currency from handing out licenses under a fintech charter that would place companies under lighter regulation than lenders with banking licenses.

THE PACE at which consumers have turned to digital transactions during the pandemic is one reason for regulators to fret. PayPal and Amsterdam-based Adyen, which handles transactions for customers including EBay Inc., saw their business volumes soar 25% or more during the lockdowns as online sales surged. Ant reported a 43% jump in revenue in the nine months through



September, to 118.2 billion yuan (\$18 billion), and its gross profit soared 74%, to 69.5 billion yuan.

Bank notes and coins became untouchable amid worries they could spread the virus. Even in Germany, where cash has long been king, card transactions in the first half of 2020 were up 21% from the same period in 2019. After the lockdowns, almost half of the adults in Europe surveyed by Forrester Research Inc. said they plan to use cash less often.

To be sure, some fintech companies, such as payments provider Worldline SA, have been hurt by the move to online purchases and the growing popularity of mobile payment apps. The need to diversify and invest in technology

will lead to yet more consolidation, especially in Europe. Recent dealmaking is telling: Nexi SpA, an Italian payment company, agreed in October to buy a domestic rival for \$5.3 billion, and just weeks later said it would buy a \$9.2 billion rival in Denmark.

A shakeout also awaits some of the neobanks, fintech upstarts that sought to challenge centuries-old brick-and-mortar lenders. In a crisis, depositors tend to favor the safety of the bigger, established banks, which have improved their own digital offerings. What's more, fintech lenders such as N26 and Revolut rely heavily on income from card fees and cross-border payments instead of lending, tying their success to their ability

to attract new clients. Absent a surge in new customers, the model becomes unsustainably costly.

And as regulators have stepped up their scrutiny of fintechs, the companies' earnings have come under pressure from the cost of obtaining licenses and investing in risk management and compliance improvements. Revolut, founded in 2015, said in February that it would add 1,000 employees this year to the 2,000 it already has, of which 200 would be in compliance.

Investors are showing signs of impatience with the cash drain from unprofitable startups. SoftBank Group Corp.'s Vision Fund slashed the value of its stake in U.K. lender OakNorth, one of the few challenger banks that's already profitable, by more than 40% earlier this year. Monzo, also based in the U.K., warned in its annual report in July that revenue had been severely affected by the pandemic and that material uncertainties "cast significant doubt upon the group's ability to continue as a going concern."

Although global venture capital funding recovered in the third quarter, fintech investments are on track to decline 4% this year, to \$40.5 billion, according to Citigroup Inc. analysts. McKinsey & Co. estimates European fintechs alone need an additional €5.7 billion (\$6.7 billion) just to keep going through the second half of 2021.

The exceptions include companies that are tapping the unbanked. Brazil's Nubank has grown into the world's biggest standalone digital bank, with 26 million customers, by offering a no-fee and paperwork-free credit card. In the U.S., Chime Financial Inc., which offers secured cards without a credit check, was able to raise \$485 million in September, valuing it at \$14.5 billion.

Regulators will be monitoring their success closely. Ant took 16 years to become the behemoth it is today. Given the rate at which some fintechs are growing now, regulators will have to decide quickly how far they want to go to keep them in check. ●

Martinuzzi writes about finance for Bloomberg Opinion in London. This column doesn't necessarily reflect the opinion of Bloomberg LP and its owners.

Global Finance Wants to Protect Its Culture. First, It Should Reform It

By SREE VIDYA BHAKTAVATSALAM

ILLUSTRATION BY ROB DOBI

EVERYWHERE, the stewards of capitalism are in flux, grappling with the implications of a radically different future that's set to play out from home offices, living rooms, and kitchen tables around the world.

This is a big moment for an industry that has long lionized alpha-male "tough guys" who wear their stamina as a badge of honor and view the need for work-life flexibility as an admission of weakness. From New York to London to Hong Kong, the hard-charging culture of finance has been tied to the towering edifices that cram in thousands of overachievers, the cutthroat chaos of the trading floors, and the relentless schmoozing that accompanies the entry into the upper echelons.

The new workplace reality, with hundreds of thousands of bankers working from home for the foreseeable future, has spurred considerable angst among the financial elite. One by one, powerful men have lamented the damage to their companies' cultures—cultures they've benefited from and sought to perpetuate. Sergio Ermotti, who stepped down as chief executive officer of Zurich-based UBS Group AG on Nov. 1, said it's "especially difficult for banks to create and sustain cohesiveness and a culture when employees stay at home."

In September, JPMorgan Chase & Co.'s Jamie Dimon pushed for a return to normal, warning of slipping productivity and alienation among workers. BlackRock Inc.'s Laurence Fink worried about the serendipitous "water cooler moments" being lost as Zoom calls supplant impromptu encounters. Senior leaders at Goldman Sachs Group Inc., Barclays Plc, and others have pointed to the vital role that face-to-face interactions play in preserving the fabric of their companies' cultures.

Lost in this nostalgia is a hard truth: The finance industry has created some of the most toxic workplaces for women, racial minorities, or anyone else who doesn't fit in comfortably with Wall Street's fraternity. As a journalist who has spent years covering finance and investing from Boston, New York, Hong Kong, and London, I'm often asked what I learned from my time in these financial centers. One takeaway seems especially relevant in the strange times in which we find ourselves today: The world of finance can be incredibly isolating and hostile to someone who isn't White, straight, and male.

Sure, sexual harassment is no longer as flagrant as it was in the 1990s, a sordid period that former Bloomberg News columnist Susan Antilla chronicled

in her 2002 book, *Tales From the Boom-Boom Room: Women vs. Wall Street*. Back then, women were subjected to profanity-laced tirades, grabbing and groping, and topless dancers on trading floors. The blatant racism of that era has given way to more subtle forms of discrimination, even as the right noises come from financial leaders.

But the cultural problems aren't a vestige of a remote past. As recently as 2019, Bloomberg News reported on a Cantor Fitzgerald bond saleswoman's story of persistent persecution, culminating in her discovering feces in her coffee mug, as well as the booze-drenched culture at the insurance market Lloyd's of London that put women at the mercy of their drunken bosses and colleagues.

For every incident that gets this kind of spotlight, dozens are never chronicled. In New York, a junior banker realizes to her shock that her older colleague has put his hand on her knee during dinner. In Hong Kong, a young executive gamely downs tequila shots to fit in with a crowd of senior expat colleagues, who egg her on in a manner eerily reminiscent of a hazing ritual.

The global reckoning fueled by the #MeToo movement in 2017 and the racial justice protests that followed the police

killing of George Floyd in 2020 have led many banks and other financial companies to enact tough policies to combat and address sexism and racism in the workplace. JPMorgan, Morgan Stanley, and Goldman Sachs are among the companies that have unveiled initiatives to improve diversity and elevate Black executives.

At the same time, the financial industry is adapting to the tectonic shift toward remote working. Standard Chartered Plc has unveiled a permanent move to flexible working for its 85,000 employees—an option that could be offered to more than 90% of its workforce over time. Switzerland's UBS expects a third of its employees to work from home permanently even after the pandemic ends, and Japan's Mizuho Financial Group Inc. is mulling a shorter workweek. At banks such as HSBC Holdings Plc and Deutsche Bank AG, the pivot to working from home has unleashed the possibility of huge cost savings in a post-Covid era: They no longer need the same amount of prime office space to house their employees.

Already there are signs that some of the worst aspects of banking culture are moving to this virtual world. Colleagues and clients are turning to messaging apps such as WhatsApp,



which are near-impossible for companies to monitor. There's been a spike in hostile and offensive language in emails since cities around the world went into lockdown, according to surveillance firms such as London-based SteelEye. Excluding women and members of minority groups from important meetings and decisions is even easier when operating remotely.

Some banks are taking steps to monitor exchanges for compliance lapses and wrongdoing such as insider dealing. In an attempt to crack down on unauthorized communication channels, Morgan Stanley and JPMorgan have punished employees who use WhatsApp. Some are using surveillance

software to record every keystroke.

Financial companies will have to navigate a tricky path between respecting employees' privacy and protecting vulnerable staff. But instead of bemoaning the loss of the corporate cultures caused by remote working, leaders should use the opportunity to examine these cultures more closely—and then take concrete steps to reform them to meet the ideals they profess to aspire to. ●

Bhaktavatsalam is executive editor for Bloomberg News's editing hub in Europe, the Middle East, and Africa. This column doesn't necessarily reflect the opinion of Bloomberg LP and its owners.





Twilight Of the Bank Branch

IN LATE 2020, when Spirit of Texas Bancshares Inc. closed this branch in tiny Millsap, Texas, about 50 miles west of Fort Worth, it wasn't alone. U.S. banks started eliminating branches after the 2008 financial crisis, and the Covid-19 pandemic accelerated the trend. Banks shuttered almost 500 U.S. locations in April through June, a third more than in the previous quarter, according to S&P Global Market Intelligence. While banks continue to open new locations in communities they see as more profitable, the net change was a decline of 740 in the first nine months of 2020, according to S&P. The future of banking is increasingly on phones and laptops. Go to [{BI BANK <GO>}](#) for the Bloomberg Intelligence dashboard on the banking industry. —*Yalman Onaran*

PHOTOGRAPH BY ALLISON V. SMITH

Are SPACs the Future of IPOs?

By MIN LEE and MARK JORDAN

A SPECIAL PURPOSE acquisition company, or SPAC, is a blank-check vehicle formed with the intention of acquiring or merging with another company. While SPACs have been around for more than 25 years, this year has seen an explosion of issuance, with offerings from such diverse backers as SoftBank Group Corp., hedge fund star Bill Ackman, and Billy Beane, the former general manager of the Oakland Athletics baseball team who was made famous in Michael Lewis's *Moneyball*.

As of Nov. 6 there were 152 SPAC offerings completed this year, raising \$58 billion. In the third quarter alone there were 98 sales that raised \$36 billion. More SPACs were issued in those three months than in 2017, 2018, and 2019 combined. Since the start of 2019, SPACs have accounted for more than one-third of all U.S. initial public offerings.

To track SPAC activity, you can use the Equity Offerings function. Type "IPO" in the command line of a Bloomberg screen and click on the IPO – Equity Offerings match. Next, click on the Advanced Search button on the red toolbar. The shortcut is **{IPO SU <GO>}**. To set up a search for SPAC offerings that are currently trading in the U.S., click on Offer Type, tick the box next to Special Purpose Acquisition Company (SPAC), and hit Update. Next, click on Offer Stage, select Trading, and hit Update. Finally, click on Region/Country, expand North America, select United States of America, and hit Update. Click on the Results button. To dig into how the market has taken off, click on the Time Series tab (**FIG. 1**).

A SPAC IS ESSENTIALLY a publicly traded shell company that targets private firms. SPACs offer public investors a way to invest in companies that are more traditionally targeted by private equity firms. For the target company, being purchased by a SPAC is its de facto IPO.

This method is quite different from a traditional IPO. For one thing, SPACs are usually engineered in a more complicated fashion.

Typically, SPACs raise capital by issuing units consisting of one share priced at \$10 and a five-year partial warrant (normally half or one-third of a warrant) struck at around 115% of the offering price. It's then automatically exercised at about 180%, then combined with an embedded put option. Such a structure allows the creators to form a corporation with no commercial operations or assets besides cash with a three-year time limit to complete an investment (which is another way SPACs differ from traditional IPOs).

In reality, though, SPACs typically acquire an operating business within about six months. This compares well with the traditional IPO process, which generally takes about 18 months because of the time required for road shows and regulatory filings. This allows SPACs to be more nimble in taking advantage of favorable markets than IPOs, which risk running into adverse economic conditions over an 18-month period. An example of a high-profile casualty: SoulCycle Inc., which said in May that it would not pursue an IPO, almost five years after first filing to sell shares.

A further advantage to the acquired company is that the amount of new capital raised via a SPAC is theoretically unlimited, while it's capped as a percentage of the company's value in a traditional IPO. This is particularly enticing to startup companies in "new economy" or "gig economy" sectors.

SPACs also provide features that are investor-friendly when compared with traditional IPOs. With SPACs, investors are allowed to see forecasts; traditional IPOs prohibit forward-looking guidance. In industries such as cannabis, this can be interesting for investors, because the companies often lack historical performance. Moreover, SPACs' three-year limit may effectively reduce the amount of time an investor expects to be tied into an investment. If an investor buys into a company through a private equity or venture capital fund, the commitment is typically closer to 10 years. The financial engineering

Fig. 1 Run **{IPO <GO>}** and click on the Advanced Search button on the red toolbar to set up a search for SPAC issuance.

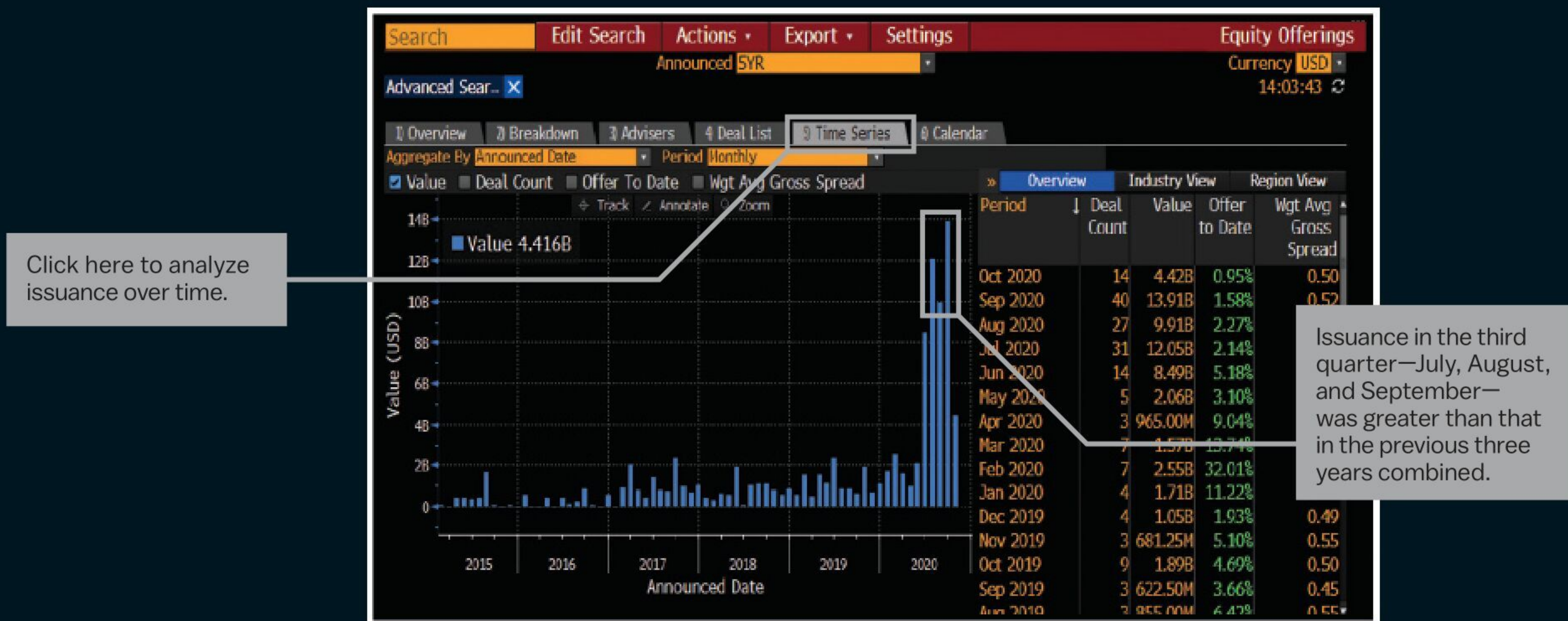


Fig. 2 The five largest constituents of the Indxx SPAC & NextGen IPO Index all outperformed the S&P 500 this year.



in SPACs offers the upside potential of investing in “a new Tesla” while the embedded derivatives limit downside exposure. Finally, SPAC investors are generally entitled to vote on an acquisition, and trust proceeds are returned if no deal is approved.

Perhaps the key reason investors have warmed so strongly to SPACs is performance. The Indxx SPAC & NextGen IPO Index, a benchmark that tracks SPAC performance, gained 41% from April 30 to Nov. 6. By contrast, the S&P 500 rose 21.5% in the period. Run **{ISPAC <Index> COMP <GO>}** to compare the indexes.

The allure of SPACs looks even more compelling when you examine the five biggest members of the index. If you don’t have permission to see the constituents of the benchmark, you can look at the holdings of an exchange-traded fund that tracks it and started trading in October—the Defiance Next

Gen SPAC Derived ETF. Go to **{SPAK US <Equity> DES3 <GO>}**.

To compare the biggest five holdings of the fund with the S&P, load their tickers into COMP (**FIG. 2**). All five have substantially outperformed the 8% gain of the S&P 500 this year through Nov. 6. The largest weighting in the ETF is online sports betting company DraftKings Inc., which skyrocketed 296%. To be sure, performance this year may very well be an outlier event, and not all SPACs are created equal.

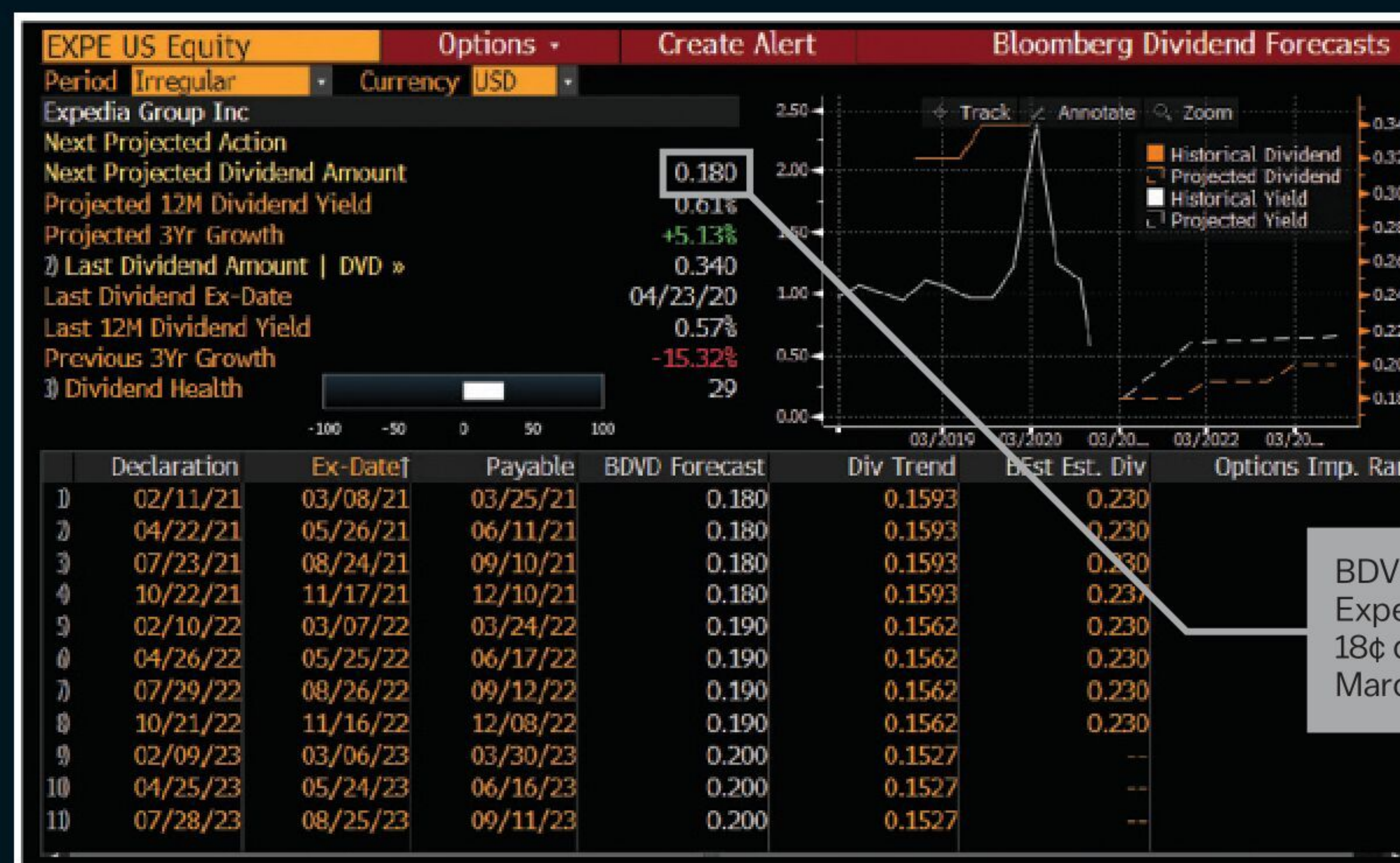
Given the pandemic-driven economic uncertainty, markets could be difficult to navigate in 2021. Investors may find SPACs an interesting sector to monitor. For news, run **{NI SPAC <GO>}**. ●

Lee is an advanced equity specialist and Jordan is an equity derivatives market specialist at Bloomberg in New York.

What Forecasts Reveal About Regional Recoveries From Covid

By JESSICA BEATUS and ZHUO ZHANG

Fig. 1 To view dividend forecasts for Expedia, which discontinued its payout after Covid-19 spread in the U.S., run {EXPE US <Equity> BDVD <GO>}.



BDVD projects Expedia will pay an 18¢ dividend in March 2021.

AFTER THE PANDEMIC hit this year, a lot of companies halted dividend payouts.

How many? To find out, we looked at the constituents of three indexes as proxies for Asia, Europe, and the U.S. In the 1,575-member MSCI AC Asia Pacific Index, 109 companies had suspended payouts this year as of Nov. 1. That was 7% of the benchmark. In the Stoxx Europe 600 Index, 167 halted dividends, or 28%. In the S&P 500 it was 34, also 7%.

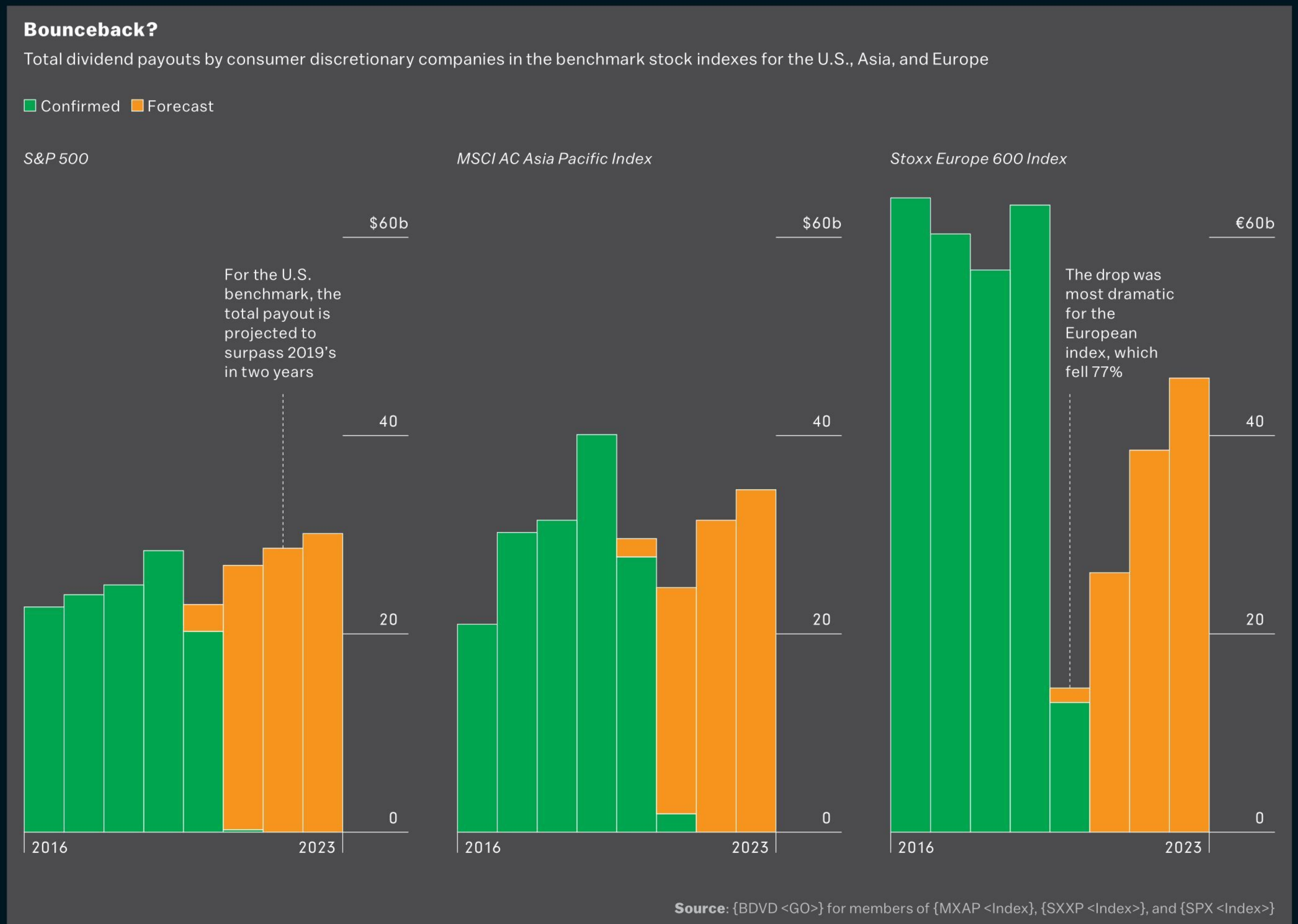
Which sectors accounted for most of the suspensions? As you might expect, consumer discretionary companies had the highest rate of dividend interruptions in all three indexes. In the

MSCI Asia benchmark, 13% of consumer discretionary companies stopped payouts. In the Stoxx index it was almost half—47%. And in the S&P 500 it was 28%.

The picture is a little more complicated when you look at the sectors with the second-highest rate of suspensions. In the Asia index it was the energy sector. In the Europe index, financials and industrials tied for second. In the U.S. benchmark it was industrials.

WHAT'S THE OUTLOOK for consumer discretionary companies to restore or continue payouts to investors? To get insight into that, you can use Bloomberg Dividend Forecasts (BDVD) data. BDVD

Fig. 2



provides projections of future dividends, which directly affect portfolio returns and option pricing. These forecasts from a team of Bloomberg analysts are based on three things. First, analysts start with the selected company's stated dividend policy. Second, they perform bottom-up analysis using publicly available information including guidance, financials and pricing data, options put-call parity and dividend swaps, sector- and region-based knowledge, and market momentum. Third, they assess patterns in payment history. This results in projections for as many as three years into the future.

Consider Expedia Group Inc. The online travel services company paid a dividend of 34¢ per share to holders of record as of March 10, just as Covid-19 began to spread in the U.S. In April, after the pandemic lockdown and travel bans started to hurt the company, Expedia announced that it would discontinue its dividend. When might the company resume quarterly payments? Run **{EXPE US <Equity> BDVD <GO>}** for Bloomberg's projections (FIG. 1). BDVD forecasts that Expedia will pay an 18¢-per-share dividend in March 2021.

TO GET A SENSE of trends in the consumer discretionary sector in Asia, Europe, and the U.S., we aggregated the BDVD forecasts for all of the companies in the three indexes. Then we combined that with historical data (FIG. 2).

Charting this data reveals a couple of interesting things. First, the drop in payouts in Europe was much deeper than in the other regions. Some background: Dividends are more important in Europe, accounting for most of the index's return in recent years. From Jan. 1, 2000, to Nov. 12, 2020, the total return of the Stoxx 600 was 101%, or 3.4% a year. But remove the payouts, and you find that the price return of the index was virtually zero over 20 years. What's more, with the onset of the pandemic, the European Central Bank pressed banks and insurers to suspend dividends to safeguard resources.

Bearing in mind that almost half of European consumer discretionary stocks halted dividends, the decrease in the sector's total payout was even more striking. In aggregate, the consumer discretionary sector payout plunged 77% in 2020 from 2019. By contrast, the declines in Asia (25%) and the U.S. (19%) were far less dramatic.

The upshot is that Asia and the U.S. have a lot less ground to recover. The consumer discretionary sector of the S&P 500, in particular, is projected to pay total dividends in 2022 that exceed the level of 2019. Yet the growth rate is expected to be the highest in Europe. After 2020's huge decline, next year's level is projected to be 78% higher. ● — *With Shirley Yap*

Beatus and Zhang are dividend analysts at Bloomberg in Princeton, N.J.

Build a Factor-Based Smart-Beta Strategy Using the Portfolio Optimizer

By EVERETT PERRY, ETHAN GANZ, and ALPER ATAMTURK

“IT’S LIKE TAKING Peter Lynch’s brain and putting it into R2D2.” That’s how Eric Balchunas, senior ETF analyst for Bloomberg Intelligence, describes smart beta. Smart-beta strategies now represent more than 20% of the exchange-traded funds market, having grown beyond \$1 trillion from about \$200 billion in 2012.

That growth reflects another shift: a move away from discretionary, fundamental investing driven by experience and gut toward more systematic, rules-based approaches that aim to exploit behavioral biases rather than fall victim to them. To that end, here’s how you can build your own rules-based quant strategies on the terminal.

THE FIRST STEP in this process is to research and select a systematic strategy. Not a trivial undertaking, of course. Many firms have small armies of Ph.D.s researching alpha signals and factor rotation. But Bloomberg tools can let you see what’s worked, in what markets, and under what economic conditions.

To start, run **{FTW <GO>}**. The Factors to Watch function lets you analyze a deep list of factors and observe their performance and past predictive strength. Next, click on the Pure Factor Returns tab. Pure factor portfolios use statistical methods to isolate exactly one unit of a factor, with zero exposure to others, to track its performance and risk over time. (For more on pure factors, go to **{DOCS 2086425 <GO>}**.) To sort by return over the past seven years, click on the 7Y Ret column heading. Here, you can see that the growth factor outperformed all other factors over the period. Use the View drop-down to select Strength and change the Horizon to 3 Year, and you can see that growth had the strongest conviction, lowest volatility, and highest return during the period (**FIG. 1**).

Let’s dive deeper into growth, which has been in the spotlight during the pandemic. The economic landscape has supported growth in recent years. Corporate tax cuts in 2017, for one thing, temporarily ratcheted up earnings growth for U.S. companies. In addition, the current low-rate regime has helped fuel a risk-on appetite for high growth from an investor’s point of view.

To look more closely into the growth factor’s performance, right-click on it and select GP – Historical Price Chart. In GP, you can compare growth to the federal funds rate by adding a line for **{FDTR <Index>}**. A low fed funds environment has been constructive for the pure growth factor, which has historically sold off during recessionary tightening cycles.

If you feel that supportive conditions will persist and factor regime change isn’t imminent, how can you implement a growth

strategy? First you need to find metrics to gauge growth. Run **{FTW <GO>}** again and click on the Quantile Spreads tab. Set the View to Strength and the Horizon to 3 Year. Use the drop-down below Style to select Growth. The PORT US Growth factor tops the list as strongest in terms of Sharpe ratio, information coefficient, and return. So let’s use this specific measure of growth, which is an amalgam of growth factors. (For more information on how different PORT factors are defined, see pages 28-31 of **{DOCS 2075843 <GO>}**.)

To build a growth strategy portfolio, let’s use the optimizer in the Portfolio & Risk Analytics (PORT) function. Portfolio optimization draws on the work of Nobel laureate Harry Markowitz, whose Modern Portfolio Theory posits that an optimal portfolio can be constructed based on the expected returns and volatility of securities. We can apply this basic framework to real-world portfolio goals, universes, constraints, and trade-offs. In other words, based on our specific rules and specifications, we can use a sophisticated model to tell us which securities—and how much of each—to trade.

First, create a portfolio by going to **{PRTU <GO>}** and clicking on the Create button. Enter a name such as Growth Factor Test, select Equity as the Asset Class, and click Create. Backdate the portfolio by entering 9/30/2017 in the Date field. Add \$10 million in cash by entering 10M in the Position field to the right of Cash. Click on Save.

Run **{PORT <GO>}** and use the drop-down in the upper left to select the portfolio. Let’s set the Bloomberg 1000 as the benchmark. Click on the vs drop-down and select [More Sources...]. Click on Indices, enter B1000 in the <Add Index> field, click on the B1000 – Bloomberg US 1000 Price Return Index match, and hit Select. (For more info on the Bloomberg equity indexes, go to **{DOCS 2094785 <GO>}**.)

Now that you have a portfolio of cash and a benchmark, click on the Trade Simulation button and select Launch Optimizer. Our main goal is to increase exposure to the growth factor while not taking on too much risk. These steps are one example of how to do that, but there are many variations of inputs you can test as well.

First, click on the Tasks button and select Load Task.... Click on Popular Tasks, then on “Reduce Risk: Generate 40 instrument portfolio that minimizes Risk” and hit Select. Next, click on the Add button to the right of Goals. Search for US Growth, click on it, and hit Select. Now we have two goals: minimize Active Total Risk (also known as ex-ante tracking error, this aims to match benchmark future volatility) and maximize exposure to growth. Both have a

Fig. 1 To dig into the historical performance of drivers, run **{FTW <GO>}** to open the Factors to Watch function.

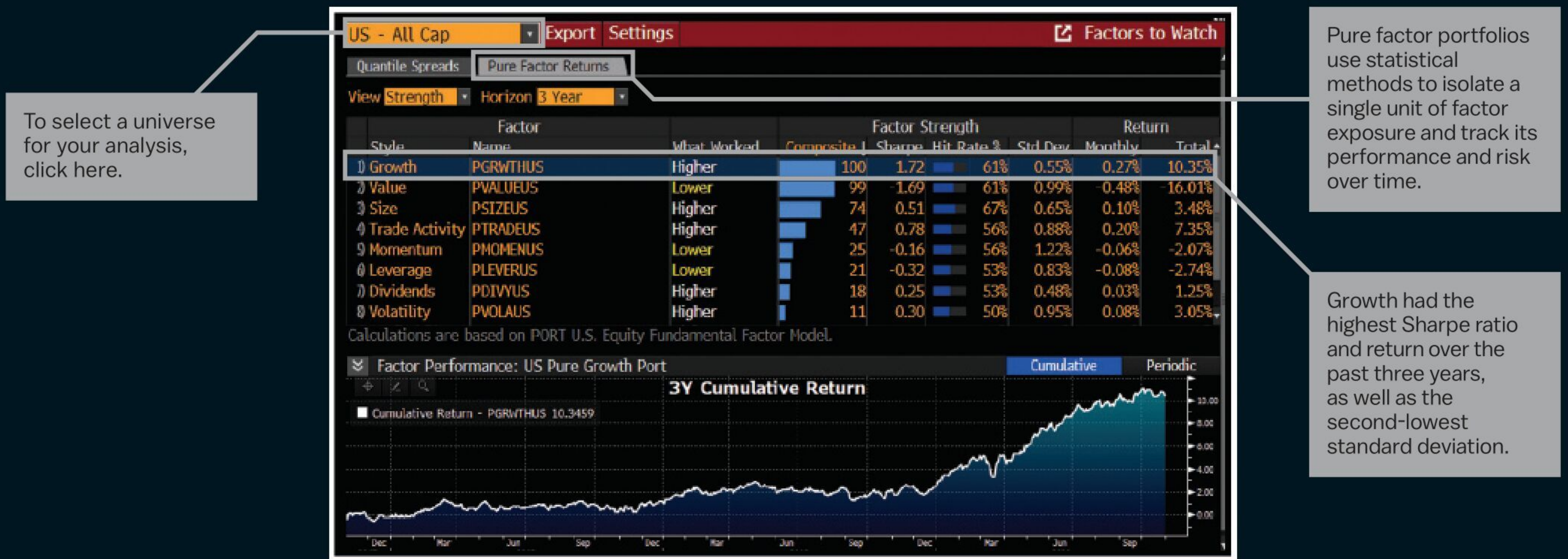


Fig. 2 Here we've set up an optimization task that maximizes exposure to the US Growth factor while minimizing Active Total Risk, or tracking error with respect to the benchmark.



trade-off of 1, which means they're equally important. In fact, gaining exposure to the growth factor is more important, so let's change the trade-off for maximizing US Growth to 0.1. This means we're willing to increase active total risk by 1 unit to increase exposure to growth by one tenth of a unit. Let's add two more goals: minimize active non-factor risk (trade-off of 0.5) and minimize turnover (trade-off of 2).

In the Universes section, click on Current Portfolio and change it to Current Benchmark so we can pick from Bloomberg 1000 stocks. Press Select. In the Securities Properties section set the Max for Default for all to 10% (Fig. 2). You've now set up a rules-based optimization task to create a long-only equity portfolio that will maximize exposure to the growth factor while minimizing risk. (To save it, click on Tasks, select Save Task As..., give it a name, and hit

Save. For additional details on setting trade-off values, field definitions, and the optimizer, go to **{DOCS 2065004 <GO>}**.)

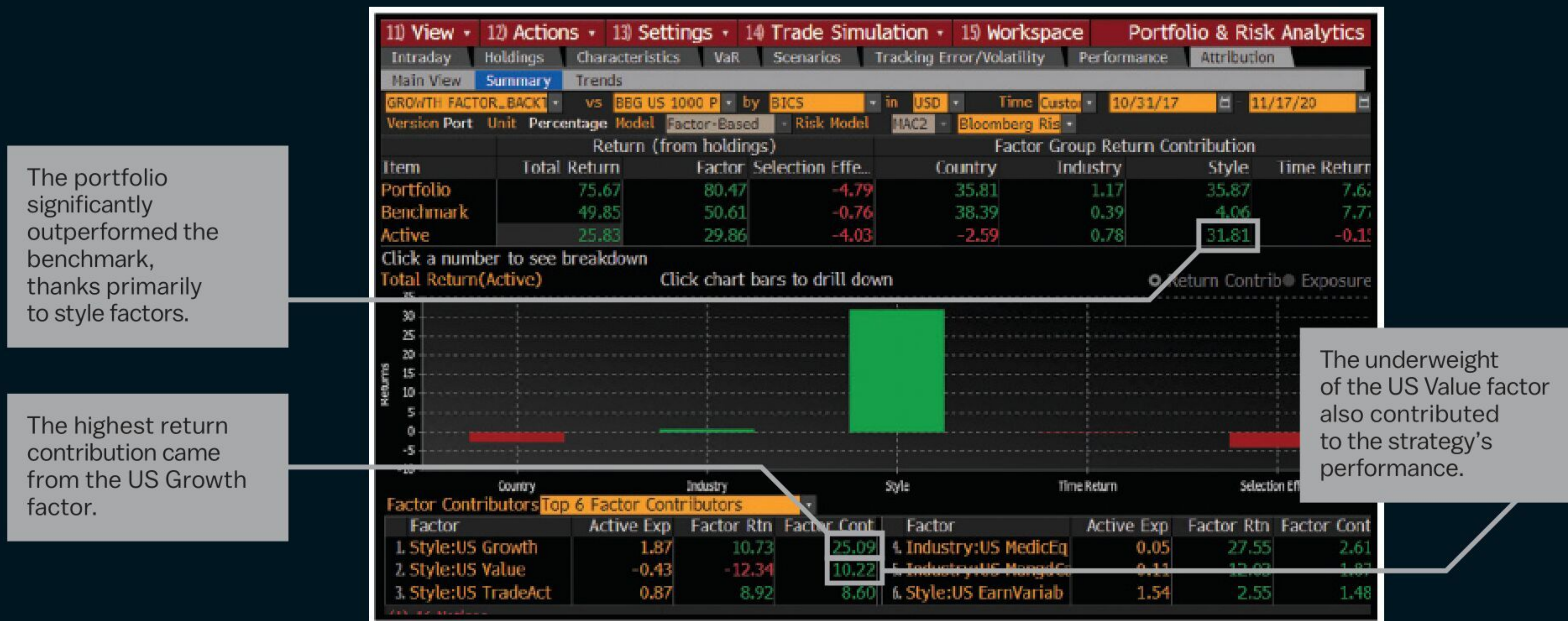
Next, let's backtest the strategy to make sure a long-only portfolio performs similarly to the factors we observed in FTW. Click on the Backtest button. Set up a 36-month backtest and hit Run. Once it's run, you will see each rebalance date on a chart and can click into each one to see the proposed trades. You can also click on the Analyze in PORT button to dive into the results further (Fig. 3). Here you can see that the growth portfolio outperformed the benchmark by about 25% over the three-year period. To look deeper into the return of the strategy, click on the Attribution tab.

Click on the Summary subtab to display the contribution to return by factor grouping (Fig. 4). The first thing to note is that the portfolio significantly outperformed the benchmark driven by

Fig. 3 Once your backtest has run, click on Analyze in PORT to dig into the performance and characteristics of your strategy.



Fig. 4 In PORT, click on the Attribution tab and then on the Summary subtab to explore the factors driving the performance of the strategy.



style factors (29.86% outperformance). That's what we were aiming for. At the bottom of the screen you can see that the highest return contribution—25.09%—came from the US Growth factor. We can also see that we lost the most active return over the period from selection effect (-4.03%). This could potentially be a reason to adjust your constraints and rerun the optimization backtest.

Last, to examine other exposures in the portfolio, you can use the Drivers (DRIV) function. Run `{DRIV <GO>}`, click in the field in the upper left, and select the optimized portfolio. The screen is organized to show where your portfolio has high or low exposure to characteristics relative to the broader market. In addition to high exposure to growth, sales surprises, and profitability, the portfolio has a very low bias to value factors. DRIV uses the factor performance we saw in FTW to indicate whether your portfolio's positioning

has been favorable or not. The default time frame for this analysis is 10 years, but you can adjust that by clicking the pencil icon. If factor rotation is indeed imminent and the strategy needs to be changed, exposures will be important.

You've now created a rules-based quant strategy. If you're confident in it, you can run the portfolio optimization periodically to see proposed trades. Adjust your portfolio to make sure your holdings are up to date for the next optimization. The PORT Enterprise package also offers scheduled, automatic optimization reports that are executed periodically without manual intervention. Find out more from your Bloomberg representative. ● —*With Adam Lynne*

Perry is a buy-side enterprise relationship manager, Ganz is an equities market specialist, and Atamturk is responsible for portfolio optimization research, all at Bloomberg in San Francisco.

FTZ SEZ BATAM HOME FOR INVESTMENT

Batam, part of Indonesia is widely seen as the economic giant of the future. Batam is one of the largest investment destinations located in the Riau Islands Province. With a strategic location close to Singapore and Johor Malaysia, the "City of Industry" with an area of 415 km² and a total of 715 km² including Bareleng (Batam, Rempang, Galang) is also located far from pacific ocean ring of fire . Batam is well known for its economic growth and sustainable investment, with industries various from manufacturing, electronics, shipyard, oil and gas, tourism, services and also creative industry

Batam is directly in front of the Malacca Strait and the Singapore Shipping route claimed as one of the busiest shipping activity in the world

Free Trade Zone & Special Economic Zone

Batam established as Free Trade Zone since 2007 based on Law No 44 for 70 years, covering area of Batam, Tonton, Nipah, Rempang, Galang, and Galang Baru (Bareleng). Batam is unique, as it is also designed as Special Economic Zone or SEZs. The development of two SEZ in Nongsa Digital Park and Batam Aero Technic (MRO) valued at 22.2 trillion IDR (1.6 billion USD) with targeted employment for 260 million workers.

Investment and Industrial Growth

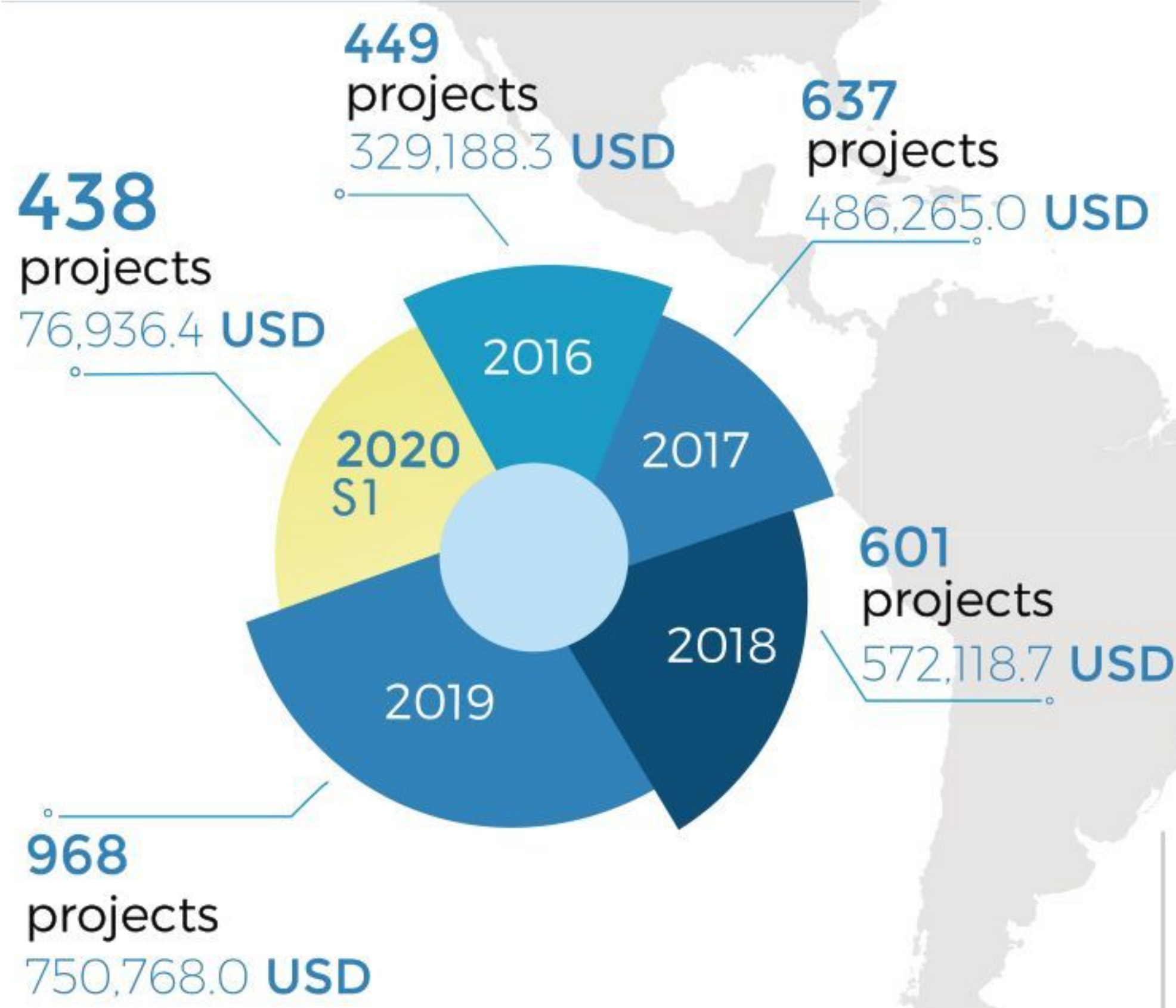
Batam has 24 industrial estates scattered throughout the island with investment from January to June 2020 at 497 million USD with main export destinations to China, Australia, Singapore, United Kingdom, Germany, and Malaysia. Some Multinationals are Infineon Technologies, Siix, Ciba Vision, Schneider Electric, Rubycon, Flextronics, Philips, Epson, and Sumitomo transforming into Industry 4.0.

Batam is designated as 3rd tourism destination in Indonesia after Bali and Jakarta, with 1.9 Million visits supported with 142-star hotels and resort, 2 marinas, 7 international golf courses and other beautiful destinations; Ex-Camp Refugee of Galang, Bareleng Bridges, Ranoh Island, Kepri Koral and endowed with local fresh seafood delicacies.

Industry

Realized

Investment 2016 - 2020



Ease of Doing Business

To support the ease of doing business in Batam, Batam has Mall of Public Services, established on 30 November 2017. Online Single Submission (OSS) is available for fast business license approval to synchronize licensing regulations in Central and Regional.

Batam offers income with fiscal and non-fiscal incentives of exemption on No Import and Export Tax, Exemption on VAT, Exemption on Sales Tax of Luxurious Goods, Double Taxation Avoidance Agreement with 57 Countries, Tax Allowance, GSP Facility, Tax Holiday, Super Deductible Tax with Competitive Investment and Operation Cost.

Infrastructure and Forthcoming Projects

Batam had modern infrastructure to support industrial and investment activities; International Airport, Electricity, 4 Cargo Ports and 5 Passenger Ports, 7 Clean Water Reservoirs, Internet and Telecommunications, Hospitals, Highways and modern IT Center facility equipped with Data Recovery Centre with ISO 27001 and ISO 9001. Whilst, some the forthcoming projects that are developing include expansion on Airport, Light Rail Transit, Seaport, Water Management, and Toll Road

Batam has been established as industrial city in Indonesia under the management of Badan Pengusahaan Batam (BP Batam) for 49 years. More future development to make Batam even more perfect for investment destination. There is none like Batam today. Batam is definitely your home for investment.

Companies	Workers	Total :
537 FDI	188,921 workers	1,309
772 DDI	50,334 workers	169,265

SOURCE :

Based on Investment Report of Laporan Kegiatan Penanaman Modal, LKPM Indonesia Investment Coordinating Board, Badan Koordinasi Penanaman Modal BKPM Republic of Indonesia



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Dig Into How Zero Commissions Flow Through Brokers' Results

By DAVID TUNG

Fig. 1 To see model-level estimates from analysts for Interactive Brokers, go to [{IBKR US <Equity> MODL <GO>}](#).

Measures	Q4 2020*	Q1 2021	Q2 2021	Q3 2021	Q4 2021
	Model Consensus	Model Consensus	Model Consensus	Model Consensus	Model Consensus
Highlights					
Non-GAAP Diluted EPS	0.54 4	0.51 3	0.54 3	0.51 3	0.51 3
Revenue	509.46M 3	495.99M 2	498.89M 2	499.82M 2	495.36M 2
• Cleared DARTS	1.55M 4	1.52M 3	1.48M 3	1.43M 3	1.40M 3
• YoY Growth (%)	118.16% 2	20.37% 2	-2.70% 2	-10.36% 2	-9.09% 2
• Total Accounts	1.06M 4	1.11M 3	1.16M 3	1.21M 3	1.25M 3
• QoQ Growth (%)	8.57% 2	6.50% 1	5.50% 1	5.00% 1	4.00% 1
Customer Margin	30.42% 4	30.90% 3	31.78% 3	32.68% 3	33.58% 3
Customer Equity	246.65B 3	259.63B 2	267.64B 2	275.91B 2	284.28B 2
Customer Credit	69.73B 4	70.39B 3	71.42B 3	73.16B 3	74.90B 3
Company Operating Metrics					
Company-Level Industry Statistics					
• Cleared DARTS	1.55M 4	1.52M 3	1.48M 3	1.43M 3	1.40M 3
• YoY Growth (%)	118.16% 2	20.37% 2	-2.70% 2	-10.36% 2	-9.09% 2
• QoQ Growth (%)	-3.70% 2	-0.35% 2	-3.24% 2	-3.81% 2	-2.01% 2
• Total Accounts	1.06M 4	1.11M 3	1.16M 3	1.21M 3	1.25M 3

Click here to see how model consensus evolves over time.

The consensus estimate of 1.55 million cleared daily average revenue trades in the fourth quarter represents a 118% jump from a year earlier.

A PRICE WAR on trading commissions ripped through the U.S. discount brokerage industry last year.

What set it off? If you dig deep enough, you'll find that the root cause was almost certainly Robinhood Financial LLC. Robinhood, of course, is the company founded in Menlo Park, Calif., in 2013 on the idea of attracting young people to investing with free stock trading on a phone app. The lure of trading without paying commissions was indeed effective—by 2019, Robinhood had 10 million accounts.

So other brokers slashed their trading fees in 2019. On Sept. 30, Interactive Brokers LLC, which already had one of the industry's lowest commission schedules, introduced a platform that featured free stock trades. On Oct. 1, Charles Schwab Corp. said it was eliminating its \$4.95 commission on stock trades. TD Ameritrade Holding Corp. slashed its fee to zero from \$6.95 that same day; its stock reacted immediately, plunging 26% as analysts cut their earnings-per-share estimates for fiscal 2020 by almost 15%. The next day, ETrade Financial Corp. did away with its \$6.95 commission.

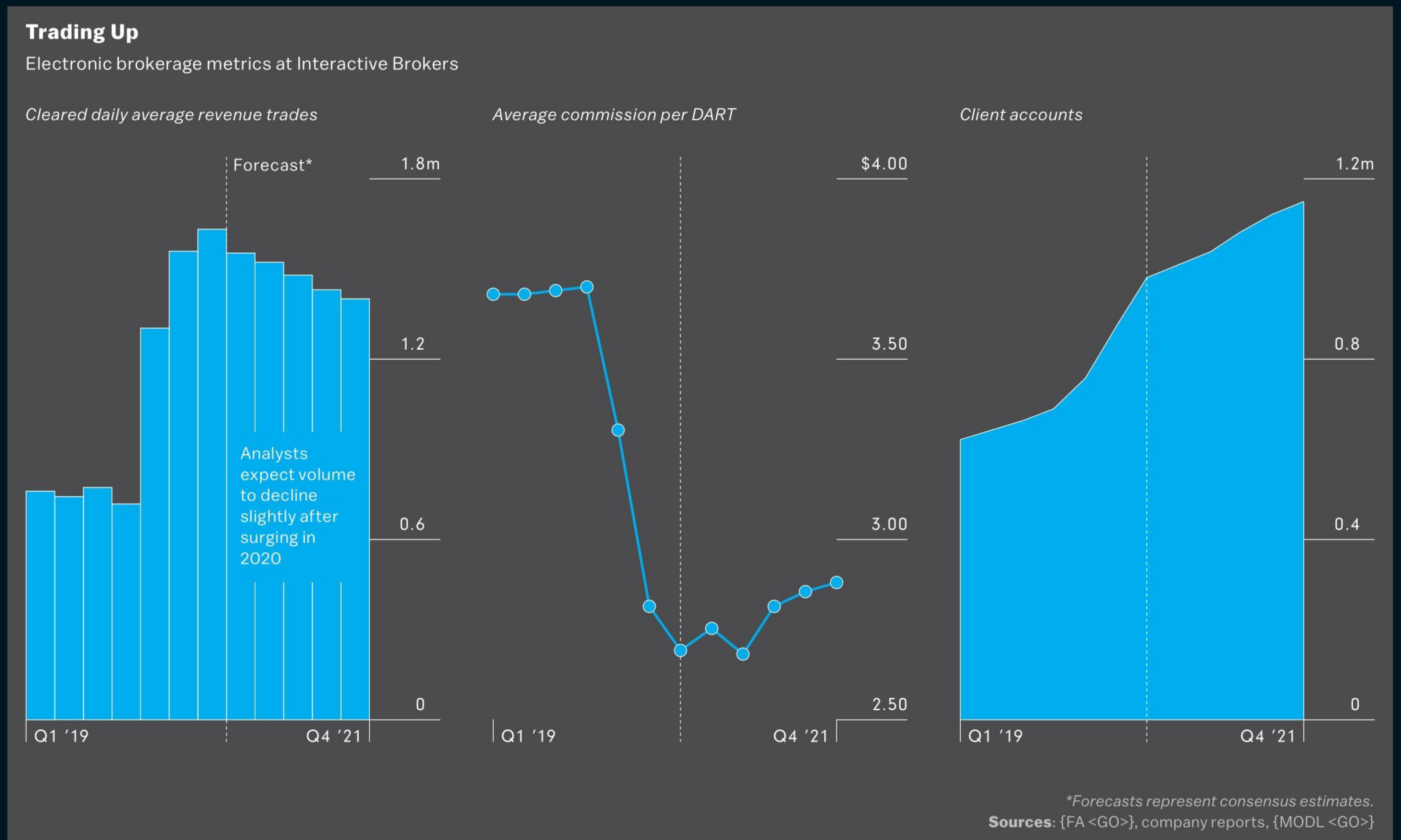
Fast-forward to today, and you can see how those changes accelerated industry consolidation. In November 2019, Schwab

agreed to acquire Ameritrade. The \$25.7 billion deal closed in October 2020. Morgan Stanley bought ETrade in a \$13 billion deal that was also completed in October.

Another way the price war has played out is in the surge of retail trading this year when the pandemic hit. The number of shares traded by retail investors jumped 93%, to 264 billion, in the second quarter, up from 137 billion in the first, according to Bloomberg Intelligence. Retail overtook the quantitative category to become the second-largest source of order flow this year: Market makers and high-frequency traders accounted for 43.5% of stock trading, retail for 19.5%, and quant for 15.9%, according to BI.

FREE TRADES MAY be good for investors. How are they working out for brokers? You can use Bloomberg's earnings analytics and the Analyst Estimates and Models (MODL) function to dig into that question.

Robinhood remains a private company, valued at \$11.7 billion in its most recent funding round, so let's start by looking at Ameritrade before it was acquired. Go to [{AMTD US <Equity> EEB <GO>}](#) for

Fig. 2

the Estimate Consensus Detail function. On the chart, if you set the Period to 2020 - Q4, you can see that the consensus adjusted EPS estimate for the subsequent quarter took a 21% leg down on Oct. 2 as analysts revised their outlook for the company.

The price war hit Ameritrade hard because it had derived a significant chunk of its revenue from commissions. How much? For more detail, run **{FA <GO>}** for the Financial Analysis function. Click on the Segments tab and the By Measure subtab if it's not already selected. Under Revenue – Supplementary Breakdown, you can see that in fiscal year 2019, which ended on Sept. 30, before commissions were cut, transactions-based revenue was \$2 billion—fully one-third of the company's total revenue. Click on the arrow to expand the tree, and you can see that commissions accounted for two-thirds of transactions-based revenue, \$1.3 billion. Put another way, commissions accounted for 22% of the company's total revenue. Note, though, that order-routing revenue—payments from market makers for directing trades to them (a key source of revenue for zero-commission brokers such as Robinhood)—was \$492 million.

What about a broker that hasn't merged? Type "Interactive Brokers" into the amber field in the upper left corner of FA and click on the IBKR US Equity – Interactive Brokers Inc. Class A (US) match. Click on the Segments tab again and then on the By Measure subtab. Here you'll see that Interactive Brokers doesn't break out commissions in the way Ameritrade did. Instead the company reported revenue from electronic brokerage, which in 2019 accounted for 96% of total revenue. Let's look at consensus detail again: Run **{EEB <GO>}**. Here you can see that analysts didn't cut their estimates in October 2019 as they had for Ameritrade. Why was that? For one thing, the picture for Interactive was considerably less

stark—remember, it already offered very low commissions and was adding a "Lite" platform with zero commissions while retaining its existing platform, which featured order-routing technology that might appeal to sophisticated investors.

Now let's take a look at the analysts' models for Interactive Brokers. Run **{MODL <GO>}** and click on the Period View tab. When analysts build earnings models for a company, they include forecasts for industry-specific metrics: Under Income Statement, you can see the consensus is that commissions will account for roughly half of the company's net revenue. Another key metric for brokers is daily average revenue trades, or DARTs. This is a measure of the average number of trades that generate revenue for the company. As of late October, the model consensus was for 1.55 million cleared DARTs in the fourth quarter of 2020. That represented 118% year-over-year growth. (To request to see a particular analyst's model, click on the Entitlements button on the red toolbar.)

To see how analysts expect key metrics to evolve, click on the Source View tab and make sure the Source is set to Model Consensus (**FIG. 1**). Doing that as of Nov. 18 shows an expected decline to 1.4 million cleared DARTs in the fourth quarter of 2021. Putting together model consensus numbers in a chart shows how analysts expect these key metrics to evolve for Interactive Brokers (**FIG. 2**). Over the next year, cleared DARTs are forecast to drop slightly after doubling from last year. Average commission per DART is expected to rise slightly, while the number of total client accounts will continue to rise. ●

Tung is on the staff of the global data department at Bloomberg in Princeton, N.J.

Use Natural-Language Capabilities to Accelerate Your Bond Analysis

By STEVEN GEE, MONIKA ZNOSKO, and ROWAN DAIKSEL

DATA, RISK, AND INVESTMENT products become more complex with each passing year. So, to effectively evaluate investment decisions and analyze multi-asset portfolios, market professionals need cutting-edge tools.

Here are two parallel workflows that incorporate natural-language-processing features to help you streamline your analytical processes: 1) the Fixed Income Search (SRCH) function and 2) Bloomberg Query Language (BQL) in Excel.

To illustrate these workflows, let's look at the growing market for securities related to environmental, social, and governance (ESG) analysis. Since 2007, issuers have sold more than \$1 trillion worth of green bonds globally. And even though the coronavirus pandemic slowed green bond issuance in 2020, September's strong \$53 billion in sales has rekindled the market's upward trend.

Natural-Language Search

To find securities that match your custom criteria, use Bloomberg's enhanced natural-language-processing capabilities, or NLP. You can then use your resulting list of securities to create a custom portfolio of securities and perform deeper analysis.

To search for U.S.-dollar- and euro-denominated green bonds issued since the start of this year, for example, just type "SRCH GREEN BONDS ISSUED SINCE 2020 IN USD AND EUR" in the command line of a Bloomberg screen. NLP technology will in effect read your query and automatically load the best matched criteria in SRCH.

This search finds all bonds issued since Jan. 1 in dollars or euros that are tagged with the "Green Instrument Indicator," which denotes that net proceeds of the security will be applied toward green projects or activities that promote climate change mitigation or adaptation or other environmental sustainability purposes. To add more criteria, simply enter a keyword such as "maturity" or "rating" in the amber field to the right of And.

To save this search, click on the Actions button on the red toolbar and select Save As New Give the search a name, such as 2020 Green Bonds, and click on Save (**FIG.1**). You can then load the results of your search into analytics shown under Additional Analysis Options at the bottom of the screen. But before we discuss using Fixed Income Worksheet (FIW) to perform relative value analysis, let's turn to the BQL process.

Using BQL

Bloomberg Query Language is a new Excel application programming interface based on normalized, curated data that enables you to perform custom calculations in the Bloomberg Cloud. Using BQL, you can replicate the search for green bonds in a spreadsheet and save it; it will automatically refresh with up-to-date data each time you open it. Here's how to build the spreadsheet.

Open a blank workbook in Excel, click on the Bloomberg tab, and then on the BQL Builder. In the BQL Builder popup that appears, there's a Standard View and an Advanced View. Click on Advanced

Fig. 1 To set up a search for green bonds issued this year in U.S. dollars and euros, simply type “SRCH green bonds issued since 2020 in USD and EUR” in the command line of a Bloomberg screen and press <GO>.

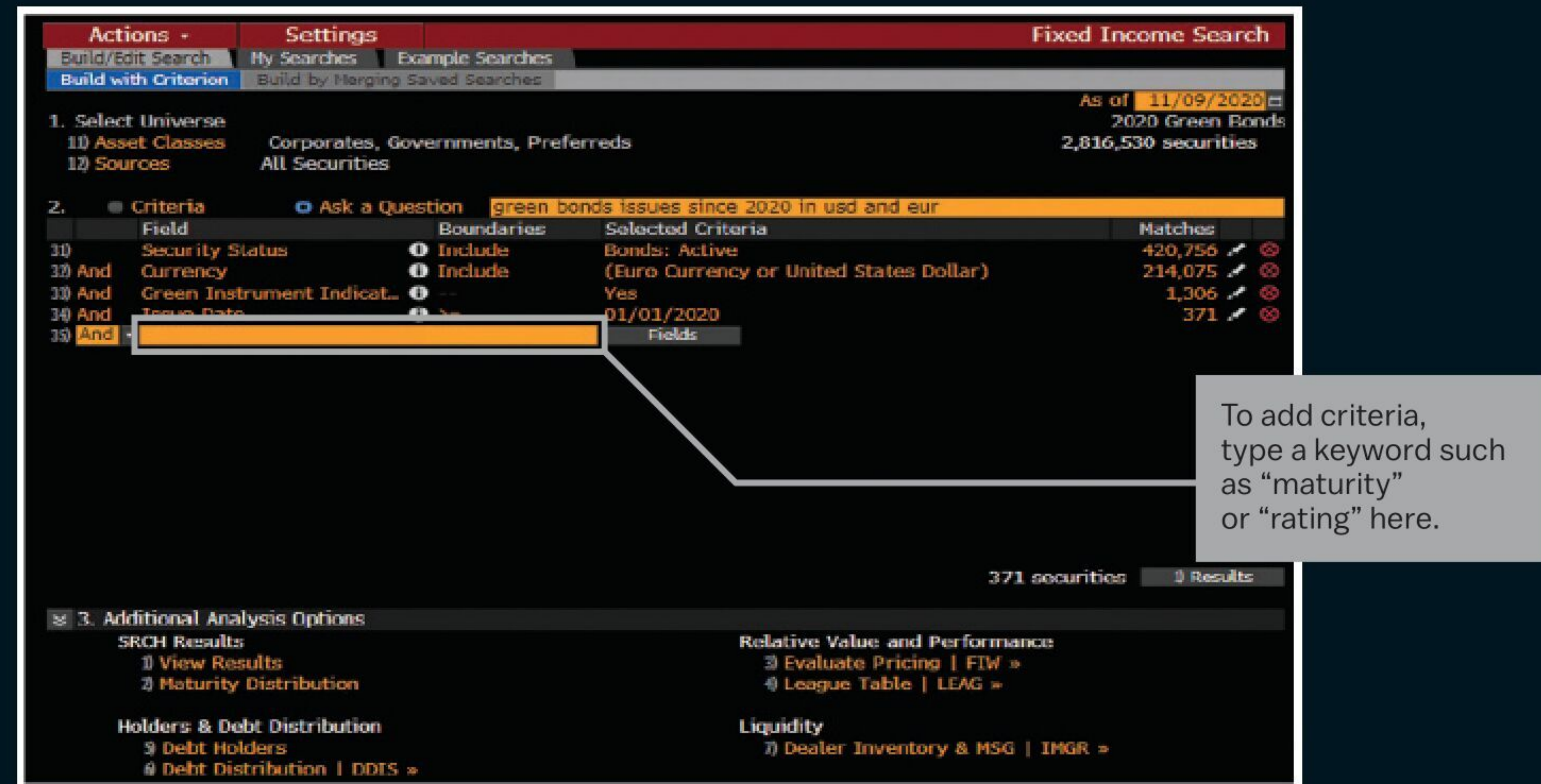
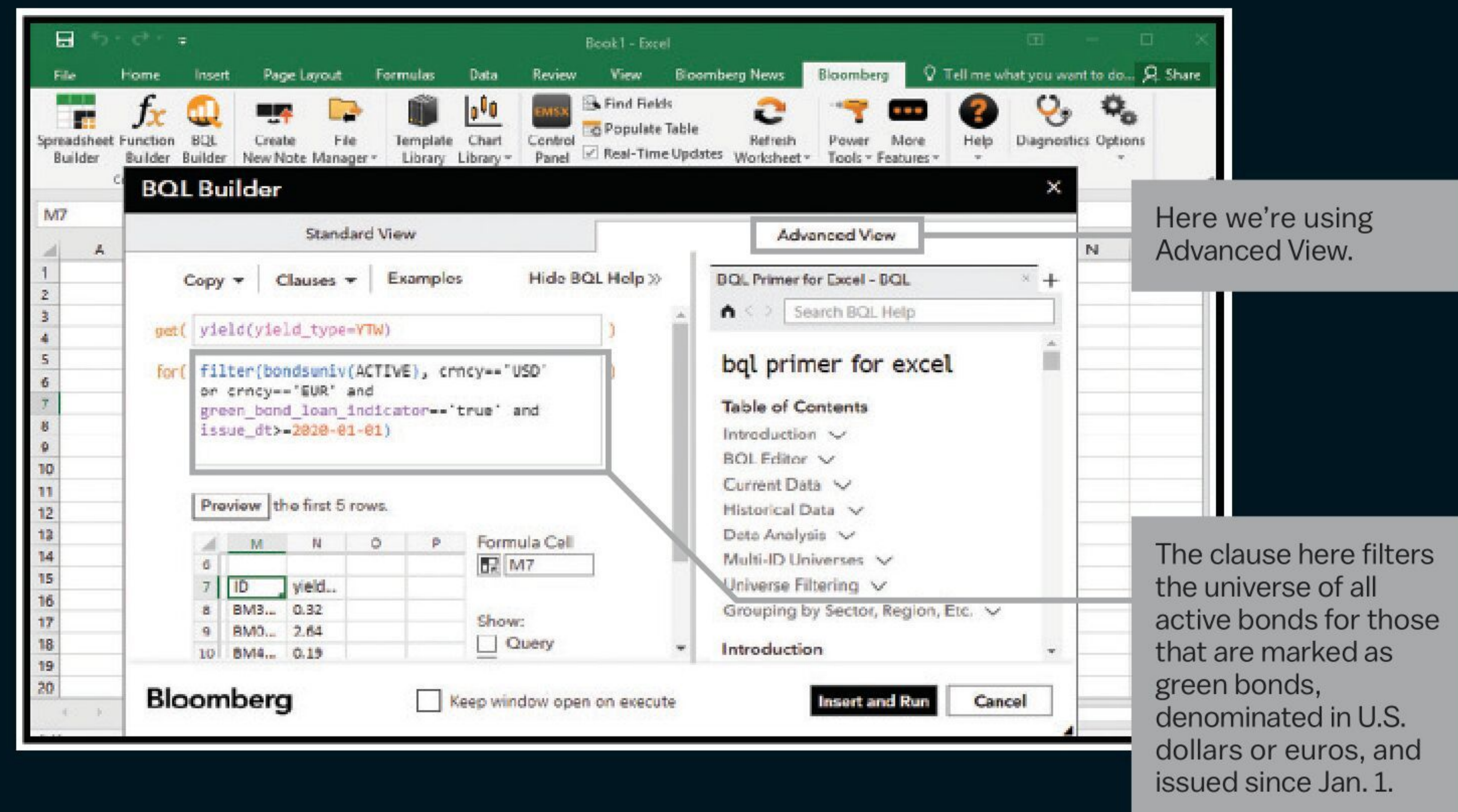


Fig. 2 To build a search for green bonds in Excel using BQL's natural-language capabilities, open a blank workbook, click on the Bloomberg tab, and then on BQL Builder.



View. In a nutshell, the Advanced View uses syntax in which the BQL.Query() formula pulls in get() and for() clauses. These enable you to specify the data you want to “get” and the universe you want to pull the data “for.”

What we’re going to do is take the entire universe of active bonds and filter for green bonds denominated in dollars or euros and issued on or after Jan. 1, 2020. How do you do that? Here’s where you can tap the NLP capabilities in BQL: Type keywords, and the BQL Builder will give you a menu of suggestions for fields and criteria you can use to build formulas. To start, click into the For(field. Type “filter”, and in the menu of matches, click on the “filter() – Screen a subset from a universe” match. Your cursor should now be between the parentheses in filter(). Here you want the universe of all bonds. Type “bonds”, and click on the

“bondsuniv() - All Bonds By Status” match. In the Enum Values window that appears, select Active.

The next step is to add the filtering criteria, which follows a comma after the universe and is put together with “and”s and “or”s. Here’s how the clause should look:

```
filter(bondsuniv(ACTIVE), crncy=='usd' OR crncy=='eur'
AND green_bond_loan_indicator=='true'
AND issue_dt>=2020-01-01)
```

What does this mean? It’s saying that from the universe of all active bonds, pull in those for which the currency equals dollars or euros, and the green bond indicator equals true, and the issue date is equal to or later than Jan. 1. ▶

Fig. 3 To perform further analysis, load the list of bonds you've created in the Fixed Income Worksheet (FIW) function.

The screenshot shows the Bloomberg Fixed Income Worksheet (FIW) interface. At the top, there are tabs for '2020 Green Bonds (My Lists)', 'Worksheet', 'Export', and 'Settings'. The main window displays a bond list with columns for 'Issuer', 'Yld BVAL', 'Spread', 'Average', 'Low', 'Range', 'High', '-/- Chg', '#SDs', and 'Moody's'. The bond list is filtered by 'Corporate', '500MM to...', '>1MM', and 'United St...'. A callout box points to the 'Group By' field, which is set to 'BB Indx Comp' then 'Maturity'. The callout box contains the text: 'Click here to load a list such as the green bonds search you created using natural language.'

Issuer	Yld BVAL	Spread	Average	Low	Range	High	-/- Chg	#SDs	Moody's
Investable Bonds (26)	1.814	123.8	141.8	123.3		150.3	-18.0	-2.5	Baa2
- AA+ to AA- (2)	0.810	37.0	35.4	33.2		42.7	0.6	0.3	Aa3
- 3 to 5 yrs (2)	0.810	37.0	35.4	33.2		42.7	0.6	0.3	Aa3
Metropolitan Life Global Funding I	0.810	37.0	35.4	33.2		42.7	0.6	0.3	Aa3
Metropolitan Life Global Funding I	0.810	37.0	35.4	33.2		42.7	0.6	0.3	Aa3
- A+ to A- (11)	1.575	80.0	90.2	79.9		95.0	-10.2	-2.6	A3
- 7 to 10 yrs (6)	1.374	70.0	77.4	69.8		82.1	-7.5	-2.5	A3
Prologis LP	1.551	63.8	67.8	63.8		72.1	-4.1	-1.8	A3
Consolidated Edison Co of New York Inc	1.586	75.0	83.8	74.0		88.6	-8.8	-2.0	Baa1
Toyota Motor Credit Corp	1.507	65.3	75.2	65.3		81.3	-9.9	-2.3	A1
Prologis Euro Finance LLC	0.156	48.4	55.8	48.4		61.8	-7.4	-2.3	A3
Niagara Mohawk Power Corp	1.719	83.6	91.0	83.6		94.5	-7.4	-3.2	A3
Niagara Mohawk Power Corp	1.719	83.6	91.0	83.6		94.5	-7.4	-3.2	A3
- 3 to 5 yrs (2)	0.567	29.9	38.9	29.9		42.1	-9.0	-2.6	A3
JPMorgan Chase & Co	0.571	27.8	31.1	27.8		33.7	-3.3	-1.7	A2
Citigroup Inc	0.564	31.9	46.8	31.9		50.6	-14.8	-3.6	A3
- 30+ yrs (2)	2.548	122.0	137.8	122.0		144.5	-15.8	-2.8	A1
Northern States Power Co/MN	2.506	117.8	131.2	117.8		138.1	-13.4	-2.8	Aa3
Union Electric Co	2.589	126.2	144.4	126.2		150.9	-18.1	-2.9	A2
- 20 to 30 yrs (1)	2.859	156.5	174.5	156.5		179.3	-18.0	-3.2	Baa1
Consolidated Edison Co of New York Inc	2.859	156.5	174.5	156.5		179.3	-18.0	-3.2	Baa1
- BBR+ to BBR- (9)	1.363	98.1	110.0	97.5		116.9	-11.9	-7.7	Baa3

Click here to load a list such as the green bonds search you created using natural language.

Now, what data do you want to see for these bonds? You can use the same autocomplete technology to enter, for example, "yield" and "yield type" in the Get(field and select yield to worst (FIG. 2). Once you've set up your formula, click on the Insert and Run button to see the results in your spreadsheet.

Pro tip: In the BQL Builder, there are also ready-made examples you can open and customize. Click on Examples, scroll down to Green Bond Summary Table, and click on it for a ready-made formula that pulls data such as coupon, maturity, and rating for all active green bonds. After loading the query, you can further customize it to make it your own.

Perform Analysis on Your Bonds

Now that you've created a list of bonds, either in SRCH or Excel, run **{FIW <GO>}** to use the Fixed Income Worksheet function to analyze them. (This article is the 10th in a continuing series on FIW. For links to the others, run **{NSN QH4BL5TOAFB9 <GO>}**.)

In FIW you can load a saved SRCH, such as the 2020 Green Bonds search, by clicking into the amber field in the upper left corner of the screen. Click on the blue Browse ... link. Different sources of lists are shown on the left side of the Browse window that appears. Scroll down to Fixed Income Search and click on it. Then click on the name of your search to load it.

To analyze these green bonds, click on the Bond List tab and then on the Relative Value subtab. You can use the Facets panel

on the left to apply additional filters such as limiting your results to securities of U.S. issuers with amounts outstanding of more than \$500 million. Then you can see which bonds have become richer or cheaper over the past month by using the drop-downs to the right of Table Corr to select Option Adjusted Spread (BVAL) and 1M (FIG. 3).

From the spreadsheet you created using BQL, you can load the securities by dragging and dropping them into FIW. To do that, click on the Worksheet button on the red toolbar in FIW and click on Remove All Securities. Make sure you're on the Bond List tab, and you'll see instructions in red type. In the spreadsheet, select the tickers. Hover your cursor over the selection until the move icon appears, then drag and drop into FIW. After you load those securities, you can quickly filter further to perform your analysis. (Pro Tip: For more on drag and drop, see **{NSN QHFDOAD-WRGGO <GO>}**.)

To gain an advantage over your market peers, you can use these tools to analyze vast amounts of data and perform a dynamic analysis that enables you to act on this information more quickly than others. ● —*With Ross Goldstein*

Gee is a credit market specialist, Znosko is a fixed-income advanced specialist, and Daiksel is a commodities advanced specialist at Bloomberg in New York.

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Defining a 'Green' Investment Is At the Heart of the EU's Next Big Regulatory Shift

By JAMES BATTY

IT'S EASY TO CLAIM a fund is greener than any others. Proving it is more difficult. A new piece of regulation in the European Union will give investors the ability to judge exactly how sustainable funds are on environmental, social, and governance criteria.

Starting January 2022, financiers who create European-based investment products that promise to be environmentally friendly will have to state how aligned their portfolios are with a detailed classification system that defines sustainable activities. This taxonomy is part of the European Commission's action plan on sustainable finance, which was published in March 2018, and also includes the green bond standard, sustainability benchmarks, and other initiatives to boost investment that aids the transition to a zero carbon and more resource-efficient economy.

The taxonomy regulation initially requires reporting on climate mitigation and adaptation activities, but additional sustainability objectives will be included from January 2023. It will cover everything from items such as a company's carbon emissions and water use to its impact on ecosystems and its recycling record.

"We've now got the environmental goals, like on climate change, and this is the new requirement of financial analysts and investors to do their job: to understand the environmental performance of their investments compared to the goals," says Nathan Fabian, chief responsible investment officer at the United Nations-supported Principles for Responsible Investment. Fabian is also the chairman at the Platform on Sustainable Finance, which is a group of public- and private-sector experts advising the European Commission on the development of the taxonomy criteria. Bloomberg LP, the parent

company of Bloomberg News, has a representative in this group.

One of the biggest objectives for all of this is to assess what is a green investment, which can mean different things to different people. An oil company with a relatively large renewable energy budget can sit alongside a solar power manufacturer in a green-labeled exchange-traded fund based on one manager's definition of what is environmentally beneficial; such a mix would be unthinkable for others. The taxonomy is designed to make such appraisals less subjective.

The rules, which are yet to be finalized, first define what is an economic activity and then give means to classify it as green or not.

Bloomberg's WATC EUTAX tool allows you to see what percentage of revenue of a company, index, or portfolio is eligible for evaluation under taxonomy-designated activities. Run **{WATC EUTAX <GO>}** (FIG. 1) and load any fund to see how eligible each holding is.

To get an idea of how this works for an individual company, let's take a carmaker as an example. Its revenue comes from selling vehicles, which is an eligible economic activity under the taxonomy. That means all of its revenue can be assessed.

The next step in the process is to see how much of that revenue is considered environmentally beneficial according to the taxonomy. If the car company sells electric vehicles that account for 20% of its total revenue, with the rest made up of high-emitting gasoline- or diesel-powered cars, then it may be possible to say 20% of its revenue is aligned with sustainable activities outlined by the taxonomy. You can say for sure after two considerations. A company's activities must substantially contribute to at least one of six environmental objectives, but they also must not significantly ►

Fig.1 Run {WATC EUTAX <GO>} to judge a fund's EU taxonomy eligibility.

Name	Percent Eligibility	Agriculture	Constructi...	Energy	Informati...	Manufactu...	Manufactu...	Manufa...
Investable Universe (31)	91.8%	0.0%	0.0%	88.2%	0.0%	0.0%	0.0%	
31) SIEMENS GAMESA RENEWABLE...	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
32) ORMAT TECHNOLOGIES INC	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
33) BORALEX INC -A	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
34) ENPHASE ENERGY INC	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
35) SOLARIA ENERGIA Y MEDIO A...	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
36) EDP RENOVAVEIS SA	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
37) FIRST SOLAR INC	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
38) VESTAS WIND SYSTEMS A/S	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
39) DAQO NEW ENERGY CORP-ADR	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
40) INNERGEX RENEWABLE ENERGY	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
41) XINYI SOLAR HOLDINGS LTD	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
42) RENEWABLE ENERGY GROUP I...	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10
43) PLUG POWER INC	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
44) CIA ENERGETICA DE-SPON ADR	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	
45) NEOFEN SA	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	

This example looks at the iShares Global Clean Energy UCITS ETF. You can change to a different fund here.

The fund has high exposure to companies deriving revenue from sectors that have the potential to be aligned with new EU rules.

harm any of them. Those six objectives include climate change mitigation; climate change adaptation; sustainable use and protection of water and marine resources; transition to a circular economy, waste prevention, and recycling; pollution prevention and control; and protection of healthy ecosystems. The final consideration is that the activity or project should comply with minimum social safeguards as defined by the International Labor Organization.

If our carmaker does not significantly harm any of the six objectives and meets minimal social safeguards, then it can be considered 20% aligned with the taxonomy.

Asset managers of sustainable funds will be responsible for stating how aligned their portfolios are on a regular basis. This will require a lot of time and effort by compliance and policy experts at firms, not only in assessing the criteria but also in finding the data from each company in their portfolio.

“It is challenging, but it is doable,” says Jonathan Bailey, head of ESG investing at \$374 billion investment manager Neuberger Berman, which was one of 40 investment managers and asset owners that voluntarily took part in case studies organized by Principles for Responsible Investment to apply the new taxonomy to portfolios.

A number of firms said one of the challenges was getting the right data from companies. “The technical criteria in the taxonomy are on a very detailed level, and companies do not generally report in a way that allows an assessment to be made against the criteria,” says Karolina Skog, the project lead of EU Sustainable Finance at \$174 billion fund manager Swedbank Robur. She also points out that “the criteria are often more difficult to apply to companies with

operations outside the EU, as references often are made to European standards and regulations.”

This may be just a teething pain of the new regulations. European companies will have a legal requirement to disclose this data beginning in January 2022, Fabian says, and this will create a “pull” effect of companies seeking information from suppliers around the world. More broadly, companies in Europe and abroad will also “fall over themselves” to boost their environmental credentials by disclosing these data and attract the investment flows that an enhanced green reputation will bring, he adds.

Other concerns from asset managers that took part in the study included a lack of industry-specific guidance for companies about what they needed to disclose, a lack of third-party data providers with sufficient information and tools to help conduct the analysis, and different interpretations of what data was available.

The deadline for the taxonomy’s first two facets—climate mitigation and climate adaptation—is just over a year away. Other objectives, such as improved water use and transition to a circular economy, will be established by the end of 2021 and come into force a year later.

Economic disruption caused by the pandemic has not yet changed the timetable for legislation implementation. “The taxonomy hasn’t finished passing into law yet, in that the Level Two regulation of the criteria are not yet available,” Fabian says, “but people are almost wishing it would go faster so that these criteria can be used for a range of decisions.” ●

Batty is an FFM editor at Bloomberg News in London.

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Find Hedge Funds That Invest in Companies With Majority Women Boards

By DENISE COCHRAN and SIMRANBIR KHANNA

ASSET MANAGERS REPORT their holdings in 13F filings with the U.S. Securities and Exchange Commission every quarter. Of the 7,469 securities that were reported in the most recent round of 13Fs, only 26 were for companies with boards composed mostly of women. That's 0.35% of the total.

How can you find this subset of companies—and which hedge funds invest in them? Here's how.

First, type "equity screening" in the command line of a Bloomberg screen and click on the EQS – Equity Screening match in autocomplete. The shortcut is **{EQS <GO>}**. To find securities reported in 13Fs, enter "13F" in the Add Criteria field and click on the Security is Section 13F Member match. Then click on = Equal to, select Yes, and press <GO>. To add a criterion that winnows the list to companies with boards that are more than 50% women, type "women" in the amber field and click on the % Women on Board. Click on > Greater than, enter "50" in the % field, and press <GO> (**FIG. 1**).

To see the companies, click the See Results | WATC button. The results are interesting in a couple of ways. Click the % Women on Bd column heading to sort from high to low (**FIG. 2**). As of late October the company with the highest percentage of women on its board was Travelzoo, with 80%: Four of its five board seats are held by women. Click the Market Cap column to sort by market value, and you'll see the biggest company is General Motors Co. Headed by Mary Barra, the Detroit carmaker has six women on its 11-member board. Last, let's take a look at year-to-date returns. Click the Total Return YTD column. As of Oct. 22, GM was down 1% for the year. Travelzoo, unsurprisingly given the pandemic-related drop in travel, had fallen 27%. The top performer: Trevena Inc. The

pharmaceutical company, based in King of Prussia, Pa., generated a total return of 208% this year.

To save this search for use in the next part of this analysis, click on the Actions button on the red toolbar and select Save Screen. Enter a name such as "13F Women" and click the Save button.

NOW THAT YOU KNOW which 13F companies have the highest percentage of women on their boards, how can you see which hedge funds report owning them? Use the Investor Search function. Type "investor search" in the command line and click on the IS – Investor Search match. The shortcut is **{IS <GO>}**.

To import the securities from your EQS search, click the blue Ticker List link. In the window that appears, click on Equity Screen under List Sources and then select the search you saved. In the Investor Search: Results screen that appears, tick the box next to Hedge Fund Manager to filter down to holders that are hedge funds (**FIG. 3**).

There were 286 hedge funds that reported holding these companies. To sort by the number of these companies the funds held, click on the # Sec. column heading. One of them held all 26 companies: quant trading firm Tower Research Capital LLC. Other hedge funds owned fewer. Renaissance Technologies, for example, held 19 of the securities. To see which ones it owned, click its name and select View Applicable Securities. For more on a firm, press <Menu> and click on Investor Profile. ●

Cochran and Khanna are on the ownership data team at Bloomberg in Princeton, N.J.

Fig. 1 Run {EQS <GO>} to use the Equity Screening function to search for 13F securities with a board membership that's more than 50% women.

The screenshot shows the 'Equity Screening' interface. On the left, there are lists for 'My Recent Screens' and 'Popular Screens'. The main area displays 'Screening Criteria' with a list of filters: Exchanges, Sectors, Country of Domicile, Indices, Portfolios/Monitors, and Equity Screens. Below this, 'Selected Screening Criteria' are listed: Security Universe (1340968 matches), Trading Status: Active (440489 matches), Security Attributes: Show Primary Security of company only (89219 matches), Security is Section 13F Member = 'Y' (7460 matches), Latest FY % Women on Board > 50 (26 matches), and Add screening criteria. A callout box points to the '26' match count, stating: 'Only 26 companies met this criterion as of late October.' Another callout points to a 'WATC' button, stating: 'Click here to see the results in the Watchlist Analytics function.'

Fig. 2 The results are interesting in a couple of ways.

The screenshot shows the 'Watchlist Analytics' table with columns: Name, 13F Memb?, % Women on Bd:Y, Market Cap, Price:D-1, P/E, and Total Return YTD. A callout points to the '% Women on Bd:Y' column, stating: 'Click here to sort by the percentage of women on the board. Travelzoo, with 80%, has the highest representation.' Another callout points to the 'Market Cap' column, stating: 'To sort by market value, click here.' A third callout points to the 'Total Return YTD' column, stating: 'Trevena, a pharma company, had the highest return this year as of Oct. 22.'

Name	13F Memb?	% Women on Bd:Y	Market Cap	Price:D-1	P/E	Total Return YTD
Stable Universe (26)		58.85%	7.13B	46.25	25.19	8.17
BLZDO	Y	80.00%	88.22M	7.80		-27.10
SIE ROLL INDS	Y	75.00%	1.99B	30.36	31.67	-7.64
... (other companies) ...						
TREVENA INC	Y	55.56%	385.78M	2.59	8.73	208.00

Fig. 3 To see which hedge funds invest in these companies, go to {IS <GO>}, click on the blue Ticker List link, and select your saved EQS search.

The screenshot shows the 'Investor Search: Results' interface. On the left, there are filters for 'Investor Institution Type' (Investment Advisor, Insurance Company, Hedge Fund Manager, Bank, Pension Fund) and 'Investor Country' (United States, United Kingdom, Canada, France, Hong Kong). The main table lists investors with columns: Investor Name, # Se., Mkt Val, Total Eqty Assets, and % Eqty Assets. A callout points to the 'Hedge Fund Manager' filter, stating: 'Click here to select hedge funds.' Another callout points to a specific investor name, stating: 'To see which of the securities a manager owns, click on its name and select View Applicable Securities.'

Investor Name	# Se.	Mkt Val	Total Eqty Assets	% Eqty Assets
TOWER RESEARCH CAPITAL LLC	26	9.86MLN	2.69BLN	.37
CITADEL ADVISORS LLC	23	816.42MLN	70.20BLN	1.16
MILLENNIUM MANAGEMENT LLC	23	313.69MLN	46.11BLN	.68
TWO SIGMA	20	509.44MLN	57.37BLN	.89
CUBIST SYSTEMATIC STRATEGI...	20	58.04MLN	6.45BLN	.90
AQR CAPITAL MANAGEMENT LLC	19	963.61MLN	76.39BLN	1.26
D. F. SHAW & COMPANY LP	19	310.48MLN	69.64BLN	.45
RENAISSANCE TECHNOLOGIES L...	19	296.46MLN	127.01BLN	.23
SQUAREPOINT OPS LLC	18	86.32MLN	6.82BLN	1.27
WINTON CAPITAL GROUP LIME...	18	68.73MLN	4.27BLN	1.61
PALOMA PARTNERS MANAGEME...	18	49.46MLN	5.12BLN	.97
PRELUDE CAPITAL MANAGEME...	15	5.96MLN	619.15MLN	.96
BERMAN CAPITAL ADVISORS LLC	15	82,276.60	419.77MLN	.20
ARROWSTREET CAP LIMITED P...	14	667.99MLN	61.50BLN	1.08
MARSHALL WACE	14	249.70MLN	30.98BLN	.88
GOTHAM ASSET MANAGEMENT L...	14	31.82MLN	3.71BLN	.86
EXODUSPOINT CAPITAL MANAG...	14	21.29MLN	3.77BLN	.56
BALYASNY ASSET MANAGEMENT...	13	107.96MLN	10.71BLN	1.01
POINT72	13	82.89MLN	18.17BLN	.46
AHL PARTNERS LLP	12	54.50MLN	4.18BLN	1.30
PEAK6 INVESTMENTS LLC	12	21.52MLN	2.68BLN	.80
ALPHACREST CAPITAL MGMT L...	12	4.85MLN	661.55MLN	.73
CSAT INVESTMENT ADVISORY LP	12	2.74MLN	630.39MLN	.44
ELLEVEST INC	12	417,401.74	508.24MLN	.08
SCHONFELD STRATEGIC ADVIS...	11	38.30MLN	4.08BLN	.94

Use Key Themes to Get a Handle On the Flood of News

By ADELA QUINONES

EVER FEEL LIKE keeping up with the news is harder than drinking from a firehose? These days, tracking all you need to know can be a challenge. On the Bloomberg terminal alone, more than 1.5 million news and research headlines from about 170,000 sources are published every day—about 17 stories a second.

That's why Bloomberg is deploying cutting-edge technologies to help you sort through this enormous amount of information in a manageable and comprehensive way with a tool called Key Themes. Here's how it works.

THINK BACK TO FRIDAY, Oct. 2, for example. At 12:54 a.m., President Trump tweeted that he and the first lady had tested positive for Covid-19. The diagnosis caused a surge in news production: In the news category "United States of America"—a topic including articles on the president—more than 44,000 stories were published that day. That's 30 stories every minute. Had you run **{NI US <GO>}** that morning, you would have seen the flood of headlines: "*MEADOWS SAYS ALL WHITE HOUSE CORE STAFF HAS BEEN TESTED," "Biden to Get Tested for Coronavirus After Sharing Debate Stage With Trump," "Donald Trump Showing 'Mild Symptoms' of Covid-19 After Positive Test" (**FIG. 1**).

Click on the yellow Key Themes button on the red toolbar to turn that firehose of information into an eyedropper. Key Themes invokes a powerful proprietary artificial intelligence model that

reads all news stories about a subject and groups similar articles together. Another machine-learning algorithm assigns a summary to each cluster. So instead of 44,000 stories, you can see five easy-to-understand phrases that encapsulate the main themes of a topic (**FIG. 2**). You can easily delve deeper when you have the time.

This summarization can be used on any news search. The same day Trump disclosed that he'd tested positive for Covid, the U.S. released the all-important monthly nonfarm-payrolls report. Navigating economic news can be a challenge, with more than 5,400 stories appearing in the "Economic News," or **{NI ECO <GO>}**, category in that 24-hour period. Key Themes makes it easy to quickly identify the most important news of the day—in this case, that U.S. job growth slowed in September (**FIG. 3**).

Key Themes also works with company news. For coverage of Apple Inc., for example, run **{AAPL US <Equity> CN <GO>}** and click on the Key Themes button. Likewise, the tool can distill news categories such as **{NI OIL <GO>}** or **{NI STK <GO>}**. You can also access Key Themes by running **{NSTM <GO>}**.

A summary of the key themes for major countries around the world is published daily by our Automated News system and can be found on **{NI CTHEME <GO>}**. ● —*With Kenneth Kohn*

Quinones is a product manager for news automation and analytics at Bloomberg in New York.

Fig. 1 If you'd run `{NI US <GO>}` on Oct. 2, the day President Trump tested positive for Covid, you would have seen part of the more than 44,000 stories in the "United States of America" news category.

Search News Actions Custom Searches Translate Key Themes Page 1 News Feed

United States of Ameri... Sources All Dates Time

Top Ranked News | More » Top News Background & Opinion

- 1) Trump Tests Positive for Covid, Roiling Campaign and White House BN 09:47
- 2) Trump's Age and Weight Raise Risk Despite Mild Symptoms (1) BN 09:47
- 3) Stocks Sink as Trump Tests Positive; Oil Tumbles: Markets Wrap BN 09:47

Time Ordered News

- 321) MEADOWS SAYS ALL WHITE HOUSE CORE STAFF HAS BEEN TESTED BFW 10:49
- 320) Biden to Get Tested for Coronavirus After Sharing Debate Stage With T... DJ 10:49
- 319) Donald Trump Showing 'Mild Symptoms' of Covid-19 After Positive Test PAN 10:49
- 318) House Floor Speech BGV 10:50
- 317) Rep. Pramila Jayapal (D-WA-07) BGV 10:50
- 316) House Floor Update BGV 10:50
- 315) IRS Internal Revenue Bulletin: I.R.B. 2020-41 Released BNA 10:49
- 314) BAINBRIDGE UINTA: Hearing on Cash Collateral Use Set for Oct. 9 SUN 10:49
- 313) Trump's coronavirus adds uncertainty to the stock market, but one in... DJ 10:49
- 312) The Standard.hk: Trump has mild symptoms and in good spirits, mark... TSD 10:49
- 311) CNBC: Former Trump aide Lewandowski: You get Abbott Labs test at th... ABT US NS1 10:49
- 310) Bill to Ban Most Uses of Asbestos Pulled from House Vote BLW 10:49
- 309) CNBC: Coronavirus live updates: Trump experiencing 'mild' symptoms... NS1 10:49
- 308) Fox News: No one wore a mask during Trump debate prep, Chris Chris... STONJ1 FOX 10:49
- 307) Plug Power Social Media Volume Surges PLUG US BN 10:49
- 306) Nigerian Daily: COVID-19: US Supreme Court Nominee Tests Negative NSR 10:49

Fig. 2 Key Themes employs a machine-learning algorithm that groups similar stories into clusters and displays the five most important ones.

Key News Themes

United States Refresh 10:52 Time Period 1 Day

- President Trump Melania Test Positive for Covid-19 (698 of 44,893 stories)
 - 1) Donald Trump and first lady test positive for coronavirus FTI 10:47
 - 2) Trump Tests Positive for the Coronavirus NYT 03:01
 - 3) President Experiences Mild Symptoms; Still Working: Trump Update BN 09:48
- Kremlin Wishes President Donald Trump Recovery (221 of 44,893 stories)
 - 4) Russia wishes Trump a 'speedy recovery' IAN 06:08
 - 5) 5TH LEAD Donald and Melania Trump quarantining after positive coronavirus test By Eli... DPA 07:45
 - 6) Biden wishes Trump a "swift recovery" from coronavirus AXS 09:10
- Stocks Slump After Trump Tests Positive (252 of 44,893 stories)
 - 7) US Stocks Fall After Trump Tests Positive for Coronavirus APW 09:38
 - 8) US stocks open down after Trump diagnosis spooks European markets DPA 10:47
 - 9) How will Trump's positive test result impact the markets? Here's what analysts said. NYT 08:56
- President Mike Pence Has Tested Negative (198 of 44,893 stories)
 - 10) Vice President Pence and his wife tested negative for the coronavirus Friday morning. WPT 09:00
 - 11) The Latest: Pence And His Wife Test Negative for COVID-19 APW 09:35
 - 12) Mike Pence tests negative for coronavirus after Trump, first lady test positive AXS 09:35
- World Reacts to President Trump's Infection (116 of 44,893 stories)
 - 13) 'The Virus Spares No One': World Reacts to Trump's Positive Coronavirus Test WPT 09:00
 - 14) Hollywood Rpter: Shock, Sympathy, Mockery: World Reacts to Trump Infection HRP 04:59
 - 15) CKNW Vancouver: Donald Trump joins growing list of world leaders infected with coron... NS2 09:05

Fig. 3 You can use Key Themes to identify the most important news of the day within a given topic—in this case, Economic News, or `{NI ECO <GO>}`.

Key News Themes

Economic News Refresh 11:06 Time Period 1 Day

- Jobs Growth Slowed in September (193 of 5,417 stories)
 - 1) US Hiring Slows for 3rd Month But Jobless Rate Falls to 7.9% APW 09:40
 - 2) The Labor Market Gained 661,000 Jobs in September, as the Economic Recovery Slowed WPT 09:00
 - 3) US Hiring Slows for 3rd Month in Sign of Struggling Economy APW 09:35
- European Central Bank to Introduce Digital Euro (55 of 5,417 stories)
 - 4) Europe's Central Bank Moves Toward Introducing Digital Euro APW 09:26
 - 5) Estonia Explores Blockchain Use in Central Bank Currency Project BFW 05:33
 - 6) Forex Crunch: Breaking: ECB is ready to launch digital euro WE9 05:37
- Dow Slides as Trump Tests Positive for Covid-19 (32 of 5,417 stories)
 - 7) US stocks slip after Trump tests positive for coronavirus FTI 10:34
 - 8) Trump Tests Positive; EU Holds Unplanned Talks: Virus Update EN 10:34
 - 9) Global markets drop after Trump discloses his coronavirus infection. NYT 10:34
- Inflation Slump Could Presage Eurozone Stimulus (24 of 5,417 stories)
 - 10) Inflation Slump in Europe Could Presage More Stimulus APW 09:35
 - 11) ECB Inflation Risks Mount as Prices Drop More Than Forecast (1) EN 10:34
 - 12) MTS Forex: Eurozone Inflation Remains Negative In September WE9 05:38
- India Trade Deficit of \$2.91 Billion in Goods (21 of 5,417 stories)
 - 13) Exports rise 5.27 pc in Sep, trade deficit narrows to \$2.91 bn PTI 10:55
 - 14) Yem Safak: Turkey's exports reach \$16.13B in September NS8 05:20
 - 15) Sabah: Turkey sees all-time monthly high as September exports hit over \$16 billion NS8 05:00

An Investable FX Value Strategy Is Beating Carry Trades

By OWEN MINDE

FOREIGN EXCHANGE carry trade strategies don't boost returns like they used to. Instead, a focus on currency valuation is outperforming this year—and has been since 2014, strategy benchmarks show.

New indexes created by a partnership between Bloomberg and Goldman Sachs Asset Management (GSAM) can provide you with performance benchmarks and a potential source of investment return. The suite of 21 alternative risk premia indexes includes three FX benchmarks: the Bloomberg GSAM FX Carry Index, the Bloomberg GSAM FX Trend Index, and the Bloomberg GSAM FX G10 Value Index. To find them, type “index browser” in the command line and select IN – Bloomberg Index Browser from autocomplete. The shortcut is **{IN <GO>}**. Click on the Strategy tab, and then on the Bloomberg GSAM subtab (**FIG. 1**).

The value index is the only one of the three FX benchmarks to generate a positive return this year, a gain of 2.7% as of Oct. 20. To dig into the performance of these indexes, run **{W #SPEC 61 <GO>}** for a ready-made monitor that tracks the benchmarks and their underlying constituents (**FIG. 2**). For a fully interactive version, save this worksheet to your own **{W <GO>}** directory: Click on the Options button on the red toolbar, select Export, and then Export as My Security Worksheet. Give the sheet a name and hit Update. Use the bar at the bottom of the screen to scroll right to see additional statistics and links.

The carry index declined 8.2% this year as of Oct. 20, largely because of the Brazilian real's 27% decline against the dollar. A carry trade typically invests in high-yielding currencies such as the real, while borrowing in lower-yielders such as the Swiss franc.

The three Bloomberg GSAM FX rules-based benchmarks are built from Bloomberg's family of 26 FX forward indexes, which replicate the performance of holding and rolling a one-month FX forward contract of a currency against the U.S. dollar. Because

each index is created from contributed FX market data, any strategy built from these underlying indexes will be investable.

For more detailed research on these indexes, click the Research column and select Systematic Strategies | Currency risk premia benchmarks.

The value index ranks Group of 10 currencies against the dollar using relative purchasing power parity as the value measure. The index then takes a long position in the third of the one-month FX forward indexes that are most undervalued and shorts the third that are most overvalued.

SINCE 2014, macro hedge fund performance has tracked the performance of the FX carry and FX trend benchmarks. The G10 FX value index has outperformed with very low volatility. To see this, type “GSAM carry” in the command line and select BGSFXX Index – Bloomberg GSAM FX Carry Index. On the menu screen, select GP - Line Chart. The shortcut is **{BGSFXX <Index> GP <GO>}**. Set the start date at top left to 01/01/2014. Click on the Compare button on the red toolbar, and type “GSAM trend” in the amber search box and select BGSFXT Index. Tick the box to Normalize, use the drop-down to select Percentage Appreciation, and click Update. Repeat these steps to add the BGSFXV Index for value and the BHMAGR Index for hedge funds (**FIG. 3**). (For a ready-made version of this chart, go to **{G #FFM 508 <GO>}**.)

Since 2014, the Bloomberg G10 FX value index rose 29.9%, and the Bloomberg Macro Hedge Fund Index gained just 7.7%. The value index has also outperformed the other two FX strategy indexes. ●

Minde is an FX and economics market specialist at Bloomberg in New York.

Fig. 1 To see the new Bloomberg GSAM strategy indexes, go to {IN <GO>}, click on the Strategy tab and then on the Bloomberg GSAM subtab.



Fig. 2 For a ready-made monitor showing the three FX strategy benchmarks and their underlying forward currency indexes, go to {W #SPEC 61 <GO>}.

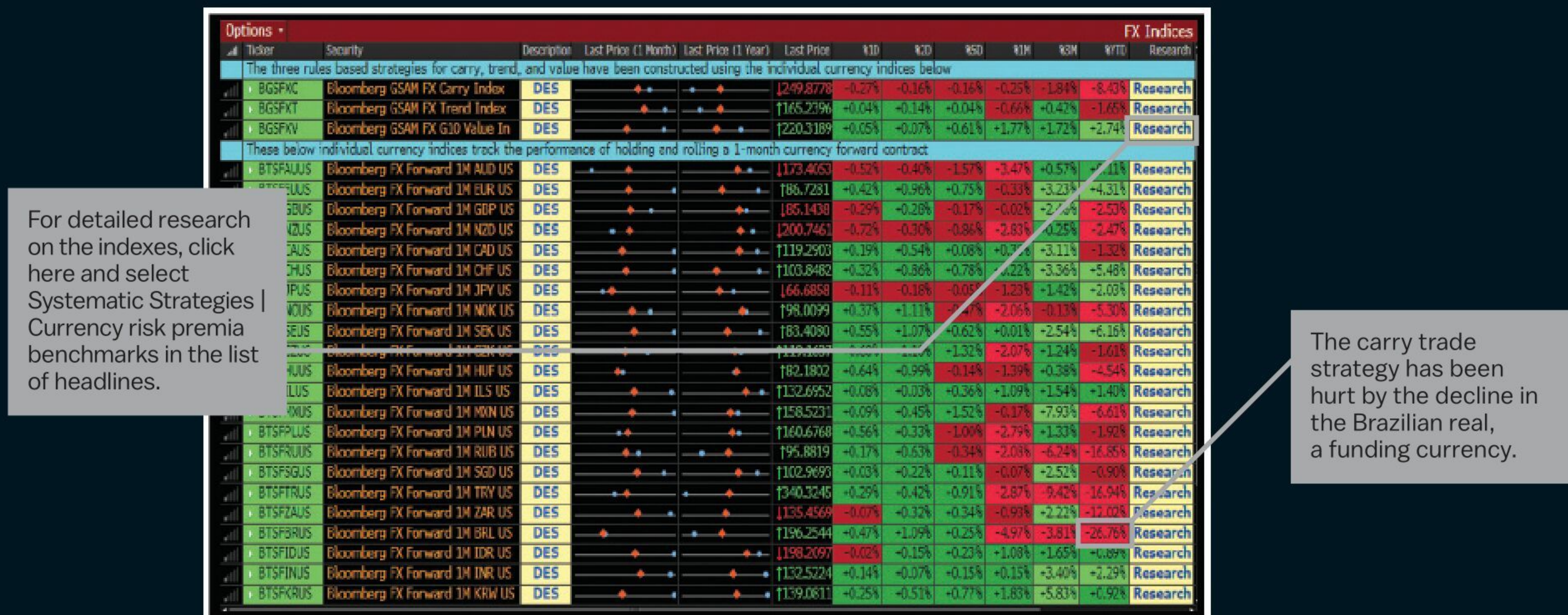
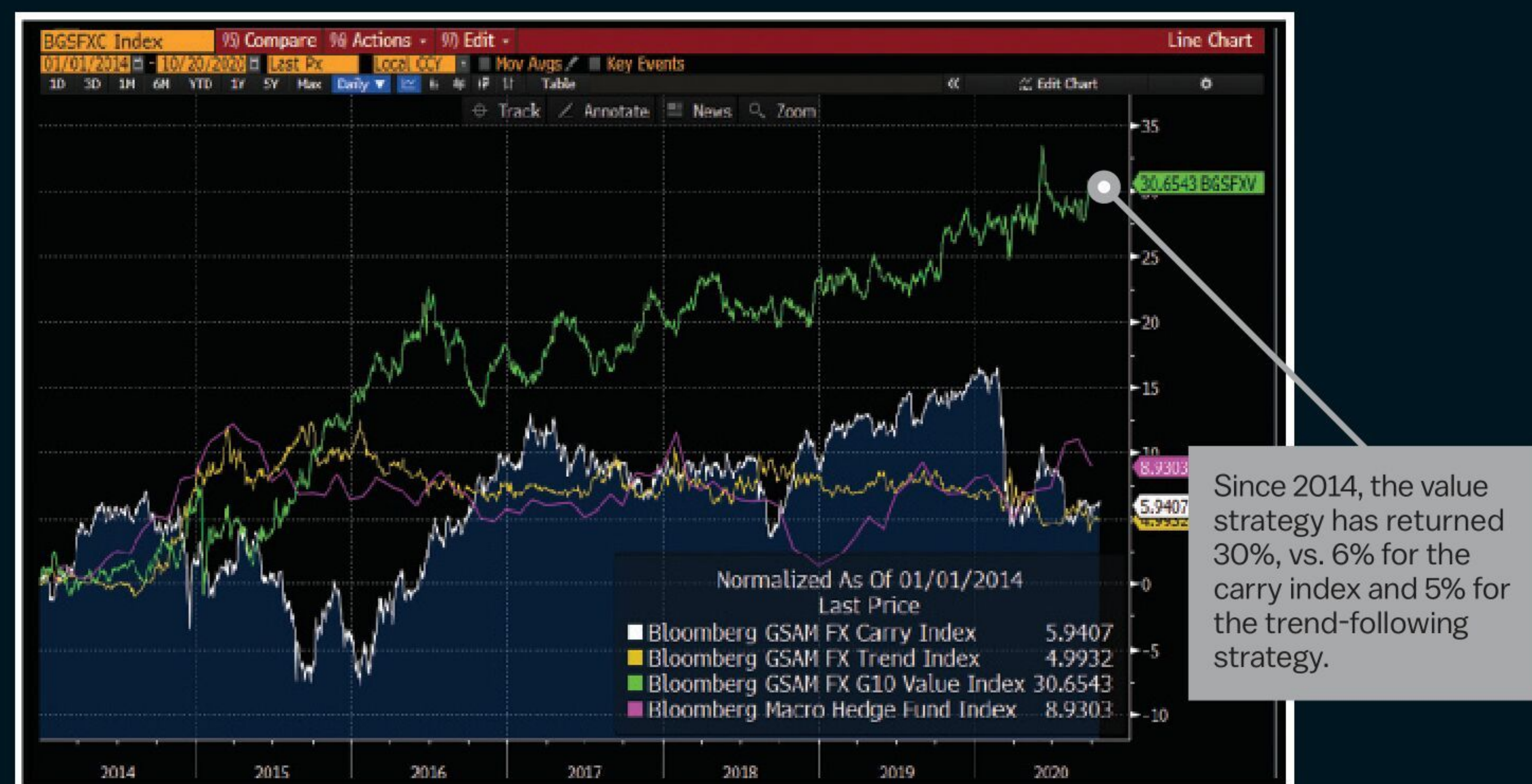


Fig. 3 A chart of the three FX strategies and the Bloomberg Macro Hedge Fund Index shows how the G10 value strategy has outperformed.



Notes Can Streamline Sharing, Deepen Comp Analysis for Your Team

By STEVEN GEE, MARC KATCHAY, and GRACE CHMIEL

SO MUCH FINANCIAL DATA and information is available these days that it threatens to create an overload of transactional opportunities. Professionals need to winnow that flow so they can efficiently focus on what's most relevant to their goals.

Here's a key solution. Use Bloomberg's Notes function and its latest enhancement—security aggregation—to share issuer research, analysis, and firmwide strategic goals across your team and increase the breadth and depth of your comparable analysis.

Notes are easy to work with. You can create or view them from the Description page of a selected security. Say you've run **{VZ US <Equity> DES <GO>}** and are looking at the DES page of Verizon Communications Inc. To create a note, simply click on the Export icon in the upper right corner of the screen and select Create Note on VZ US Equity. To view notes, click on the gray dropdown with Verizon's name in the upper left of the screen and select View Notes. (If you've created notes related to the company or had them shared with you, a flag icon will appear in the gray field to indicate that. If you have no notes on Verizon, the menu will say No Notes when you open the dropdown.)

From the DES page for a bond, it's a slightly different process. Run **{VZ 2.987 10/30/2056 144A <Corp> DES <GO>}** for the description of a Verizon bond. To view existing notes, simply click the Notes icon below the red toolbar (**FIG. 1**). To create a note, click the Create button. (You can also create, view, and filter all of your notes by running **{NOTE <GO>}**.)

HERE'S AN IMPORTANT FEATURE of the Notes platform: When you create a note, your analysis becomes available to your team across that issuer's entire capital structure. Say you meet with a company's chief financial officer and write up a note about your takeaways. If you tag it to the company's equity ticker, for example, your team members will be able to see it when they analyze a bond issued by that company.

How do you get the note to your colleagues? It's automatic once you go to **{CMTY <GO>}** and use the Community Manager function to create a community, which is a list of team members to share with. Once you do, anyone in this community will be able to see the note when they run **{NOTE <GO>}**. Notes icons are also

visible in Bloomberg workflows including **{DES <GO>}**, **{GP NOTE <GO>}**, **{EQRV <GO>}**, **{FIW <GO>}**, **{NIMY <GO>}**, **{RV <GO>}**, **{YAS <GO>}**, and Worksheets. They enable team members to share and update notes that can be viewed immediately by colleagues across the Bloomberg ecosystem. The Notes platform works in conjunction with the Research Management Solutions (RMS) suite of products designed to help team members collaborate on strategies related to an issuer and its securities. In effect, these tools create a centralized repository for all your internal content.

TO ILLUSTRATE HOW you can share analysis and identify attractive investments or transactions, let's look at workflows for a banking team and a credit investment team.

Consider a team of corporate or investment bankers. These days, the members may be working remotely, spread out across time zones, or posted in international offices. The team can use notes to stay on the same page, sharing issuer updates and relevant information.

Let's say that bankers want to share the signed-off credit review for a particular company. If you have a version with the latest credit lines and credit limits open in Microsoft Word, for example, simply click on the Bloomberg tab and then on Create Note. Tag it to a bond or CUSIP, and your team will be able to see it in the context of their work.

Bankers might load Bloomberg worksheets with their list of issuers or comparable peers to monitor the performance of their stocks. In such a worksheet, you can add a Note Indicator column that shows when a security has notes ready to review (**FIG. 2**).

Share the worksheet, and each team member viewing these names will be able to click on an icon to see the collaborative information. Add a worksheet to a Launchpad, and you can link it to key market or analytical workflows or functions so you can perform your analysis by simply clicking on a security in the worksheet. You can customize a Launchpad and share a template with your team.

Note icons are also integrated into equity relative value tools such as **{RV <GO>}** and **{EQRV <GO>}**, which can be linked to the

Fig. 1 You can create and view notes from the DES page of a selected security.

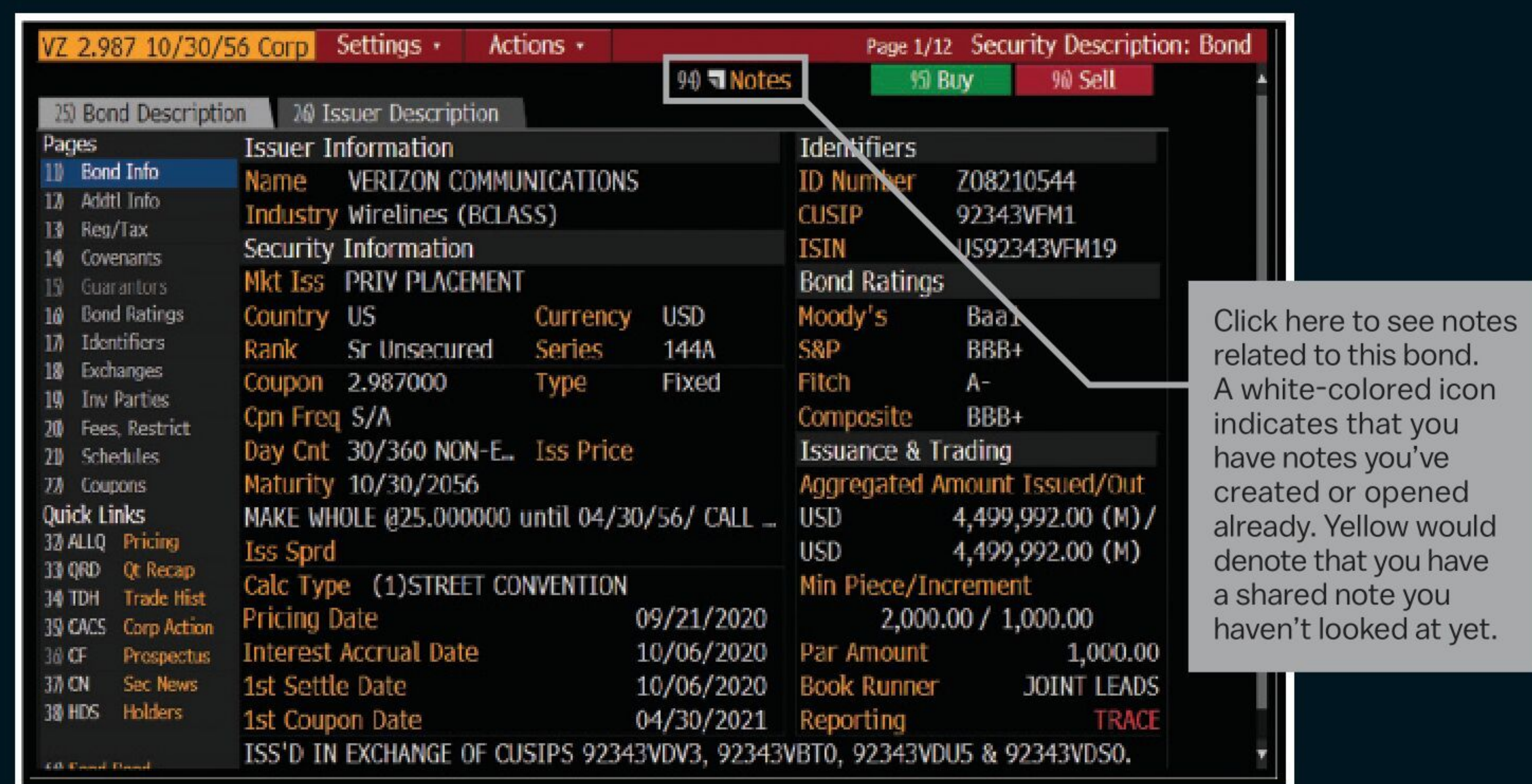
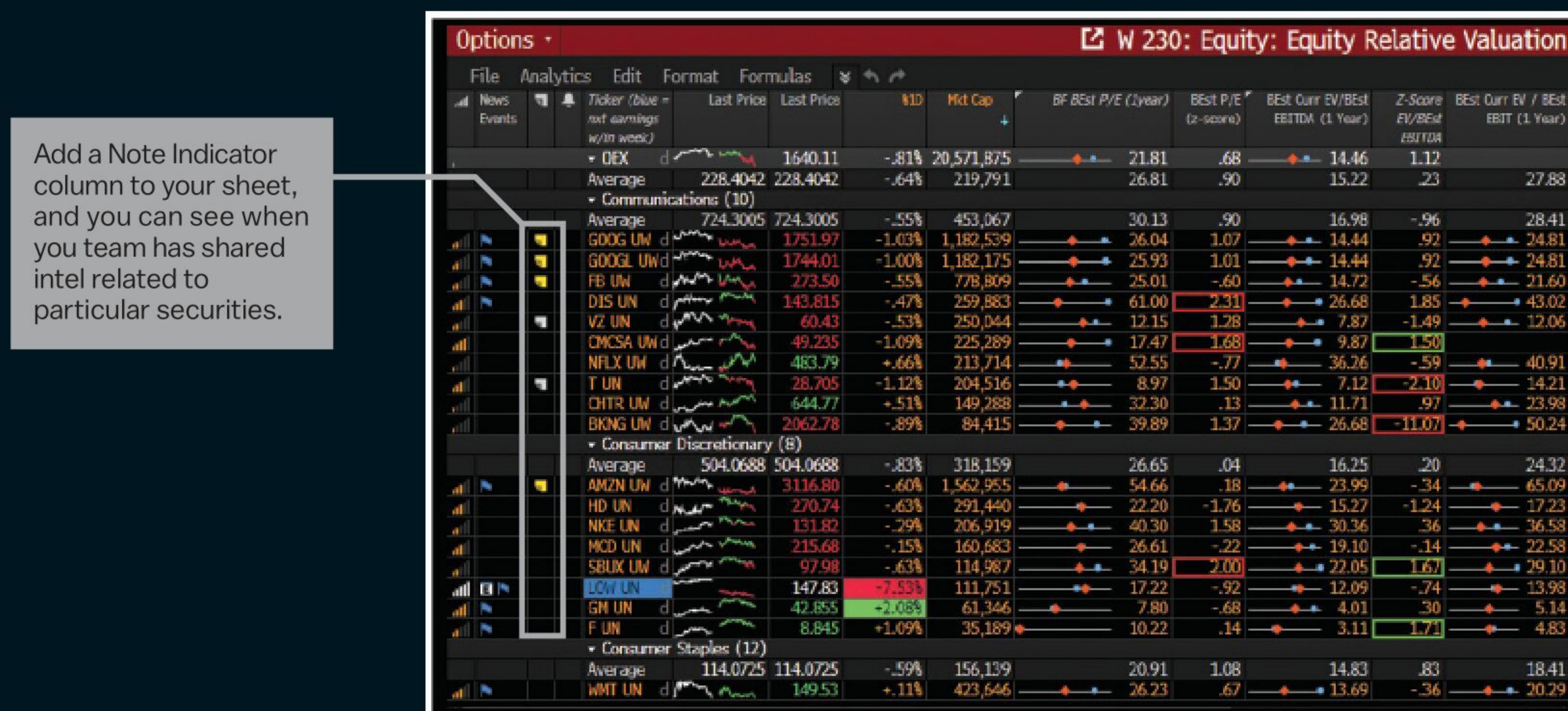


Fig. 2 Bankers might have loaded a worksheet with a list of comparables to monitor their performance.



worksheet in Launchpad. Click on a security in the worksheet, and a banker can see the comparable securities in their focus list. RV provides templates for analysis across dimensions such as environmental, social, and governance (ESG); credit; and earnings. EQRV analyzes historical premium or discount in trading multiples across the company's peer group. The icons on the left side of the peer table will let you know if your team has intel on particular companies. A yellow icon indicates that a note has been shared with you, but you haven't opened it yet; white denotes those you've seen or created.

NEXT, LET'S LOOK AT HOW a credit investing team might use Notes. Consider the challenges investors faced in keeping up with 2020's record-breaking deluge of new issues. A credit analyst can create

a note on an issuer in her sector. It may include issuer information summarizing her investment view, analysis of fundamental credit metrics, and comparable bond analysis. Once she creates the note, her fellow credit analysts and portfolio managers can immediately access it via that issuer's DES pages as well as seeing all notes on **{NOTE <GO>}**.

Now her team can also see it in the context of new issues information. Go to **{NIMY <GO>}** for the My New Issue Monitor function. NIMY displays the same details of new-issue announcements, price whispers, initial price talk, and final pricing that you find on **{NIM <GO>}** or **{NIM3 <GO>}**. In addition, NIMY has been enhanced to display a Note Indicator column so team members can increase their efficiency by checking the latest notes to prioritize which transactions to focus on (**FIG. 3**). A yellow Note ►

Fig. 3 To view and filter new issues details, run `{NIMY <GO>}`.

Issuer	Alert	Status	Date	FIGI	Tenor	Size	Ccy	Fmt	Bookrunners	IB Send
XZETDZ 3Y US...		Priced	11/04	BBG00Y2QY1T4	3Y	400MM	USD	REGS	CNCB,HUATA...	
Federal Home L...		Priced	11/03		3Y	--	USD		BARC,CITI,N...	
FHLMC 3Y USD...		Priced	11/03	BBG00Y2HDDF6	3Y	3MM	USD		BARC,CITI,N...	
Yango Cayman ...		Priced	11/02		2.5Y	--	USD	REGS	CENTRA,JUHL...	
YANGOG 2.5Y ...		Priced	11/02	BBG00Y2BMS84	2.5Y	175MM	USD	REGS	CENTRA,JUHL...	
Hi-Crush Inc (...)		New Deal	11/02		6Y	---	USD			
HCR 6Y Long U...		New Deal	11/02	BBG00Y29C795	6Y	48.1MM	USD			
Novocure Ltd (...)		Priced	11/02		5Y	--	USD	144A		
NVER 5Y USB ...		Priced	11/02	BBG00Y28PYF7	5Y	500MM	USD	144A		
Molina Healthc...		Priced	11/02		10Y	--	USD	144A	RIBCLY,BofA,D...	
MOH 10Y USD ...		Priced	11/02	BBG00Y2819G7	10Y	650MM	USD	144A		
MOH 10Y USD ...		Priced	11/02	BBG00Y2819J4	10Y	650MM	USD	REGS	BCLY,BofA,D...	
EQT Corp (EQT...		Priced	10/30		8Y	--	USD	SEC Reg	BCLY,BMO,B...	
EQT 8Y USD (F...		Priced	10/30	BBG00Y1RNTJ5	8Y	350MM	USD	SEC Reg	BCLY,BMO,B...	
Aston Martin Ca...		Priced	10/30		5Y	--	USD	144A	RIBCLY,JPM,B...	
ASTONM 5Y US...		Priced	10/30	BBG00Y1QTSV9	5Y	1.0855	USD	144A		
ASTONM 5Y US...		Priced	10/30	BBG00Y1QV2R8	5Y	1.0855	USD	REGS	BARCBK,CSF...	
ASTONM 5Y USD		Priced	10/30	BBG00Y1RLQCO	5Y	335MM	USD		BCLY,JPM,J...	

NIMY includes a Note Indicator column alerting you that your team has performed analysis related to the issuer of a particular bond.

Fig. 4 To see the new "security aggregation" feature, go to `{NOTE <GO>}`.

Title	Creator	Last Updater	Tags	Updated
allocations	Marc Katchay	Marc Katchay	79766DRH4 Muni, San...	09:52

When you tag a note to a security, Bloomberg auto-tags attributes of the security so you can find that note and others that might be relevant.

The Security Rollup facet allows you to aggregate notes based on those attributes, navigating those tagged to the parent equity, a different maturity, or other securities in the sector.

Indicator icon alerts the team that the credit analyst has written recently on this particular issuer. Consider the time saved when team members can select deals with aggregated, complete analysis in one location. To supplement your research, you can easily send outside research, commentary, and Excel spreadsheets to notes tagged to a specific company ticker.

THE LATEST NOTES FEATURE is "security aggregation" filtering, which enables you to view notes on other issuers based on related-securities tagging. You can aggregate notes based on tags that include basic information including company ticker, issuer name, or CAST parent, as well as peers according to the Bloomberg Barclays Classification System (**FIG. 4**). When you review an issuer, the Notes platform pushes notes with collaborative analysis and

strategies to comparable peers so you can easily access information to increase the breadth of your analysis.

For example, while checking a Verizon note, you could also review notes for its peers. For "BCLASS Level 4," you'd see notes for wirelines peers such as AT&T, Deutsche Telekom, and KPN. For the higher-level "BCLASS Level 3," you'd also see communications peers such as Discovery, Walt Disney Co., and Viacom.

Being able to review the latest notes on names from your issuer universe will allow you to efficiently analyze the transaction before you. ● —*With Pranav Thakkar*

Gee is a credit market specialist, Katchay is a product manager for contact management and collaboration, and Chmiel is a research management solutions product specialist, all at Bloomberg in New York.

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Bloomberg

Track Latin American Market Moves With Bloomberg Automated Insights

By SANDRO AMORIM

HOW DO YOU MONITOR sovereign yield curve moves in Chile or Peru? Or check whether Brazil's swaps curve is flattening? And how can you keep track when you're away from your desk? Bloomberg Automated Insights can help.

Each day, Bloomberg's computers publish hundreds of news articles, called Bloomberg Automated Insights, that are triggered by significant changes in market data, ranging from technical patterns to exchange-traded-fund flows. These are created by leveraging our proprietary datasets and machine-learning techniques. BAI coverage has just been extended to the most liquid fixed-income and foreign exchange assets in Latin America. Here's what's available.

Sovereign Yield Curves

Stories on government debt are published twice daily for Brazil, Chile, Colombia, Mexico, and Peru. The updates include data on yield changes for benchmark maturities, yield curve shifts, credit-default-swap spreads, and the performance of the countries' Bloomberg Barclays Indices.

Brazil	{NI TRCBZBAI <GO>}
Chile	{NI TRCCIBAI <GO>}
Colombia	{NI TRCCOBAI <GO>}
Mexico dollar	{NI TRCMUBAI <GO>}
Mexico peso	{NI TRCMLBAI <GO>}
Peru	{NI TRCPEBAI <GO>}
Major sovereigns	{NI TRECBAI <GO>}

Fixed-Income Indexes

Daily updates are published on Bloomberg Barclays Indices, showing index-level performance, key market metrics, and the individual bonds that moved the most. These are published for indexes covering Brazil, Chile, Colombia, all of Latin America, and global local-currency emerging-market bonds.

Brazil	{NI BARCBZUS <GO>}
Chile	{NI BARCCICP <GO>}
Colombia	{NI BARCCOUS <GO>}
Pan-Latin Index	{NI BARCLATAM <GO>}
Local-currency emerging markets	{NI BARCEMLC <GO>}
All indexes	{NI BBBAI <GO>}

Brazil Swaps and FX Implied Volatility

The newest automated news stories for Latam are daily updates on Brazil swaps rates and offshore implied volatility for the Brazilian real. The Brazil swaps story is published three times a day at **{NI BZSWAPS <GO>}**. After a relatively calm 2019, the real was the worst-performing major currency this year as of late October, with a 28% spot decline. Now news alerts on BRL implied volatility moves are covered daily, looking at four tenors and providing details on one-day and five-day moves: Go to **{NI FXVOLBZ <GO>}**.

For more on Bloomberg Automated Insights and a directory of the types of stories available, type "HELP BAI" and press <GO>. ●
—With Kenneth Kohn

Amorim is a fixed-income market specialist at Bloomberg in São Paulo.

Banking on Black and Latino Customers for Growth

By KAREN TOULON and LANANH NGUYEN

ANDREW YOUNG has been a mayor, a U.S. representative, and the U.S. ambassador to the United Nations. Now he says he's counting on a new digital banking platform, focused on Black and Latino communities, to address some of the systemic injustices he's been fighting throughout his career. With rapper and activist Michael Render, better known as "Killer Mike," and Bounce TV founder Ryan Glover, Young is helping to start Greenwood, named in honor of the Tulsa community known as the "Black Wall Street" before it was destroyed by a White mob in 1921.

Atlanta-based Greenwood is on track to open in January. Like other online banking platforms such as Chime and Aspiration, the bank will connect customers to Federal Deposit Insurance Corp.-insured savings and checking accounts and payment platforms. In addition, Greenwood will focus on offering business loans and financial counseling services to Black and Latino entrepreneurs. It will also help facilitate donations to causes such as the National Association for the Advancement of Colored People.

Young, Render, and Glover have raised about \$3.4 million from angel investors—65% of them African-American—and already have almost 175,000 prospective customers signed up on a waiting list, says Glover, the company's founder and chairman. The reception prompted the co-founders to fast-track a Series A funding round for the end of 2020, seeking \$20 million and giving the bank a valuation of \$50 million to \$75 million. Greenwood is in talks

with two prospective partner banks that will provide the FDIC-insured banking services for Greenwood's customers. Young, Render, and Glover spoke with *Bloomberg Markets* in October about their plans.

BLOOMBERG MARKETS: Why do we need Greenwood now?

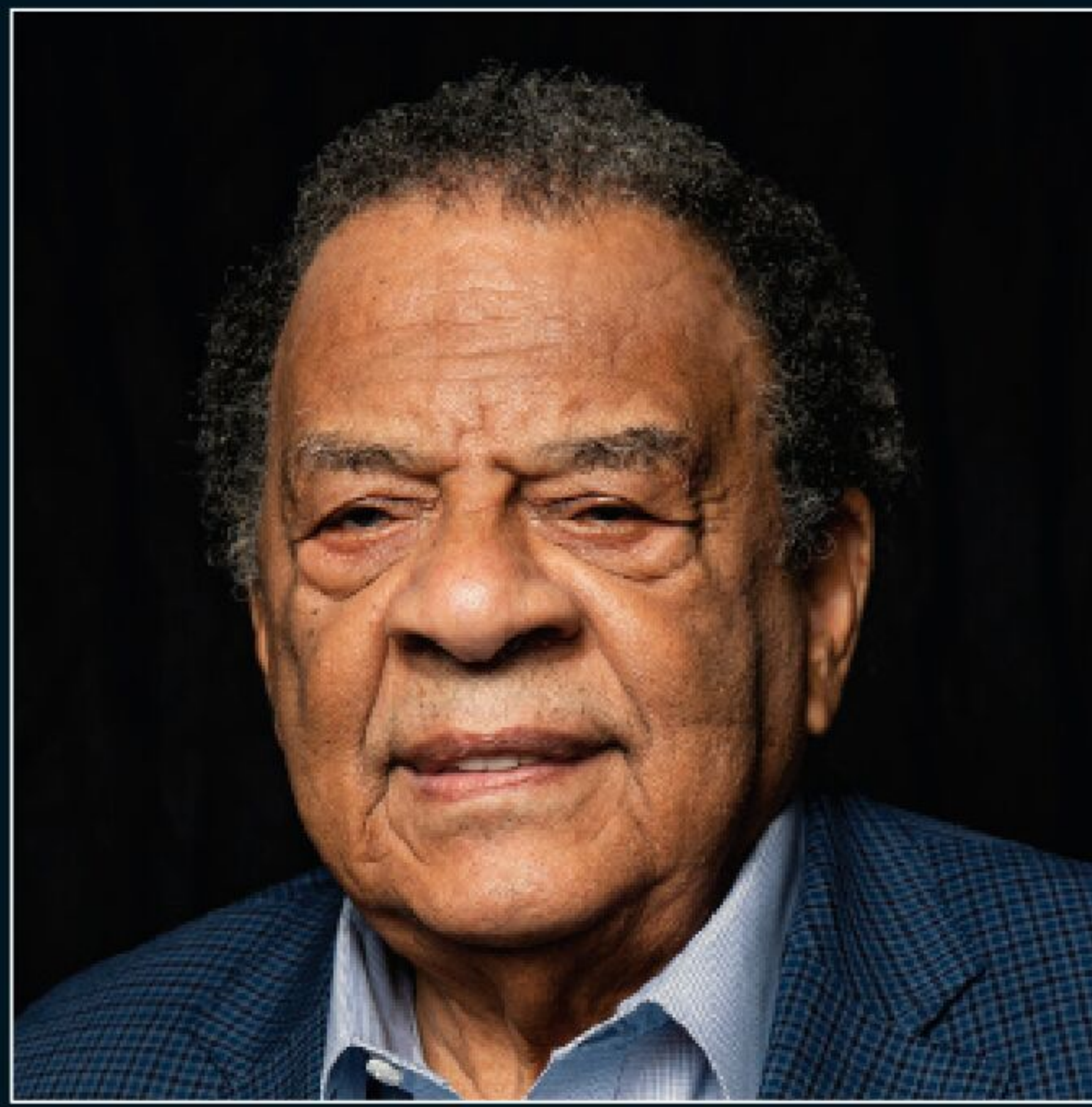
ANDREW YOUNG: There was a Citigroup study that said that discrimination between 2000 and 2020 probably cost the economy \$16 trillion. That is underserved minorities, underpaid women. They [traditional banks] really kept that much money out of the economy simply by ignoring the potential of predominantly Black and Hispanic and female entrepreneurs. This is something I've been working on since the civil rights movement. There have been people who have always known that you can't integrate the nation without integrating the money. We used to say in the '60s that we don't just want to fight to get a hamburger at the lunch counter one day—we want to own our own sandwich shop.

BM: What problems can Greenwood try to solve?

MICHAEL RENDER: We're alleviating a predatory problem in working-class neighborhoods and poor neighborhoods where established banks left us even after being rescued by the government a couple times. They abandoned our communities, and we were left with check-cashing places and liquor stores—the places that had predatory rates like 20% on the dollar to cash a check. If you're a poor



Render



Young



Glover

or working-class person and you have a check that's 200 bucks, to have to give up \$40 of that \$200 and then work with \$160 and try to fulfill all your obligations is almost evil. This counterbalances that.

BM: How do you pick the right partner?

RYAN GLOVER: There's a disconnect that traditional banking has had with the African-American community. Our banking partners have to share our same objectives and our core values.

MR: Whoever chooses to partner with us [is] going to have to ally with us not only in terms of the raw system of banking but also in terms of themes and philosophies and uplifting the community. Even down to your dollars and cents—instead [of all of it] being kept as pure profit, going to the United Negro College Fund and platforms like the NAACP that have been fighting for equality in this country for over 100 years.

There is a real will and want to learn: What is the right thing to do in this moment? Right now, corporations want to learn. Because they not only realize that it's wrong morally or wrong philosophically, I think that they understand it's bad for business to have Black people out of the financial loop in this country.

BM: Why are you focused on entrepreneurship?

AY: [We see Black and Latinx entrepreneurs] as one of the largest potential markets. The existing Black banks see that, too, but they don't have the capital. I think of a kid that has done a wonderful job in my neighborhood, helping people to cut down trees. He

needed investment in his business. But it's not just giving him money. It's giving him counseling. It's helping him in his audit, making sure he's paying his taxes and taking the deduction for Social Security from his workers. It's helping him to set up a business. You're not just handing him a check.

BM: What's the purpose of the #BankBlack movement?

MR: #BankBlack is not exclusionary, and Greenwood is not exclusionary. It's created to circumvent some problems that working-class people—no matter what color—have. The BankBlack movement is the first step in the American dream: to be able to do simple things like buy a home and a car, make sure you have a savings, make sure you have something to save for retirement. It helps working-class people work their way and matriculate their way up the ladder. It helps working-class people do things like buy a first home to make sure that they have something to leave their children.

The Black dollar is a powerful force in this economy. And if we help the Black community get financially literate and properly focus that Black dollar to grow businesses to further help competition in this country, then the banking system wins, greater society wins, the Black community wins. ●

Toulon is a senior writer covering diversity and inclusion in New York. Nguyen is a reporter covering finance companies in New York.

The Future of Finance

By JENNY SURANE, SRIDHAR NATARAJAN, and LARRY TABB

Banks have faced a challenging decade, with disruptive financial technology startups and low interest rates around the world placing pressure on many of their key businesses. But many have found ways to thrive, often by creating services to move or manage money. Here you'll find a look at some of the areas that have seen the biggest change in the past decade, as well as a glimpse at what might come next.

Equity Trading

■ The retail brokerage market is changing. Zero commissions, Covid-19, work-from-home, and rules governing crowds have tilted risk takers away from casinos, sporting events, and gambling—and toward the U.S. financial markets. Retail investors historically made up 10% to 14% of the market before the advent of commission-free trading in 2013. Now they represent about 20% of the market.

Rise of the Retail Trader

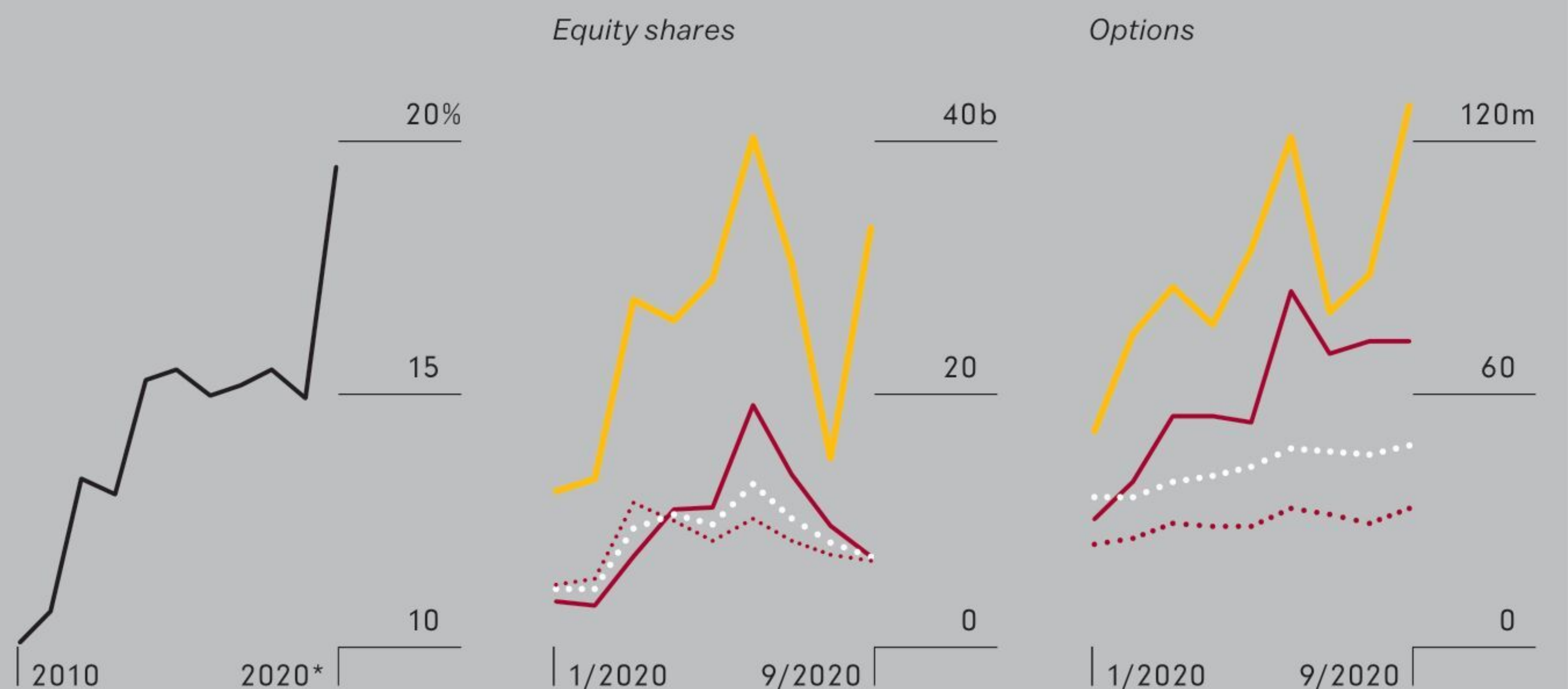
■ Retail is thriving but consolidating. TD Ameritrade (now owned by Charles Schwab), Robinhood, and ETrade (owned by Morgan Stanley) account for two-thirds of flows. At those big brokers, options trading grew in the third quarter as equity volume lagged. That doesn't mean trading is off; it means individual investors are using more leverage.

Retail Trading Volume

U.S. retail equity trades as a percentage of all shares traded

Trading by the top brokers

TD Ameritrade Robinhood ETrade Charles Schwab



*Estimate

Source: Bloomberg Intelligence

Payments

■ Moving money from point A to point B is profitable, and technology has made it even easier in recent years, which means banks are facing growing competition from a bevy of startups and outside apps for a piece of that pie. But whether it's consumers paying their friends back for dinner or businesses looking to settle up with suppliers, most people still rely on traditional financial institutions.

Moving Money Is a Lucrative Business

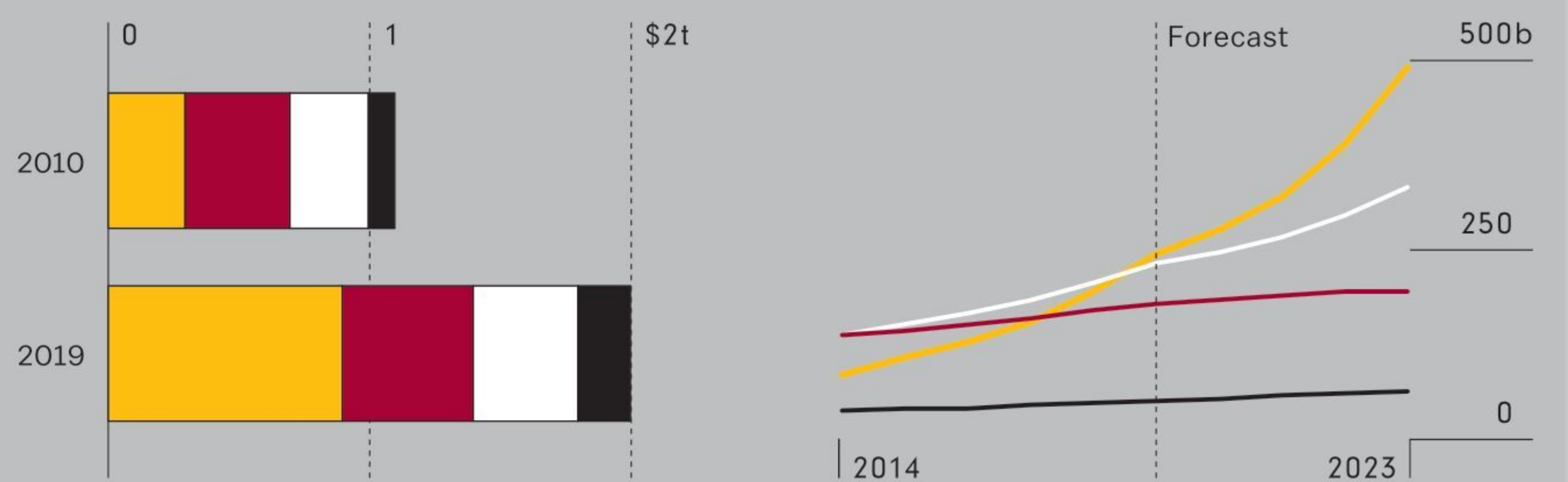
■ Consumer and commercial payments are a growing portion of banks' revenue, particularly in Asia, where transactions are projected to nearly double over four years.

Global Payments

Asia-Pacific North America Europe, Middle East, and Africa Latin America

Revenue

Number of noncash transactions



Sources: McKinsey, Capgemini

Asset Management

Investors frustrated by paying big fees for paltry returns have shifted the world of investing by turning to inexpensive funds that mimic indexes. Hedge funds aren't faring much better, as the investor revolt has whittled away at their fees. Yet the move has created a tailwind for a giant corner of finance covering nontraditional assets.

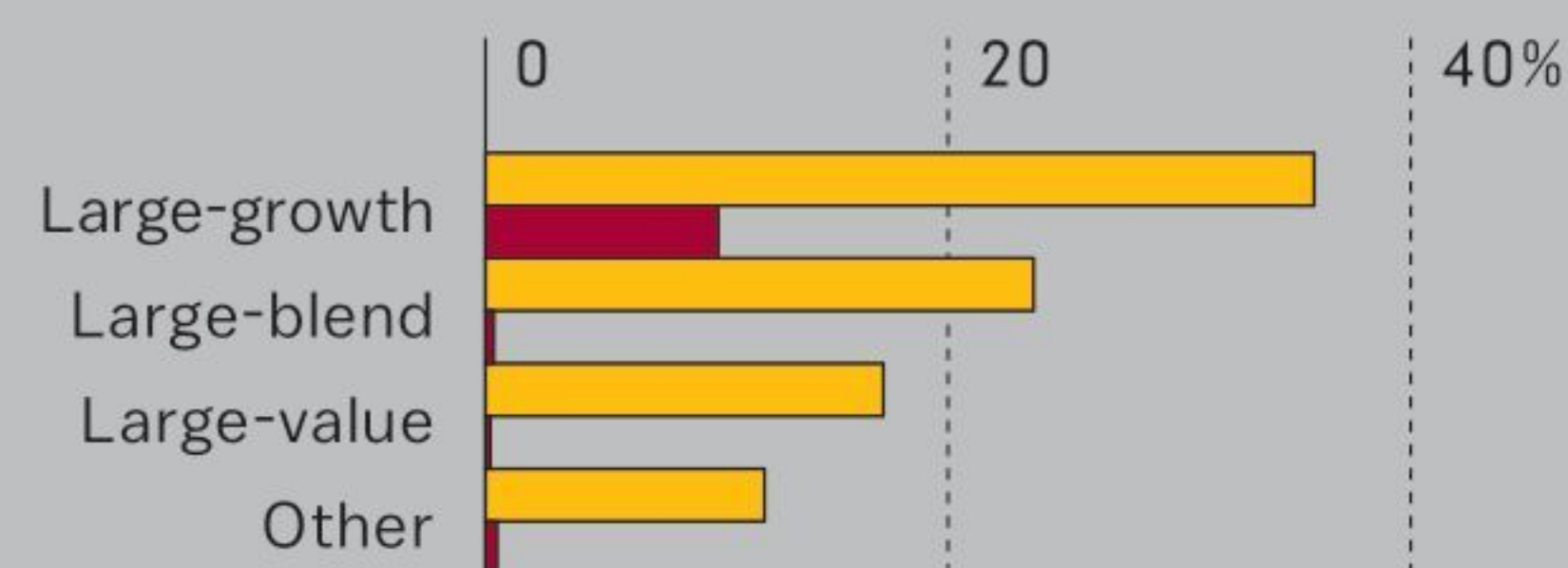
Becoming Less Active

Passive investment strategies have seen explosive growth in the past 20 years alongside the rise of indexing.

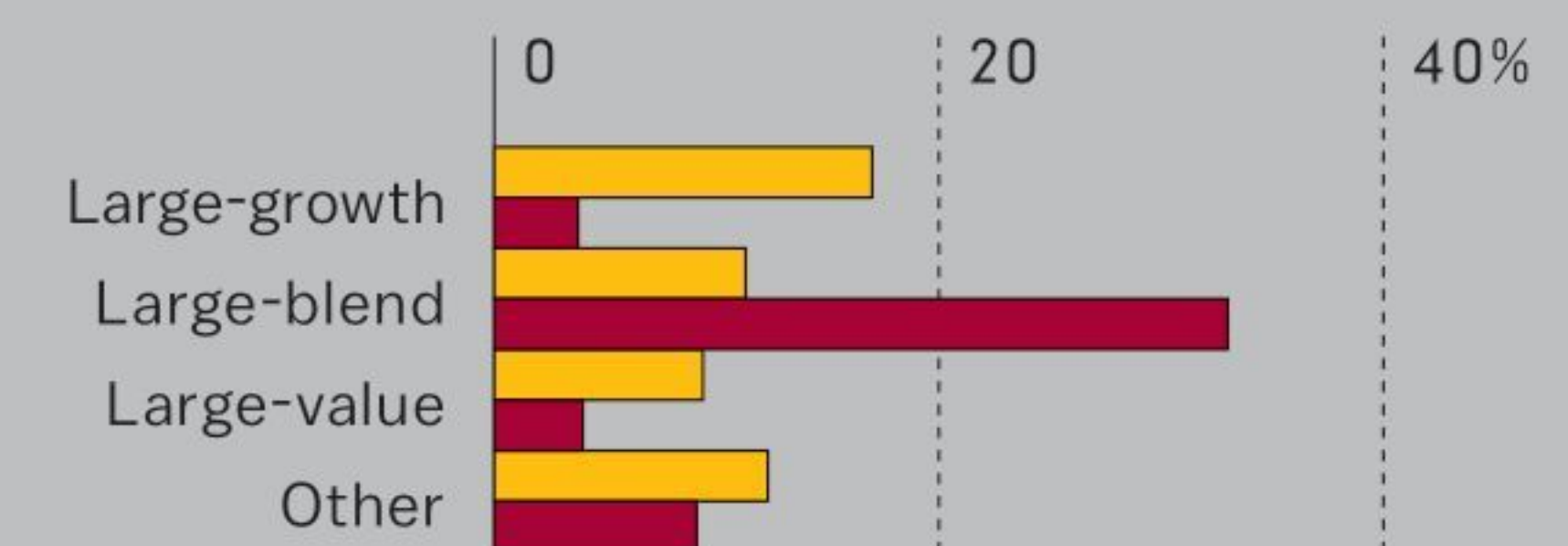
Assets in U.S. Equity Funds

Share, by investment type ■ Active ■ Passive

Dec. 31, 1998



April 30, 2019



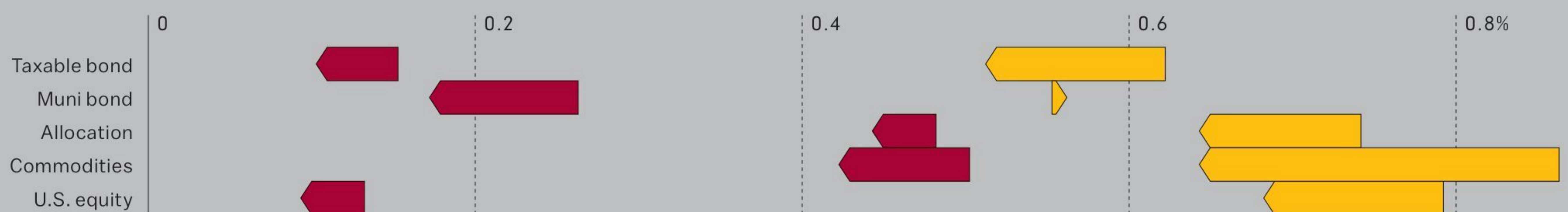
Source: Morningstar

An Industry Crimped by Falling Fees

Fees for passively and actively managed mutual funds have declined across most fund categories since 2015 and are expected to drop even further.

Mutual Fund Fees

Average fee by category from 2015 to 2019 ■ Active ■ Passive



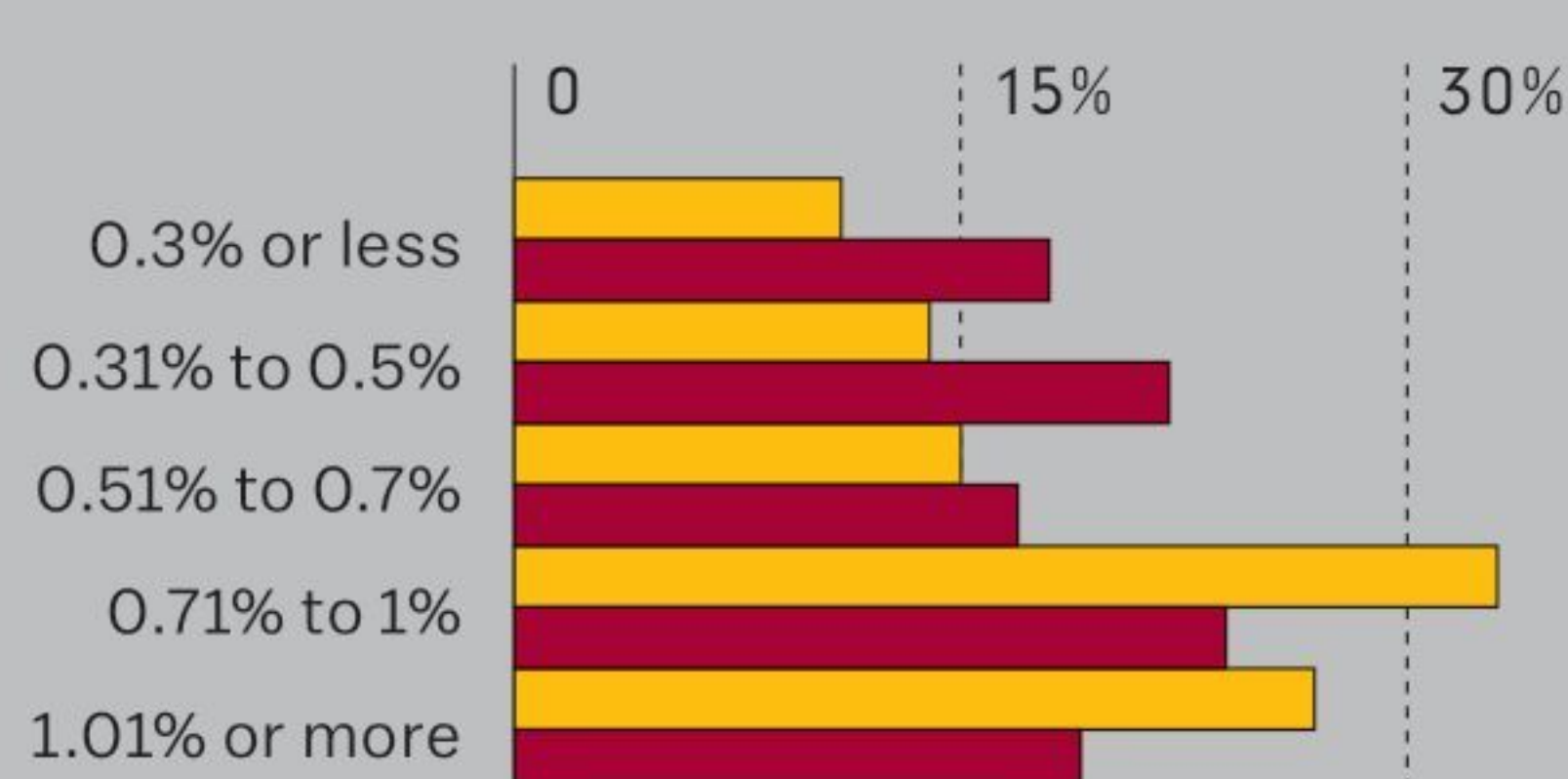
Source: Morningstar

Cheap Is Chic

The actively managed universe is shifting away from higher-fee products.

Actively Managed Funds by Fee Level

■ 2012 ■ 2017



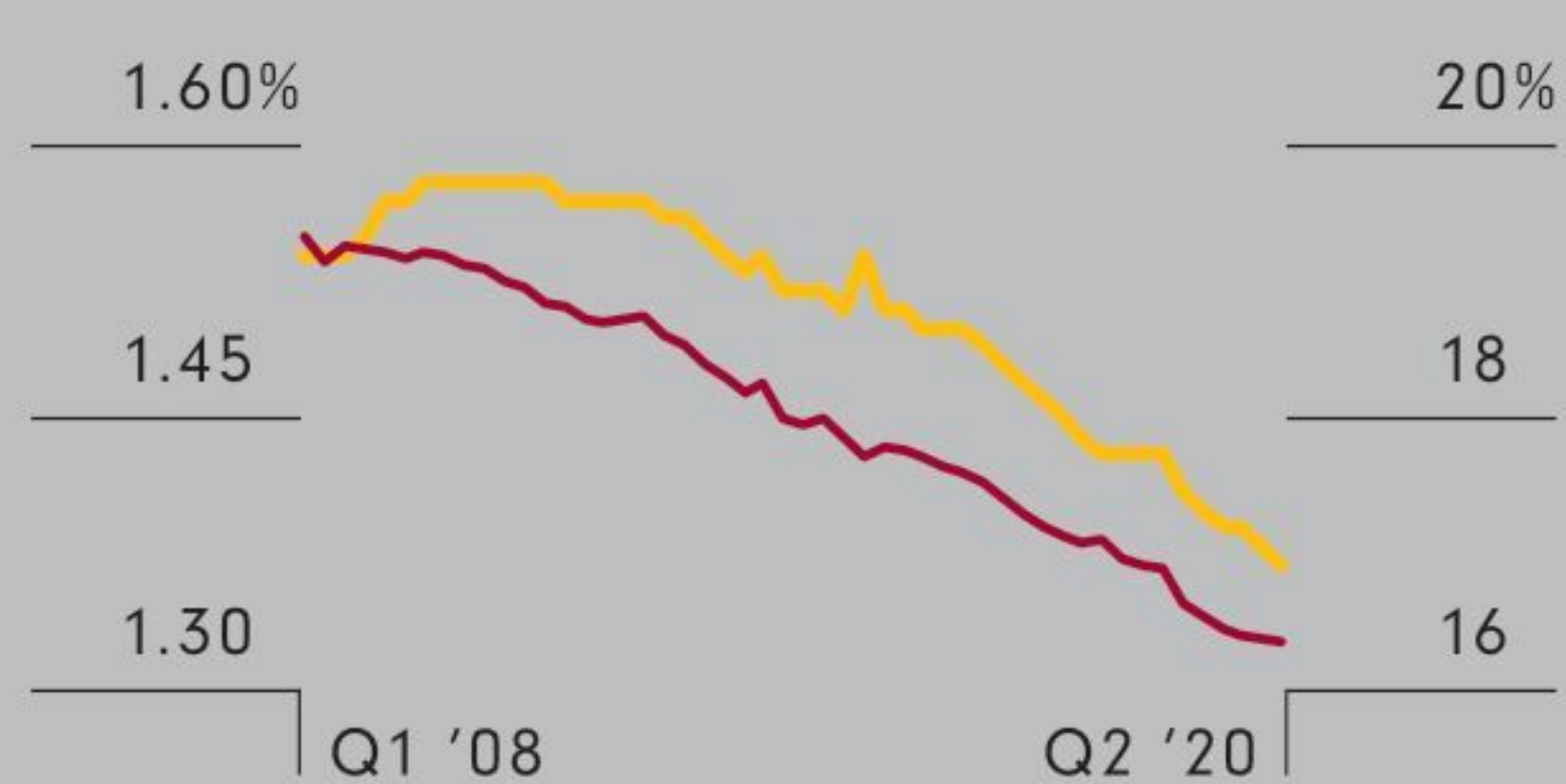
Source: PricewaterhouseCoopers

Hedge Fund Doldrums

Even the titans of finance are having a hard time charging sky-high fees.

Estimated Average Hedge Fund Fees

— Management (left axis) — Incentive (right axis)



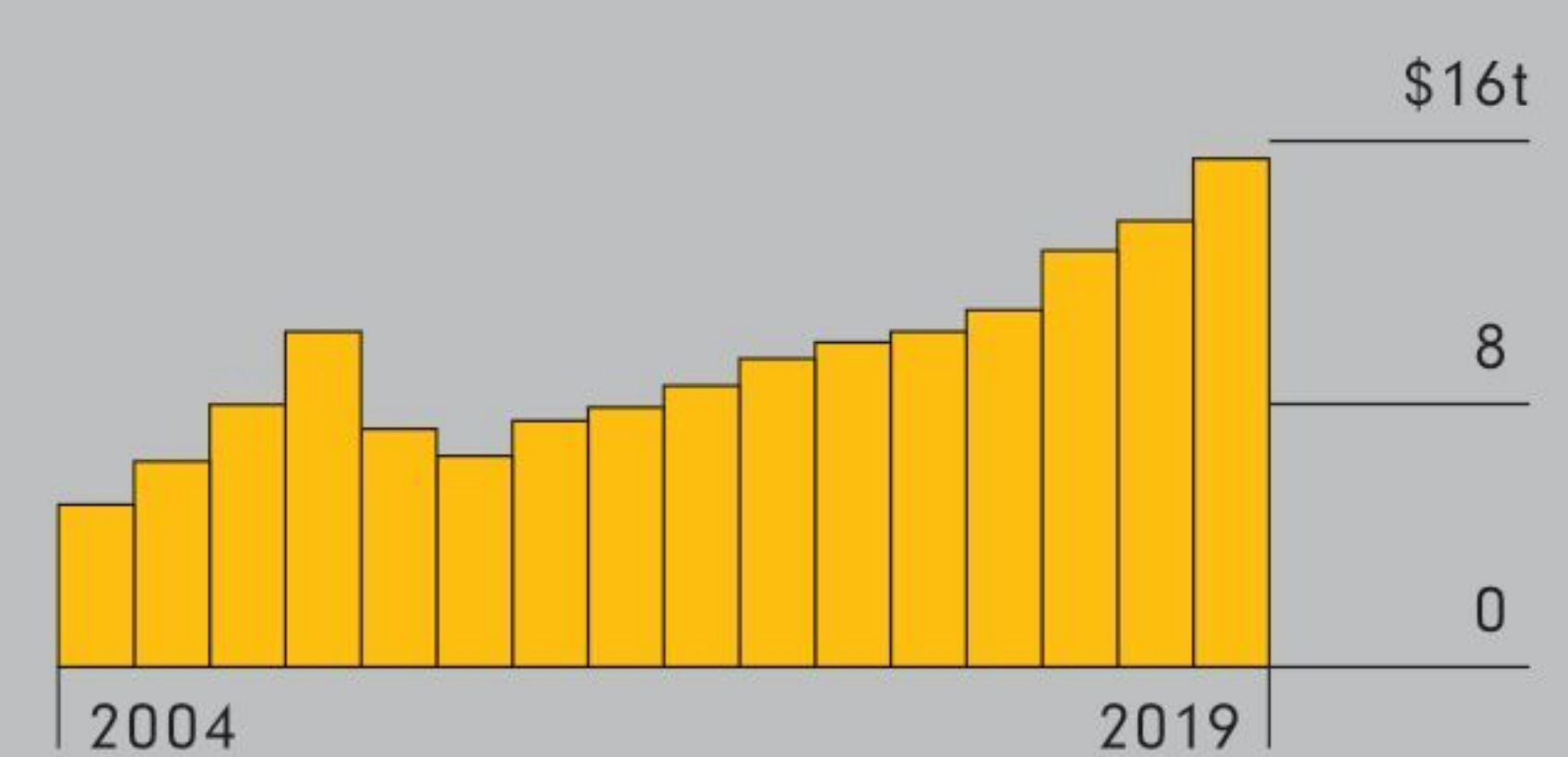
Source: Hedge Fund Research

The Promised Land

In a zero-rate world, investors are piling into alternatives like real estate and crypto.

Alternative Assets

Market value



Source: Chartered Alternative Investment Analyst Association

Wealth Management

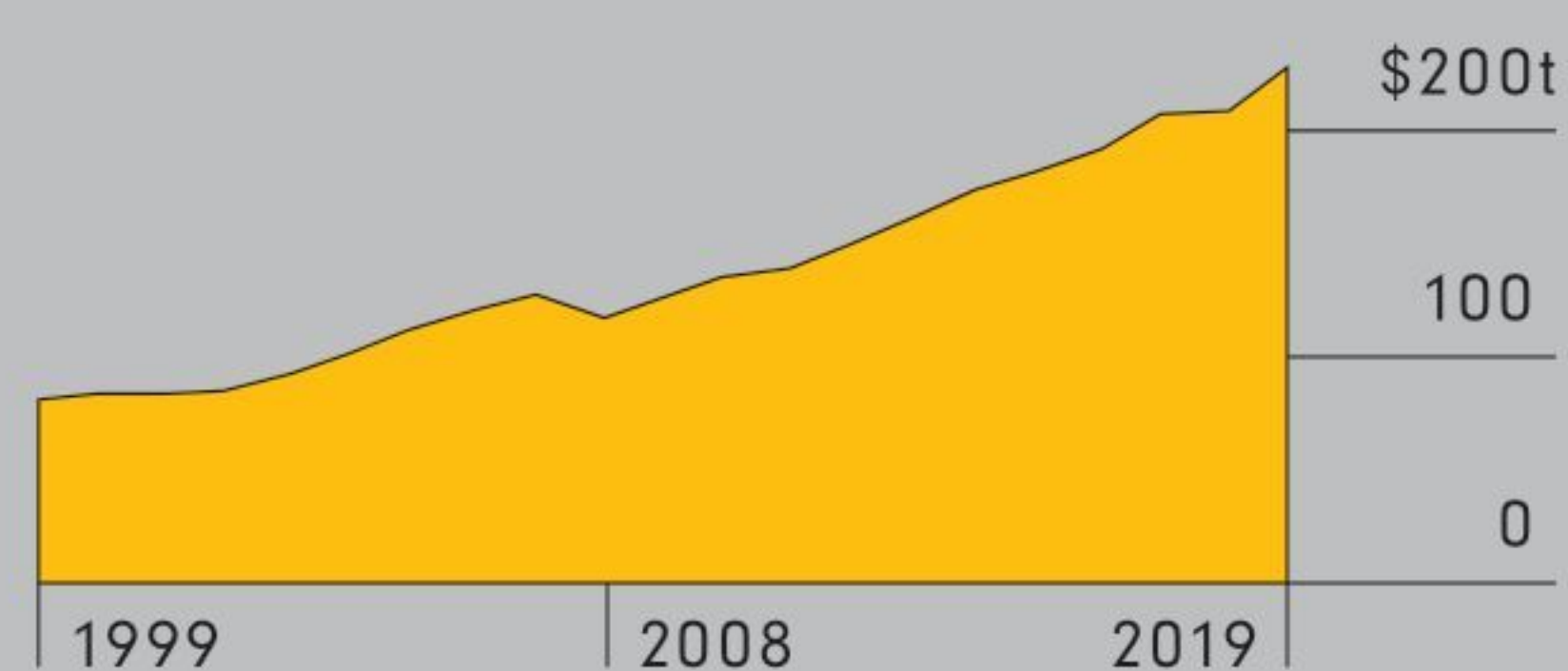
■ Personal wealth has soared in every region around the world in the past two decades with the growth of economies and disposable incomes. Gains were especially pronounced across Asia. That's been a boon for the wealth management industry, which has been rapidly hiring staff to keep up. It's seen revenue climb as a result.

A Richer World

■ Personal financial wealth has almost doubled since the financial crisis.

Global Personal Financial Wealth

Value at yearend



Source: Boston Consulting Group

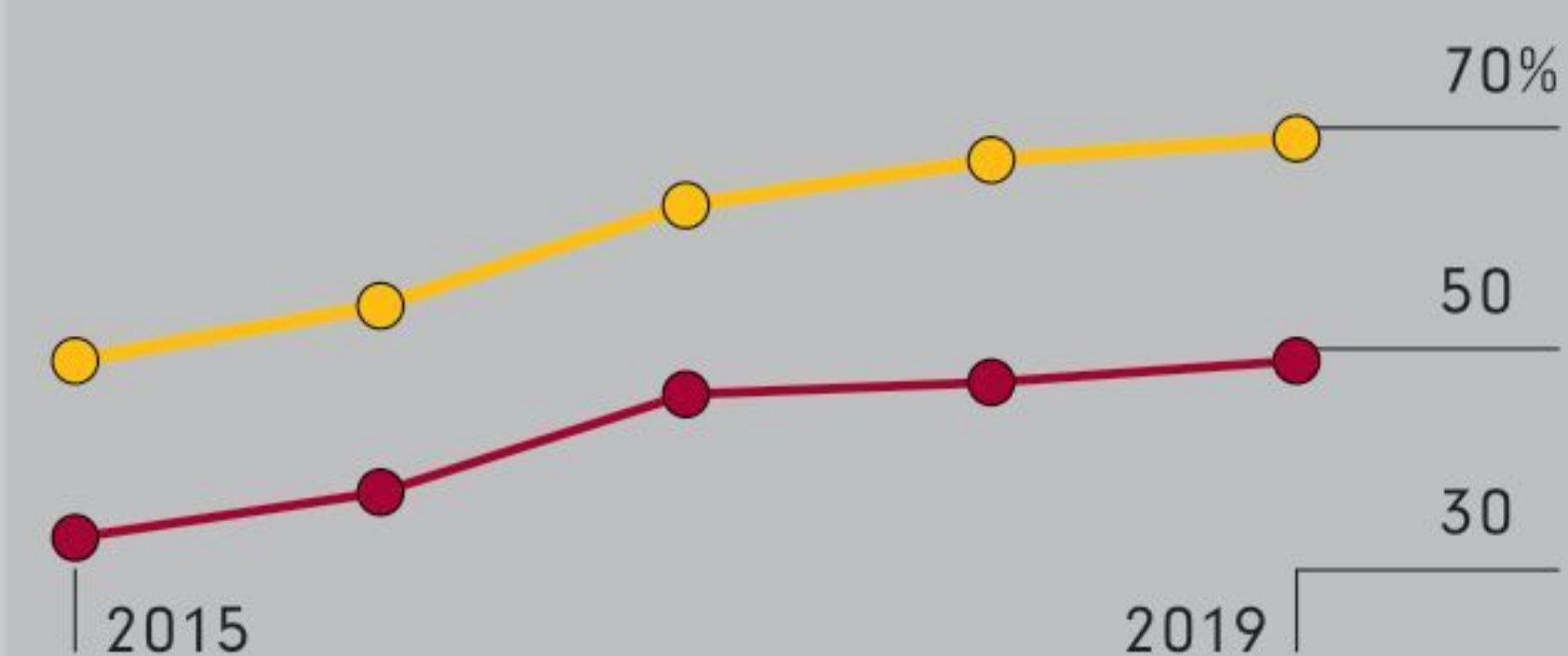
Advisers Incentivized

■ More fee-based products and fewer commissions helped tie revenue to assets.

Financial Advisers' Metrics

Share from fee-based products

● Revenue ● Assets



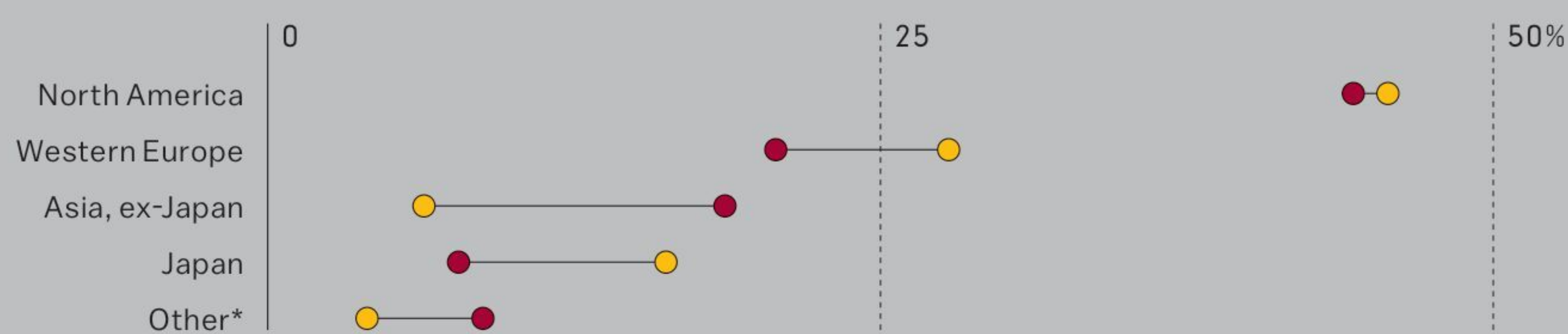
Sources: PriceMetrix, McKinsey

Heavier Wallets in Asia

■ Asia now commands a greater share of personal financial wealth. In China the rise of the middle class and a high personal saving rate have helped swell household coffers.

Share of Global Personal Wealth

● 1999 ● 2019



*Latin America, Oceania, Eastern Europe and Central Asia, Middle East, and Africa

Source: Boston Consulting Group

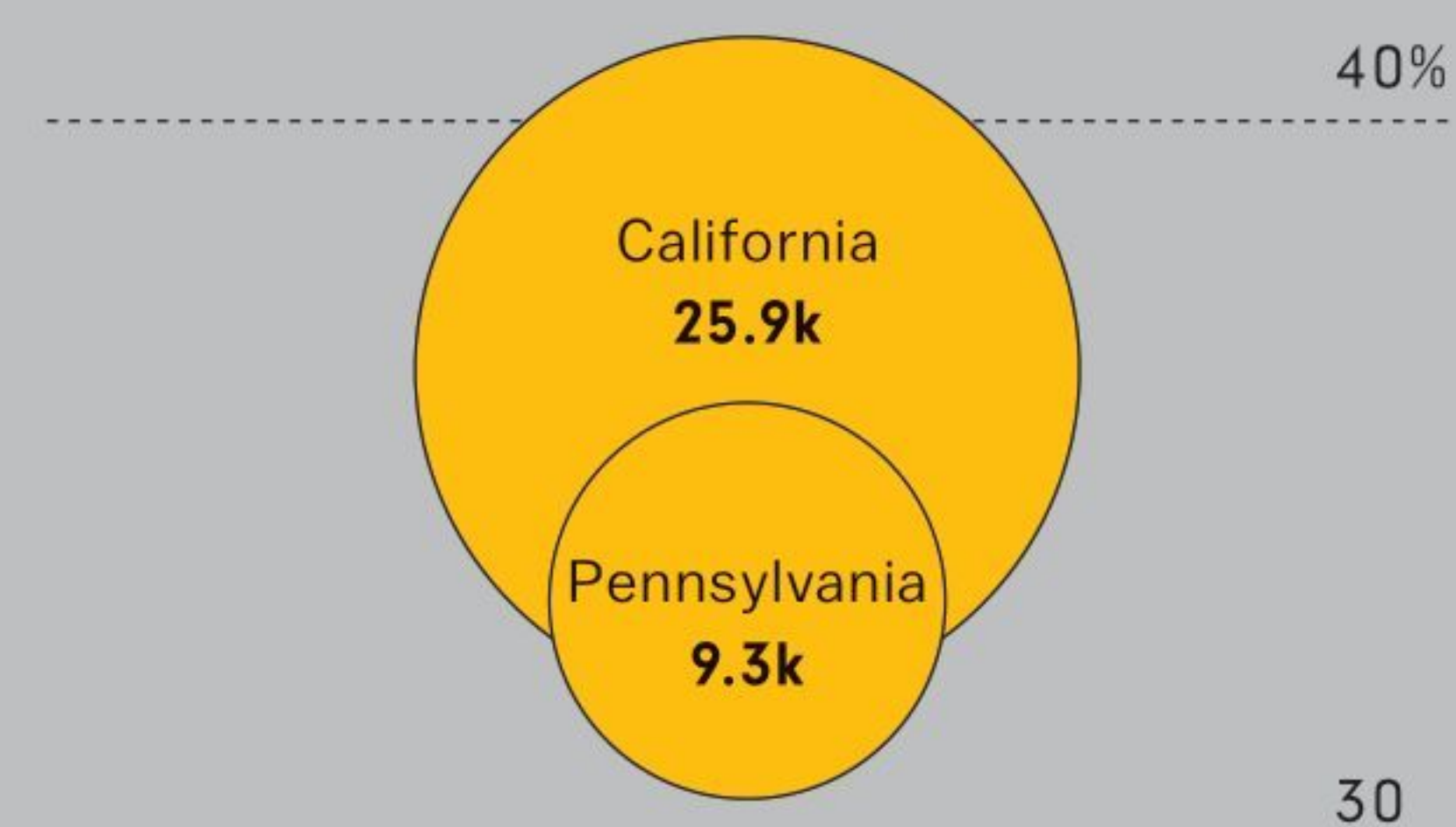
Help Wanted

■ In the U.S., banks are hiring more advisers in the most populous states.

Financial Adviser Employment

Increase from 2009 to 2019

Circle size indicates level in 2019

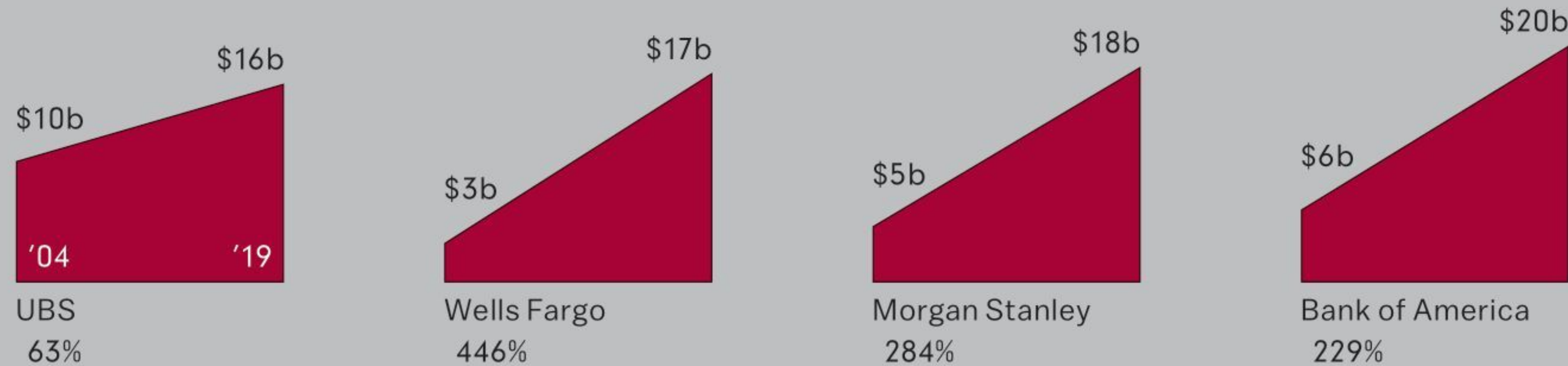


A Boon for the Big Banks

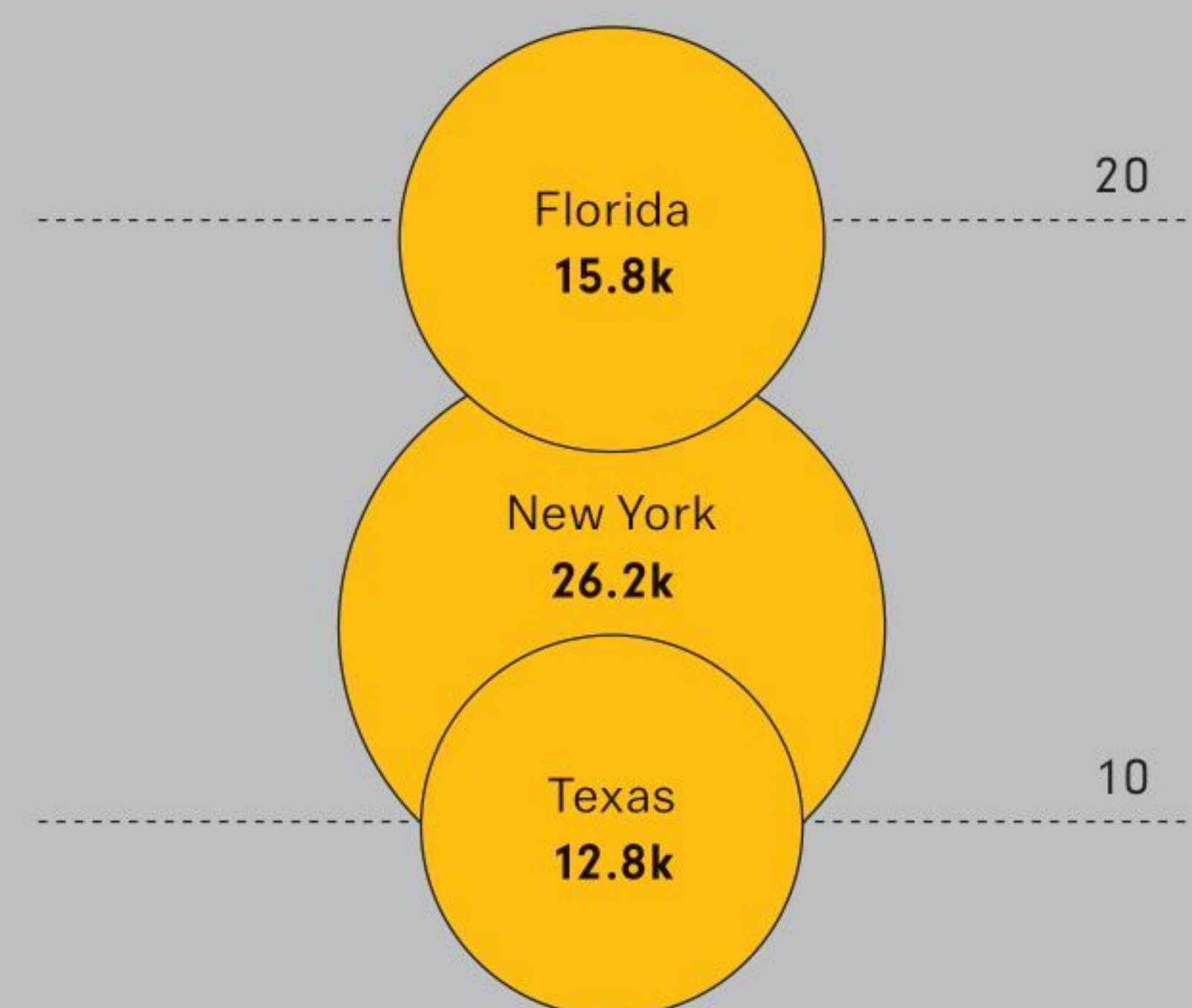
■ Large full-service brokerage firms have seen wealth management revenue soar in recent years as a result of consolidation in the industry and growing personal wealth.

Wealth Management Revenue

Value in 2004 and 2019



Source: Bloomberg Intelligence



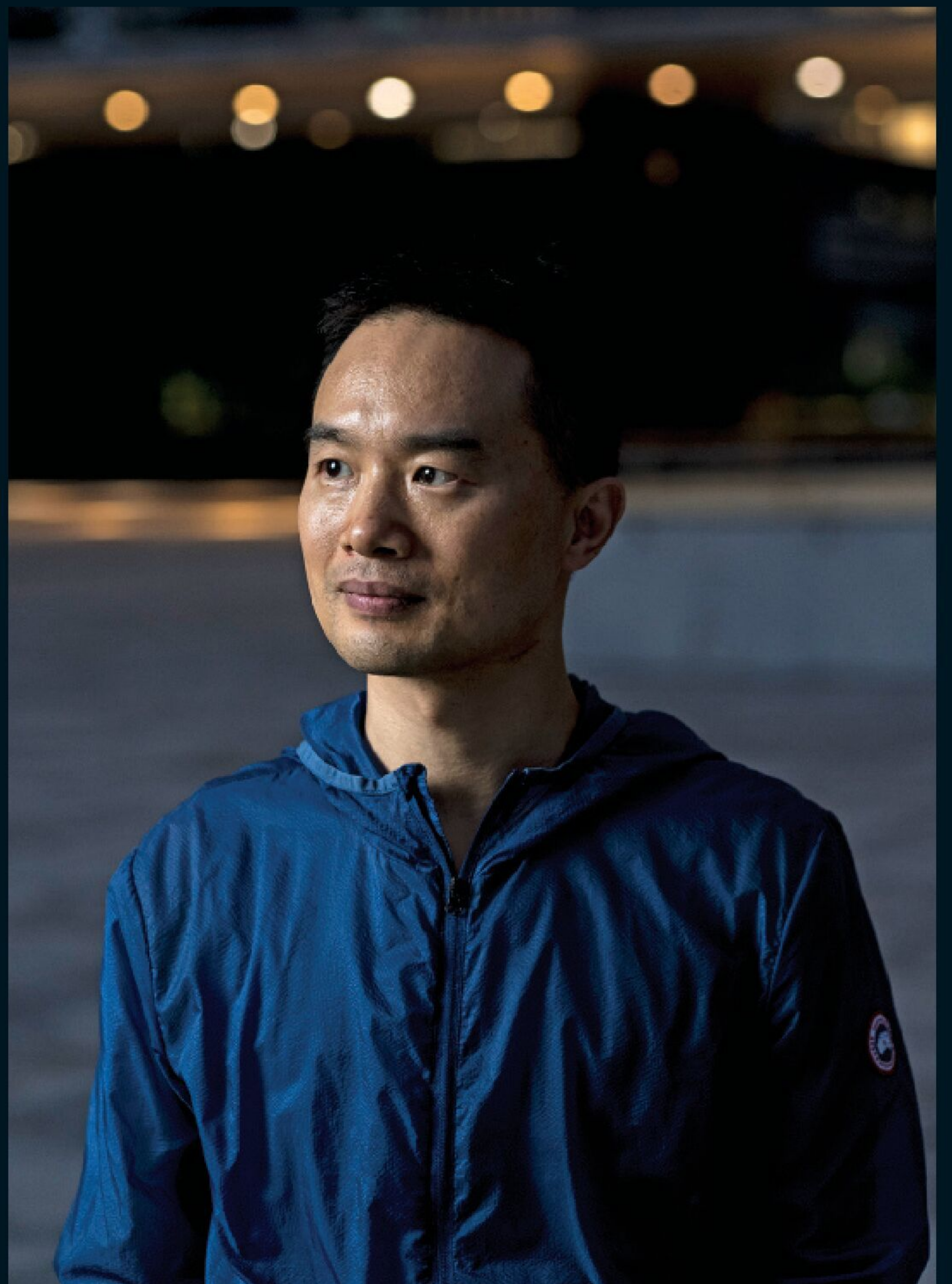
Source: Bureau of Labor Statistics

Can Antrepreneurship

Tang Kewei, former chief risk control officer for Ant's MYbank, created Fullink three years ago



Yuan Leiming, who helped build Ant's payments infrastructure, has founded a student-loan charity



Survive ?

Bill Deng, a co-founder
of XTransfer,
left Ant in 2017

Jack Ma's understudies changed the face of tech in China. The next generation of Ant alumni faces a stiffer challenge as the regulatory landscape shifts

By LULU CHEN

PHOTOGRAPHS BY RAUL ARIANO



In the seconds after headlines flashed an abrupt halt to what had been billed as the world's biggest initial public offering, a chat shared by a group of Chinese friends exploded in disbelief. China had just delivered a public drubbing to billionaire Jack Ma, one of its most-revered entrepreneurs, days before his Ant Group Co. was to be listed.

The friends on WeChat understood well the sweat, tears, and brazen audacity it had taken to build Ant into a financial-services juggernaut in less than two decades: They used to work there, after all. The listing, expected to value Hangzhou-based Ant at \$315 billion, would have delivered a long-awaited payday to many current employees just as an earlier IPO had enriched the chat group members. Then regulators slammed on the brakes.

One of the people on the WeChat group was Yuan Leiming, a 14-year Ant veteran who left the company in 2019. He recalls heading for Hangzhou and Shanghai, expecting IPO celebrations in both places. "Ant staff were promising to buy me dinner," he says. "Now I have to buy them dinner to placate their wounded hearts."

Yuan is among three dozen Ant *tong xue*—classmates—who meet regularly, usually in Shanghai, and have formed a powerful alumni network. Many of them became millionaires after Ma's Alibaba Group Holding Ltd., which owns about a third of Ant, went public in 2014; others sold their Ant options back to the company when it was valued at \$150 billion two years ago. All resisted the urge to hold on for Ant's IPO. For employees who did hang on, or who joined the company more recently, the suspension threw their plans for a bonanza up in the air.

Perhaps the intervention from President Xi Jinping's government was to be expected. Ten days before it happened, Ma took to a conference stage in Shanghai to deliver a stinging rebuke of regulations that stifled innovation. The company soon came in for a deluge of criticism on Chinese state media. Commentators faulted Ant for straying from its core payments business and called out Big Tech generally for misleading users to consume beyond their means. Guo Wuping, head of consumer protection at the China Banking and Insurance Regulatory Commission, said fintech companies used their market power to set exorbitant fees.

Three days before the planned listing, the China Securities Regulatory Commission summoned Ma to a conference room and informed him that Ant's time as a beneficiary of relaxed government oversight and minimal capital requirements was over. Just before 9 p.m. the following day, the fintech company's trading debut was suspended, with the securities regulator saying later that preventing a "hasty" listing while significant regulatory changes were afoot was a responsible move for potential investors.

THE ANT TONG XUE call their WeChat group "The Best Has Just Begun—Alipay Mafia," the last bit a pointed reference to the moniker once hung on the founders of PayPal Holdings Inc., including Elon Musk and Peter Thiel, who left and went on to establish successful tech enterprises. The Ant veterans chose to use the know-how gained in building the company's ubiquitous Alipay-app ecosystem to reshape pockets of Chinese business with their own startups.

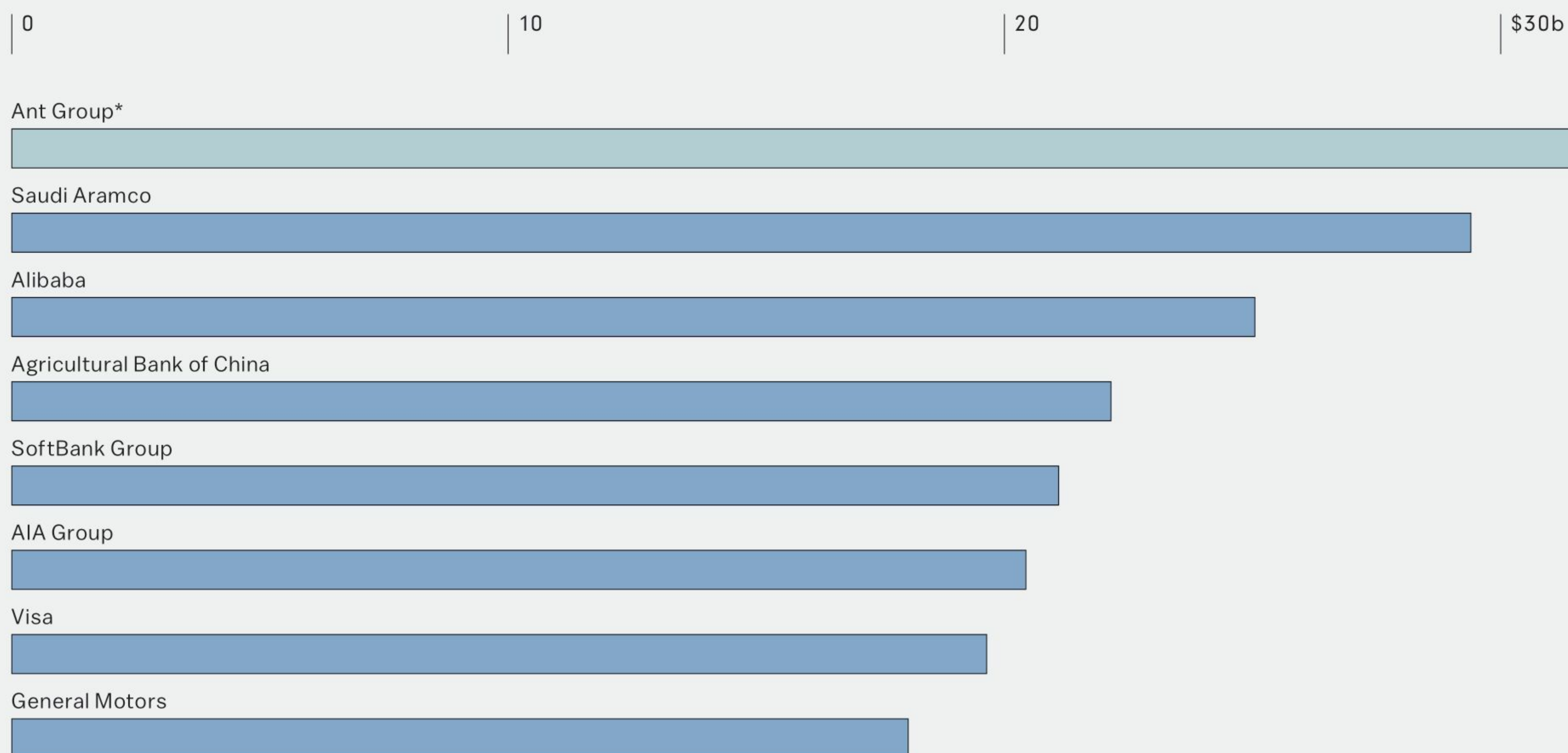
They took their cues from Ma, the charismatic onetime English teacher who's achieved cult status in China not just

"Ant staff were promising to buy me dinner. Now I have to buy them dinner to placate their wounded hearts"



What Might Have Been

Largest initial public offerings



*Estimate prior to IPO suspension on Nov. 3

Source: Bloomberg

because of his \$54 billion fortune but also because of the combative culture he fostered across his e-commerce and financial-services empire.

Ma has lauded the Chinese tech industry's notorious 996 workweek—9 a.m. to 9 p.m., six days a week—as “huge bliss,” a driving spirit crucial to a take-no-prisoners battle that disrupted the powerful state-owned monopolies' control over the economy. In the early days, when Alipay operated in a legal gray zone—private companies were technically not allowed in finance—Ma encouraged his employees to press on, telling them, “If someone has to go to jail, I'll go.”

Over the years, Ant and its alumni were hugely influential in reimagining China's financial plumbing. Now, as Ma navigates once more the boundaries a communist state can impose upon private enterprise, these Antrepreneurs—almost all men—are learning new lessons, particularly about the systemically sensitive realm of finance, where fresh rules are being crafted to curb Ant and companies like it. Here are three of their stories.

The Golden Boy

A business management graduate of Shanghai's elite Fudan University, Bill Deng joined Ant in 2010 after working for Visa Inc. in Shanghai, Beijing, and Singapore. He soon became a favorite of Chairman Eric Jing, who directed him to focus on competitive pricing for Alipay's services: Before Alipay expanded into the fintech giant that is now Ant, it was a scrappy online payments company trying to onboard merchants.

That put Deng in regular contact with small-business owners in industries from finance to gaming to e-commerce. Immersing himself in the Yangtze and Pearl River delta regions

where Chinese export manufacturers cluster, he gained insight into the challenges of operating cross-border businesses without the support of a global payments infrastructure. China's internet boom, which would eventually fuel Alibaba's growth into a \$700 billion behemoth, was just beginning.

By 2017, talk of an imminent IPO abounded. Gatherings of Ant employees—at after-work dinners, during two-minute cigarette breaks—became opportunities for staff to trade their startup aspirations, Deng says, though Ant's “golden handcuffs” prevented most from acting on their dreams. Flush with stock options, Deng timed his departure strategically. “I figured that if I waited until Ant listed to create my own startup, I would be competing with an exodus of extremely talented Ant staff,” he says. “If I did it early, most of these people would still be working at Ant, which could provide me a network of strong allies.”

Later that year, he and five former colleagues founded XTransfer Ltd., which handles cross-border financial transactions for small and medium-size businesses. The venture built on Deng's experience of spearheading expansion in Thailand and on his relationships at work. “Ant pretty much corralled all the top talent there was in China fintech,” he says. “I was working with these men side by side in the trenches.”

XTransfer works with about 80,000 clients, mostly in China, helping them adhere to international standards against money laundering and terrorism financing. It's also built a global, low-cost payments network that lets buyers transact in their local currency and enables merchants to be paid within 24 hours—a service banks rarely offer small companies directly. The company has raised at least \$30 million from investors including the Alibaba-backed Electronic World Trade Platform initiative and Beijing-based Gaorong Capital; XTransfer was valued at more than \$500 million in 2019. ▶

Deng, 39, says having his own startup has helped him generate 10 times more wealth than he would have if he'd stayed at Ant. But that doesn't mean he's put his former boss behind him. "Jack Ma once said that he wanted to make sure even the janitor had company options," Deng says. He got the message: At XTransfer, even the front-desk clerk has stock options.

The Pioneer

One of Deng's role models is Yuan Leiming, a product pioneer in the mold of Silicon Valley explorers such as iPod creator Tony Fadell. A Peking University law major, Yuan, now 44, gained a reputation at Ant for meticulous planning and for his audacity in striking out into new areas of business.

Yuan spearheaded Ant's online-payments infrastructure, as well as its Yu'ebao money-market fund, which grew into the world's biggest within five years of its launch by appealing to hundreds of millions of mom-and-pop savers. In the early years, Yuan worked alongside Ma himself, negotiating collaborations with China's largest banks, cementing Ant's role as a matchmaker shaking up the old ties between borrowers and lenders.

Even before leaving Ant in 2019—and with Ant's blessing, as there was no conflict of interest—Yuan zeroed in on transforming how Chinese pay for higher education. In China, tuition, though a fraction of what U.S. universities charge, is still unaffordable for many. "There's something fundamentally wrong with the concept of student loans," Yuan says. "We need to invest in ourselves most when we are young, but that burden falls predominantly on the family."

Yuan, who gets around by subway and rents bikes when he travels, persuaded a dozen current and former Ant colleagues to put a total of \$7 million into a blockchain-based charity called

Justsure that he believes can be a model alternative in the student loan market. Built atop Ant's blockchain, justsure.com supports prospective students based on need, not academic excellence. Borrowers who end up making more than \$18,000 a year are expected to repay their loans to the nonprofit at no more than 5% of their salary. If they don't honor their commitment, they could be blacklisted by the government and deprived of certain rights, including air travel.

"We are applying essentially a venture capital model to nurturing talent," Yuan says. He expects just a small percentage of extremely successful students to account for the majority of repayments, not unlike the VC model of relying on a small number of winners to generate big returns.

The Risk Guru

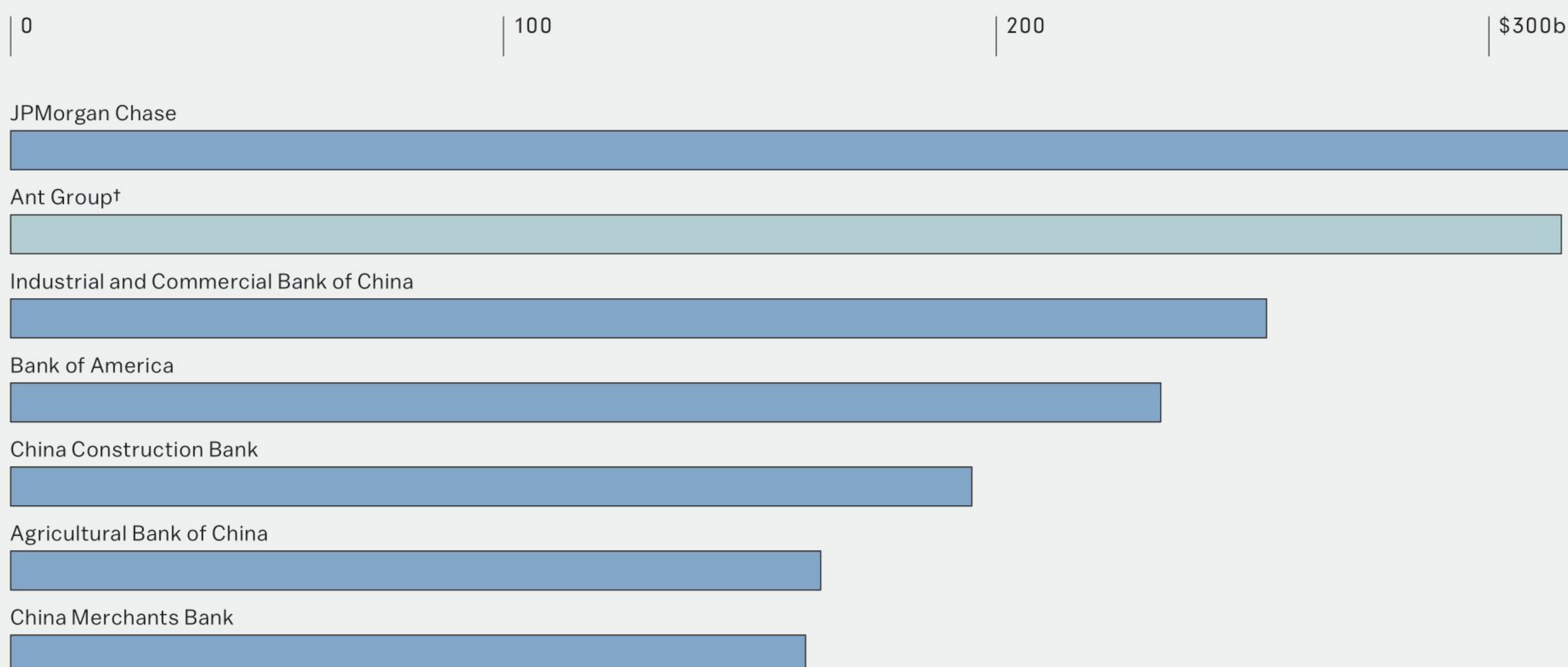
Tang Kewei researched artificial intelligence applications in finance during his Ph.D. studies at the University of Nottingham in England. He later moved to London with Barclays Plc as a data scientist concentrating on machine learning and AI. As China's entrepreneurial scene thrived, Tang was bitten by the startup bug but worried he was out of touch after 12 years in the U.K. When Ant recruited globally in 2015 for a chief risk control officer for its fledgling internet bank, he jumped at the chance.

At Ant's MYbank, he built tools to analyze the risk of financing businesses in China's rural heartland, then a greenfield market that would rapidly become heavily contested. The weight of expectation within the company was immense, Tang says, with senior executives counting on Ant's expansion into the countryside to drive its valuation to 1 trillion yuan (\$150 billion).

"I thought working for a global foreign bank was already stressful, only to find out work hours at Ant were even more

Leaderboard

Largest public financial companies by market capitalization*




*Figures as of Nov. 13 close; excludes insurance companies

†Projected valuation when IPO was suspended on Nov. 3

Source: {EQS <GO>}

“Ant pretty much corralled all the top talent there was in China fintech. I was working with these men side by side in the trenches”



intense,” says the 41-year-old, who still often works well past midnight. “It was like fighting a war every day.”

Sometimes a single business-development team would be pursuing as many as five initiatives simultaneously. It was common, Tang recalls, to find frontline salespeople arguing with back-end and support teams over differences in vision, banging their fists on tables or calling people out for underperformance in front of their bosses. “Some ‘sea turtles’ couldn’t stand it and left,” he says, using a colloquial term that describes Chinese people who return home after overseas educations. “To some it seemed like a lack of planning, but Ant was like that, always embracing change.”

Tang and Yuan Leiming became friends at Ant, working together to build risk-control models for bank loan issuance and explore new businesses. They still catch up at dinner, nowadays to share insights on their startup lives.

Tang left Ant three years ago to create Fullink Technology Co., which uses deep learning and image-recognition technology to build risk controls for companies in niche markets. Fullink has raised at least \$10 million from BlueRun Ventures and Source Code Capital. In one of its projects, his team is working with a state-owned entity to create tools to evaluate the creditworthiness of cattle farmers in China’s northeast. In another, it’s joining hands with a city government to incorporate municipal data such as pension contributions, taxes, and utilities into a credit-scoring service.

“Some sectors in rural finance are too niche for a giant like Ant,” Tang says. “It also needs partners like us to open up new markets.”

CHINA HAS CHANGED profoundly since Ma, backed by \$60,000, started Alibaba.com in 1999 as a business-to-business marketplace. A slowdown in economic growth, along with the pandemic, has created challenges as well as opportunities. The bruising back-and-forth between Washington and Beijing has choked the free flow of capital from American endowment and pension funds that used to nurture young Chinese startups. Boosted most recently by the advent of 5G and AI, challengers to Ma’s empire—and to his giant rivals, such as Tencent Holdings Ltd.—have multiplied dramatically in the two decades since he showed that business territories once dominated by powerful Chinese state-owned firms can be reshaped.

And yet, as the slap-down of the Ant IPO illustrates, an age-old test hasn’t gone away: reading the Beijing tea leaves. Even as the world’s second-largest economy opens its markets and produces global technology champions, the Communist Party’s grip on power hasn’t loosened and the issues of social and financial stability are nailed to the top of Xi’s agenda.

With the shock of the regulators’ rebuke to Ma still fresh, someone on the Alipay Mafia WeChat group shared a meme showing how the government is cutting Ant down to size, one rule at a time. The phrase *pan ta*—rein him in—was joined to an emoji of an animated cartoon character’s bottom being scrubbed over and over.

Not so fast, says Tang: “This thing is not a thing.” Don’t underestimate Ma, the tong xue, or any of his legions of tech disciples. “Ant folks,” Tang says, “are super tenacious.” ●

Chen covers investing for Bloomberg News in Hong Kong.

By EDWARD ROBINSON

PHOTOGRAPHS BY CARLOTTA CARDANA

The

Yoyo Chang turned a hunch born in an English high school cafeteria into

Prodigy

a next-generation payments app backed by serious, well-heeled investors



WHAT IS AVAXHOME?

AVAXHOME-

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W

hen Yoyo Chang first told his parents that he wanted to start his own technology venture, they were alarmed: This was not part of the plan.

Paul and Pauline Chang had emigrated to the U.K. from Taiwan in 2003 so their son could learn English and eventually pursue an international business career, preferably at a global investment bank. Sure enough, Chang excelled in school. He also fell in love with the stock market at the age of 13, raking in £250,000 (\$326,650) in trading profits for his family by the time he went to college in 2018.

But then Chang's life took a turn. Rather than focus on his studies and save his money, he wanted to plow it into a startup. His idea was an app that would enable stores to accept payments directly from customers' mobile phones, slashing transaction fees and eliminating the need for card readers and other hardware.

Worried his only child was taking on too much, Paul researched the complexities of payments infrastructure and learned it was tightly regulated and dominated by the likes of Visa, Mastercard, and PayPal, not to mention banks. What made Chang, an 18-year-old freshman, believe he could jump into that world?

"I told my boy, 'Don't do it. It's too difficult,'" Paul says with Pauline and his son at his side. "I told him to buy a house."

"I didn't listen!" interjects Chang, now 20, with a laugh. "I was naive."

His mother shakes her head. "He still doesn't listen," she says.

Now Chang's naivete is paying off. His venture, KodyPay, has morphed from a crazy idea he and some friends conceived in their high school cafeteria into a fledgling business. KodyPay raised \$2.3 million from angel investors this summer. Chang made deals with a partner of International Business Machines Corp. and a subsidiary of Visa Inc. to build his technology. And KodyPay was ready to go live in November in cafes and shops at the University of York, where Chang is a third-year business management student. With the novel coronavirus forcing thousands of students to attend classes online throughout northern England, the plan is to try to release the app in January.

At first glance, Chang's tech adventure follows the familiar

contours of the Silicon Valley creation myth. He does idolize Steve Jobs, Elon Musk, and Jack Ma and unabashedly dreams of creating a company that can change the world. Yet Chang's journey deviates from the traditional narrative in myriad ways. For starters, he isn't a solitary brainiac holed up in his dorm room or garage writing computer programs. Actually, he can't read a line of code, let alone write one.

Nor is he the product of elite private schools or the hothouses of innovation that thrive in universities such as Stanford and Cambridge. Chang was educated in state schools in southern England and has become an unexpected star at the University of York, an institution known more for its acclaimed scientific and humanities research programs than for its incubation of tech startups. What's more, his venture shows how the drive for innovation has truly expanded beyond the confines of Silicon Valley and gone global. "There's a lot of hidden talent out there," says Kiran Trehan, the pro-vice-chancellor for partnerships and engagement at the university.

Chang's knack for strategic thinking and marshaling allies to his side is well suited to the next chapter in financial modernization. The fintech revolution of the last decade is largely done: Online banking and payment apps have been commoditized, and cloud computing has made starting a venture relatively affordable. The game now is all about forming creative business models, marketing, and partnerships, says Brad van Leeuwen, a digital payments entrepreneur and co-founder of Cledara Ltd., a cloud software company in London. In payments, a \$2 trillion global industry in annual revenue, the prize is titanic. "The biggest challenge in the payments space isn't the technology, it's building a critical mass of customers," Van Leeuwen says. "And the barriers to entry are no longer insurmountable—a 20-year-old can do it."

A gregarious sort who talks at warp speed, Chang has attracted a squad of influential mentors to his cause. In June, Hank Uberoi, a onetime senior executive in charge of technology at Goldman Sachs Group Inc., became KodyPay's chairman. As the former chief operating officer of Ken Griffin's hedge fund Citadel as well, Uberoi moves in finance's rarefied circles. He's connecting

"It was a school project, so we didn't think much of it, but then he started asking for money from family members, so I got scared"



Payment Powerhouses

A new generation of companies is rewiring how consumers pay for things online and in stores—and how businesses manage the data

	Alipay	Square	Adyen	Stripe	Klarna	IZettle
Home base	Shanghai	San Francisco	Amsterdam	San Francisco	Stockholm	Stockholm
Key innovation	Uses a payments app as a gateway into an alternative financial system offering lending, investing, and insurance services	Lets small businesses accept digital payments and helps them analyze inventory and sales data just like big companies	Provides merchants with an e-commerce platform to handle online, mobile, and in-store payments	Makes it easier for large and small companies to offer digital payment processing to their own customers	Enables online shoppers to defer payments for merchandise for 30 days	Produces card readers so shops, boutiques, food trucks, and other small businesses no longer have to rely on cash
Status	A unit of Ant Group	Listed	Listed	Private	Private	Acquired by PayPal
Valuation	\$315 billion*	\$80 billion†	\$58 billion†	\$36 billion	\$11 billion	\$2 billion

*Projected valuation of Ant Group when its initial public offering was suspended on Nov. 3. †As of Nov. 13 close.

Sources: CB Insights, Bloomberg, company reports

Chang to his network of ex-Goldman partners, old Citadel colleagues, entrepreneurs, and angel investors.

The young man talks to Uberoi several times a day as he negotiates with potential partners and prepares to release the app. Although Uberoi knows his protege may ultimately fail in his quest, he's happy to hop aboard for the ride.

"I've seen enough early-stage companies to know it takes 10 miracles to succeed," says Uberoi. "But when I first met Yoyo, I knew within the first 10 minutes I was going to invest with him. It was his energy level, his enthusiasm, his grasp of detail that impressed me. And the reality is that often experience is a hindrance rather than an advantage—you're constrained by what you think is not possible. Yoyo doesn't feel constrained."

What he does feel is pressure. Between assembling a board of directors, negotiating deals, raising working capital, and managing the rollout of the app, Chang's days are a blur of tasks and meetings. When he wakes up, he says, the first thing he thinks about is all the business problems he must solve that day. Then he's got his schoolwork, too. His university advisers fear their pupil will become so overwhelmed he'll drop out. As for a social life, Chang has no time to do what guys his age typically spend their time doing—hanging out with his friends on Discord or WhatsApp, playing sports, or even dating.

"I haven't seen my friends in months," Chang says. "Whenever they do want to meet, I just feel so guilty because I have so much stuff to do, and a lot of people are depending on me. I really didn't know what I was getting into—I just went for it. But looking back, I think doing KodyPay is one of the better decisions I've made in my lifetime. I have to have that kind of mindset. I can't *not* do it."

ON A RADIANT AUTUMN morning, Chang is taking a break from his labors, strolling with his parents on the Long Walk leading to Windsor Castle, one of Queen Elizabeth II's residences. Normally this tree-lined avenue would be filled with tourists. Today the Chang family and a few others have it to themselves.

The first thing you notice about Chang is his laugh—an air

burst of cheer that's inevitably followed by a tumble of words. He carries himself with the confidence of a young man who knows older people find him charming. There's a cheekiness, a bit of the born salesman in him, but he does the work, too. When he talks about his venture, you can sense the steeliness behind the pitch.

A polite, good-natured couple, Paul and Pauline seem to be both excited and wary about their son's ambition. There's little doubt they primed him for a life of overachievement. They started him on tennis lessons when he was 5 years old, then came piano, and though they spoke traditional Mandarin at home, they sent him to Taipei for a school year when he was 8 to make sure he could properly read and write the language as well.

Paul runs his own business exporting household goods to Taiwan, and Pauline is an operations manager at Aten U.K. Ltd., a Taiwanese information technology manufacturer with offices in nearby Slough. When Chang was 13, his mother started bringing him to work after school. The teenager did clerical jobs and data entry and answered the phones.

"I did it for three years," Chang deadpans. "They paid me in food."

Pauline smiles. "I showed him how the company worked," she says. "My boss said, 'When Yoyo finishes school, maybe he can join the company.'"

Chang hoots with laughter at the thought. "I might want to become a shareholder," he allows.

He attended Windsor Boys' School, which caters to academically gifted students, and was drawn to mathematics. For extra credit, he joined a couple of other pupils and took a crack at Goldbach's conjecture, a centuries-old number theory problem that remains unsolved. Impressed by the boy's intensity, Mark Curtis, his math teacher and a onetime bond trader in the City of London, introduced him to the stock market so he could see math in action.

Chang was delighted with the notion you could own shares in your favorite companies. He became the top stockpicker on his school's investing team. It didn't use actual cash, and before long he wanted to play the market for real, which took his mother aback. ►

“It was a school project, so we didn’t think much of it, but then he started asking for money from family members, so I got scared,” Pauline says. “I mean, how can I give my money to a teenager? We had some arguments at the time, but I trusted my son, and we did bring him here to have adventures. And I thought if he lost the money it would be a good lesson.”

At 16, Chang gathered £10,000 from his family and his own savings. After the newly elected Donald Trump vowed to spend \$1 trillion on infrastructure projects, Chang bet that commodities and mining stocks would jump. He plowed all of his cash into Glencore Plc, the Swiss natural resources giant, and was rewarded when its stock increased 13% in the first quarter of 2017. Having proved he knew what he was doing, he became the de facto chief investment officer for family members and friends. He wound up managing more than £150,000 on their behalf for the next couple of years.

Like any active shareholder, Chang wasn’t shy about quizzing the chief executive officers of his portfolio companies. He became a prolific chat correspondent with Tony Durrant, the head of Premier Oil Plc, a London-based exploration outfit that rallied from late 2016 through the third quarter of 2018. Similar to other market prodigies such as Ken Griffin, who traded convertible bonds when he was in college, Chang found financial freedom very early in life.

By the time he was preparing for his final exams in 2018, he’d built a six-digit nest egg and was considering a down payment on a house. Then one day he was rushing to get lunch in the school cafeteria when he got stuck in a long line at the cash register. Chang and his friends were frustrated they couldn’t just pay for their food using their phones. Taking it a step further, they didn’t understand why they couldn’t send a payment from their phones to the merchant like a text. Why does anyone have to queue at all in the age of the smartphone? “A store shouldn’t have to buy any hardware at all to process payments,” says Chang.

It was an interesting notion, but Chang wasn’t exactly in the vanguard of the fintech revolution. For the better part of a decade, a raft of startups and financial stalwarts had rewired the way we pay for things, do our banking, and transfer money around the world. Apple Pay had elbowed its way into the exclusive payment relationship banks and credit card companies had long enjoyed with their customers. With their own digital wallets, newcomers such as Venmo and Revolut were winning over millennials and Generation Z. Payment processing startups such as Amsterdam-based Adyen NV and Stockholm-based iZettle AB were well on their way to making inroads in the point-of-sale market in retail.

By the time Chang arrived on this crowded scene, it looked like the transformation of finance had already taken place.

CHANG WASN’T GOING to let the revolution carry on without him. He had his own angle as the world went increasingly cashless. When a consumer goes into a shop and buys, say, a pair of jeans, she can use a contactless debit card or a phone app or a watch and tap a terminal at checkout to pay for the item. The terminal sends the transaction data on a journey through the multilayered payments system, and eventually it reaches her bank, which automatically approves and debits her account accordingly. Chang wanted to eliminate the terminal.

In the summer of 2018 he set up KodyPay, the name inspired

by the dog of a girl Chang had a crush on. Chang invested £120,000 in establishing the business and beginning the process of building a prototype. In his model, the payment would beam straight from a shopper’s phone to the store’s phone, tablet, or laptop and then eventually on to her bank for settlement. That meant the customer would no longer have to wait for a cashier to complete the sale. On the way out, she’d show a security clerk her phone to verify payment and be on her way. As for the cost to the store, if it’s part of a chain of 20 or more outlets, it typically pays a transaction fee of 2.25%, and the company still has to purchase all the hardware to handle payments. Chang contends that if you eliminate the manufacture, installation, and maintenance of the machines, you can reduce annual costs as much as 65%.

Turning that idea into an application was the trick. So Chang pitched KodyPay to his faculty adviser, Peter Ball, and other university officials. The student broke down KodyPay’s proposition into simple economic terms for Jon Greenwood, the school’s director of commercial services. York had recently invested £350,000 in new tills and payment terminals in its retail outlets and cafes across campus. With the pandemic already sharply diminishing the use of cash, he was unhappy paying tens of thousands of pounds in processing charges every year as more of his students went cashless. “Yoyo rolled up and said we could do away with two-thirds of that cost,” Greenwood says. “That’s what got my attention.”

Greenwood gave KodyPay a spot in the university’s brand-new startup incubator program called Phase One. Chang also jacked into the school’s alumni network. Before long, he’d clicked with York grads John Holmes, the chairman of Hardman & Co., a U.K. investment research firm, and Chris Baker, a professional astronomical photographer and angel investor. Both men advised Chang on establishing a business and put him in touch with professional contacts.

Still, KodyPay wouldn’t amount to anything more than a PowerPoint deck unless Chang could build and commercialize the application. By the fall of 2019 he was still searching for a way to do that when he caught a break. Through Greenwood, he met Ron Argent.

During a 31-year career at IBM, Argent helped design, build, and sell information technology systems to global banks, government departments, and other major organizations. In 2015 he set up Cognition Foundry, a kind of digital lab that took equity stakes in startups in exchange for developing their technology. It also acts as a talent spotter for its spotter, IBM. In the fall of 2019, Argent met with Chang and a couple of colleagues in a cafe on the south bank of the Thames in London.

Listening to Chang, Argent saw straightaway that KodyPay wasn’t doing anything groundbreaking in terms of the technology itself. He’d already seen similar device-to-device payment systems at work in China. What he did like was Chang’s plan to take terminals out of the equation. Argent could see the immediate financial benefits. “Yoyo was talking about a very scalable idea and one that fits in nicely with IBM’s initiatives in fintech,” he says. “What really grabbed my attention was Yoyo himself. I talk to a lot of people with innovative ideas, but the idea isn’t enough—you need a special type of person to turn that idea into something real. I thought Yoyo had the potential, and we could help him.”

By the spring of 2020, Cognition Foundry agreed to build KodyPay’s platform in exchange for a 5% equity stake in the startup.

Argent assembled a squad of six to eight software developers in Bulgaria to write the code. He also briefed members of IBM's senior management team on the venture, as well as its worldwide sales unit. In October, Tom Rosamilia, senior vice president of IBM Systems in North America, interviewed Chang as part of a virtual technology conference for several thousand customers.

Meanwhile, Chang formed a partnership with Cybersource, a company owned by Visa that produces payment processing and security software. In August he closed his first fundraising round with investments from a wealthy Taiwanese family, angel investors, and Uberoi, the former Goldman partner.

From 2012 to 2018, Uberoi was the chairman and CEO of Earthport Enterprises Ltd., a London-based company that executed cross-border payments for dozens of financial companies worldwide. He's helping Chang navigate the convoluted digital payments system and negotiate with powerful players in the industry. At the top of the list is Alipay, the Shanghai-based mobile payment platform owned by Jack Ma's Ant Financial group. Alipay, now rolling out its services in Europe, caters to Chinese nationals abroad. As it happens, there are more than 2,200 Chinese students at the University of York.

EVEN AS CHANG and KodyPay made strides, his parents and teachers worried about his other project—finishing school. He has long flirted with the idea of quitting university to concentrate on his startup, and it hadn't gone unnoticed that his heroes Steve Jobs and Mark Zuckerberg didn't complete their degrees. Peter Ball, a business professor and Chang's faculty adviser, was one of the first champions of KodyPay at the school, and he's used the beta version of the app to buy fudge and mince pies for a meeting. But he's kept a close eye on his student.

"I do nag him, but I think you have to," Ball says. "I get the feeling he works on his business during the weekdays, and he squeezes his studies in on the weekends and whenever he can. I have said to him a couple of times, 'I want to see you really successful, and KodyPay would be wonderful, but we also have a duty to your degree, and it's essential to complete your studies.'"

Chang, who's earning the rough equivalent of an A- so far, says he's committed to finishing school, and, oddly, the pandemic has made that easier because he doesn't have to physically be on campus and can study and take his final exams online. His parents want him to go for a master's degree in finance, and he likes the idea of pursuing that in the U.S. But these plans may be upended by his continuing education in KodyPay.

With the University of York set to demonstrate KodyPay's capabilities once students return to campus en masse, Uberoi and Chang are now putting out feelers as they look toward raising capital in a Series A round. It's a big step, choosing investment partners at such a formative stage. Chang, with Uberoi's help, will be courting venture capitalists right as his baby goes out into the world. He'll be doing so just as the pandemic is undermining in-store shopping during a tough winter.

For all the hopes and dealmaking and sheer toil that have gone into KodyPay, the reality is it may turn out to be just another payments app in a sea of apps. The fintech scene is littered with once-promising failures—in 2019 the U.K. payments player Ipagoo went into administration, as did Loot, a digital banking

play backed by NatWest Group. Even Monzo Bank Ltd., the onetime darling of London's fintech hub, is hurting. In July the digital bank reported a loss of £113 million in the fiscal year ended Feb. 29 and warned that the pandemic's impact on revenue, among other challenges, was casting "significant doubt" on the company's ability to continue as a going concern. Even with a first-rate strategy and whiz-bang app, it can be hard to get consumers to change their spending behavior, says Van Leeuwen, the payments entrepreneur. "Before you get usage of your product, you have to build acceptance," he says.



Chang at Windsor Castle

The future of finance will be written by very few authors. Chang is philosophical about the possibility that he won't be one of them if his venture fizzles, as deflating as that might seem. After all, he's only 20.

"I can afford to make mistakes," he says. "In fact, they're not mistakes when you're this young, they're learning experiences. So it doesn't matter. I don't have to worry about the future. I just have to worry about the journey." ●

Robinson covers wealth from London.

Opening Up

China's entry into the WTO upended global manufacturing. Now it's poised to disrupt the financial system—and the consequences could be just as dramatic and surprising





By CHRIS ANSTEY and ENDA CURRAN

ILLUSTRATION BY SIJA HONG

CHINA'S 2001 ENTRY into the World Trade Organization transformed the global economic order. Yet even as China became the factory to the world, its financial system remained a closed shop, with strict controls on the flow of money in and out. For years there's been talk of a "two-way opening," but slow progress. Now the admission of foreign investors into China's \$15 trillion bond market—cemented this year when the country rounded out its inclusion in all three of the top global indexes—may just mark the big bang equivalent to WTO entry.

Global pension funds, starved for yield in a low-growth world, will now have access to safe government debt that pays more than 3%. And if officials deliver on their pledges to open up, reinforced in the Communist leadership's 2021-25 five-year plan outlined in October, Chinese investors may soon find it a lot easier to snap up shares in Apple, Starbucks, or Tesla—not just their phones, cappuccinos, and cars. The Chinese could join their government, which has long been a major buyer of overseas assets such as Treasuries, as a powerful source of funding.

"China will turn from an exporter of goods to an exporter of capital, with significant consequences, of course, for the world," says Stephen Jen, who runs Eurizon SLJ Capital, a hedge fund and advisory firm in London.

But what will the consequences be? Major changes to the financial system in the past have produced some unfortunate results. The euro's 1999 introduction sowed the seeds for the region's debt crisis a decade later. A wave of overseas savings that poured into the U.S. during the 2000s helped trigger the mortgage boom that catastrophically burst in 2007-08. *Bloomberg Markets* gathered views on how the opening might affect the future of global finance in the years ahead. Here are some of the themes that emerged.

Chinese Savers Go Global

Jen, who started his career at Morgan Stanley covering the impact of the Asian financial crisis on the foreign exchange market, sees China's capital market opening as the biggest structural change to international finance since the launch of the euro.

Sustained inflows of foreign capital could make Beijing comfortable about loosening the controls that have bottled up domestic money in China for so long. Indeed, it would probably have to; otherwise the yuan would strengthen, eroding the country's export competitiveness. That would let loose a wave of Chinese savings on the world—Jen estimates there's as much as \$5 trillion of pent-up Chinese demand for investments outside China. That could resemble the petrodollars that flowed from oil-exporting countries in the 1970s, which ended up financing a huge, and tragically unsustainable, borrowing spree by Latin American nations.

"Outflows will probably be offset by the inflows for a few more years," Jen says of China. Petrodollar-like net outflows might take a few more years to materialize, "but that is definitely a scenario we will need to deal with," he says.

A Slice of the Action

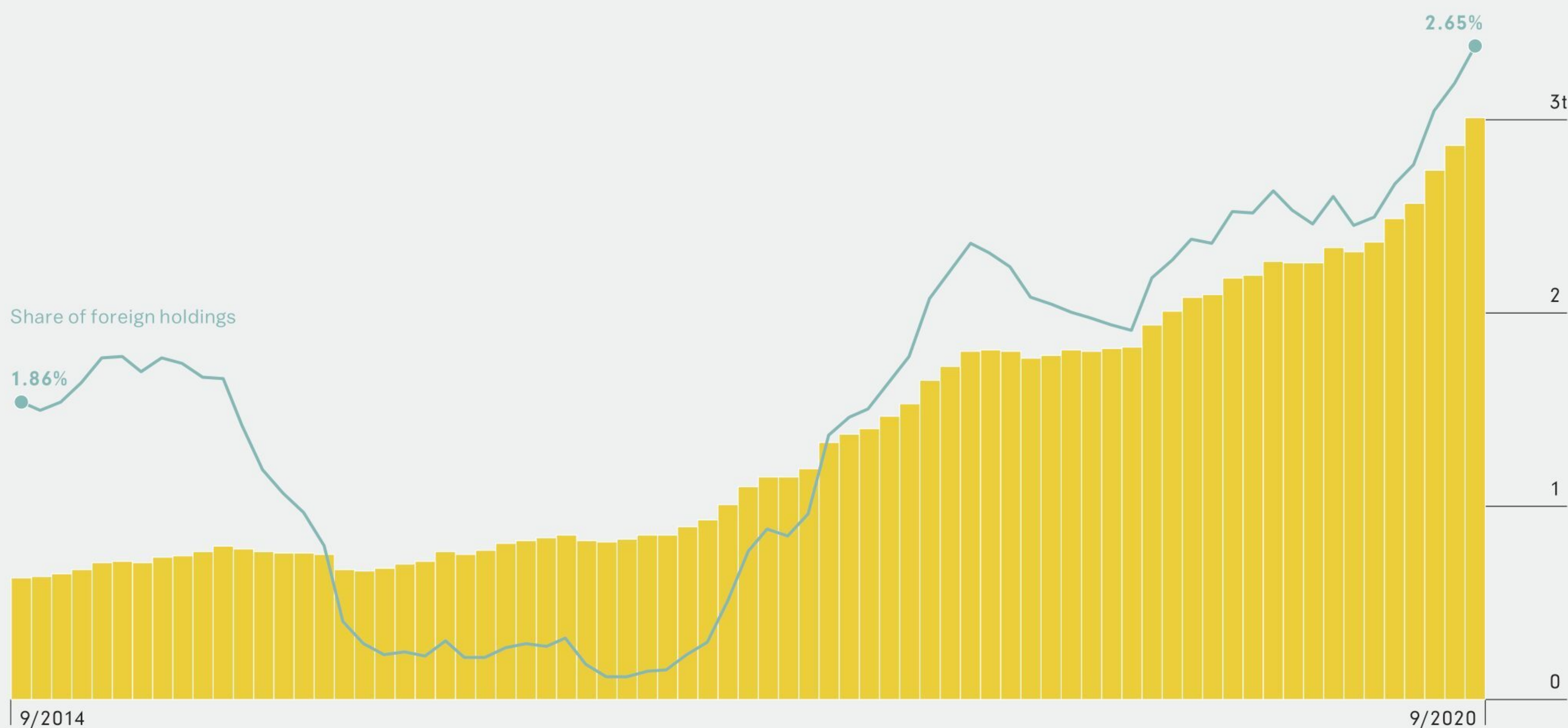
To gain exposure to China's rapid economic expansion, global investors generally have had to buy proxy assets such as the Australian dollar, commodities, or a small range of Hong Kong-listed Chinese shares. China's bond market opening gives them direct exposure. It also provides an alternative to Japanese government bonds and other low- or negative-yielding sovereign debt, says Ed Al-Hussainy, a senior analyst for global rates at Columbia Threadneedle in New York, which had \$476 billion under management in October and has been stepping into the China market recently.

"The demand is off the charts for anything liquid with a little bit of pickup in yield over Treasuries," he says. "People are willing to pay up for liquidity, and that's the key thing that's improving in the Chinese onshore market. So inevitably we'll be pushed in that direction."

China's central government bonds are now included, or on a phased path to inclusion, in the three key international bond indexes that investors use as benchmarks compiled by FTSE Russell, JPMorgan Chase, and Bloomberg Barclays (part of Bloomberg LP, the owner of *Bloomberg Markets*). About \$5.3 trillion in assets tracks these indexes, according to estimates from Goldman Sachs Group Inc. Passive index-tracking funds will need to buy Chinese bonds to match the benchmarks. Some active managers, concerned about transaction costs, may steer clear; others are likely to overweight China because of the attractive yields.

Record Holdings

Value of onshore yuan bonds held by overseas entities, in yuan



Sources: The People's Bank of China, {CNFBFINN <Index>}, {CNDDTTOA <Index>}

Flow on Effect

China's bond yields look more like those of emerging markets—in the FTSE World Government Bond Index benchmark they will be second highest after Mexico's—yet investors will probably view them as developed-market securities, Goldman analysts say. After pulling in \$230 billion from foreign investors to its fixed-income market in the past five years, China will see about \$770 billion more in the next five, Goldman analysts including Kenneth Ho estimated in October.

Market players don't expect the resulting shifts in asset allocation to increase bond yields much elsewhere—but the money will need to come from somewhere. Overseas investors held almost 13% of Japanese government bonds and more than 30% of Treasuries at the end of June. About one-quarter of euro region government bonds are held by investors outside the currency union, according to estimates from Commerzbank AG.

“We have a huge overhang of JGBs and European bonds—and a lot of that is dead weight,” says Columbia Threadneedle's Al-Hussainy.

Competitor for Capital

Washington, in particular, could find itself competing with Beijing for overseas capital. China's current account is barely positive relative to the size of its economy, even with its large trade surpluses with the U.S. It runs vast deficits in the trade of services, and some economists predict it will in the future run current-account deficits. If that happens, China would need to pull in money from abroad, just as the U.S. has for decades.

“China could enter structural current-account deficits, which will force it to open the market and import capital from abroad,” says Aidan Yao, a senior economist at AXA Investment Managers in Hong Kong who previously worked for the Hong Kong Monetary Authority. With China and the U.S.—sometimes referred to as the G2—both competing for savings, “either the rest of the world has to step up savings to finance G2's shortfalls, or G2 will have to adjust themselves,” Yao says.

Competition could be all the fiercer if Washington expands on moves in 2020 to reduce Chinese borrowers' access to American capital. Lawmakers from the Republican and Democratic parties have both proposed rules that would make it tougher for China's companies to issue stock in the U.S., for example.

“The harder the U.S. tries to isolate China, the more efforts China should make in opening up,” says Yao Wei, chief China economist at Société Générale SA in Paris. “Allowing in more foreign investments will further deepen China's integration into global financial markets, which will make decoupling more difficult.”

Better Credit Allocation and Transparency

Chinese regulators hope that opening their bond market will improve how credit gets allocated. The nation's Communist leadership has sought to transition the economy to a more market-based system in which investors and credit analysts price funding for different borrowers according to their risk. Policymakers hope that will stem the buildup of stressed and defaulting loans, reduce excess capacity, and result in more productive investment.

That helps explain why the People's Bank of China and other regulators worked so hard to win acceptance into the benchmark bond indexes. That approval required addressing a wide variety of complaints about the local market, such as the excessive paperwork required from foreigners and the slow pace of trade completion. Regulators also provided more hedging options, and the government boosted the size of individual bonds to increase their liquidity. After a messy 2015 yuan devaluation, the PBOC has also tried to reassure overseas investors by conducting exchange rate management with greater transparency and stability.

The Chinese Communist Party's five-year plan, outlined in October, recommitted to opening up. Han Wenxiu, a senior official involved in drafting the plan, said at a briefing that "China will see the scale of foreign trade, foreign capital utilization, and outbound investment continue to expand." PBOC Governor Yi Gang has also highlighted the value of financial opening, saying it improves efficiency and aids higher-quality economic development.

"Foreign institutions can be a source of fresh blood that can introduce innovative and mature ways of doing business to the local market, which has long been dominated by Chinese banks and brokerages," says Becky Liu, head of China macro strategy at Standard Chartered Plc.

Unintended Consequences

There's always a risk that things won't go as planned. For instance, what if, instead of disciplining the Chinese fixed-income market, the opening gave China's riskiest borrowers even cheaper credit?

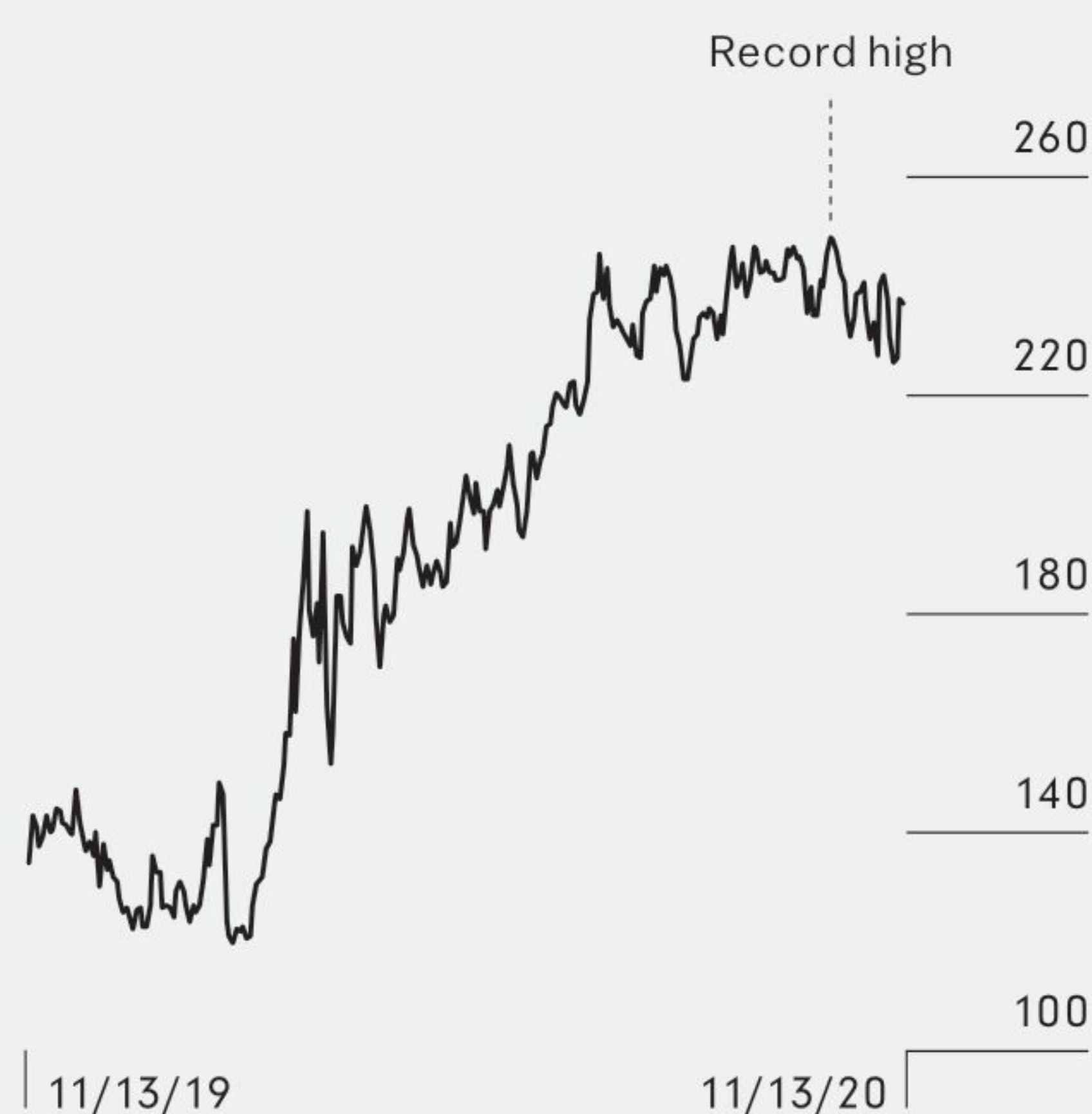
Here's how that might happen: Foreign investors stick primarily to buying bonds sold by the central government and three state-owned lenders known as policy banks that are closely associated with government objectives. As of mid-2020, overseas managers held 8.5% of central government bonds, up from just 2.4% in February 2016. By contrast, their share of corporate bonds, at 0.7%, was barely changed from 0.6%, Goldman analysts estimated.

"The authorities may end up with domestic investors who are being crowded out of the government bond market," says Michael Spencer, chief Asia-Pacific economist at Deutsche Bank AG in Hong Kong. "By pushing down yields on the risk-free assets, these foreign inflows may be forcing the Chinese investors even further out the credit curve. So if you think they are not very good to begin with in pricing credit, then these inflows actually may be making that problem worse."

Spreads across China's domestic corporate debt market are less differentiated than in the U.S. bond market. Top-grade corporate bonds yielded about 70 basis points, or 0.70 percentage point, more than China's government bonds in late October. High-yield securities had rates 329 basis points higher, according to the ChinaBond platform. By contrast, investment-grade U.S. corporate spreads were at 123 basis points over Treasuries and junk bonds had a 488 basis-point premium.

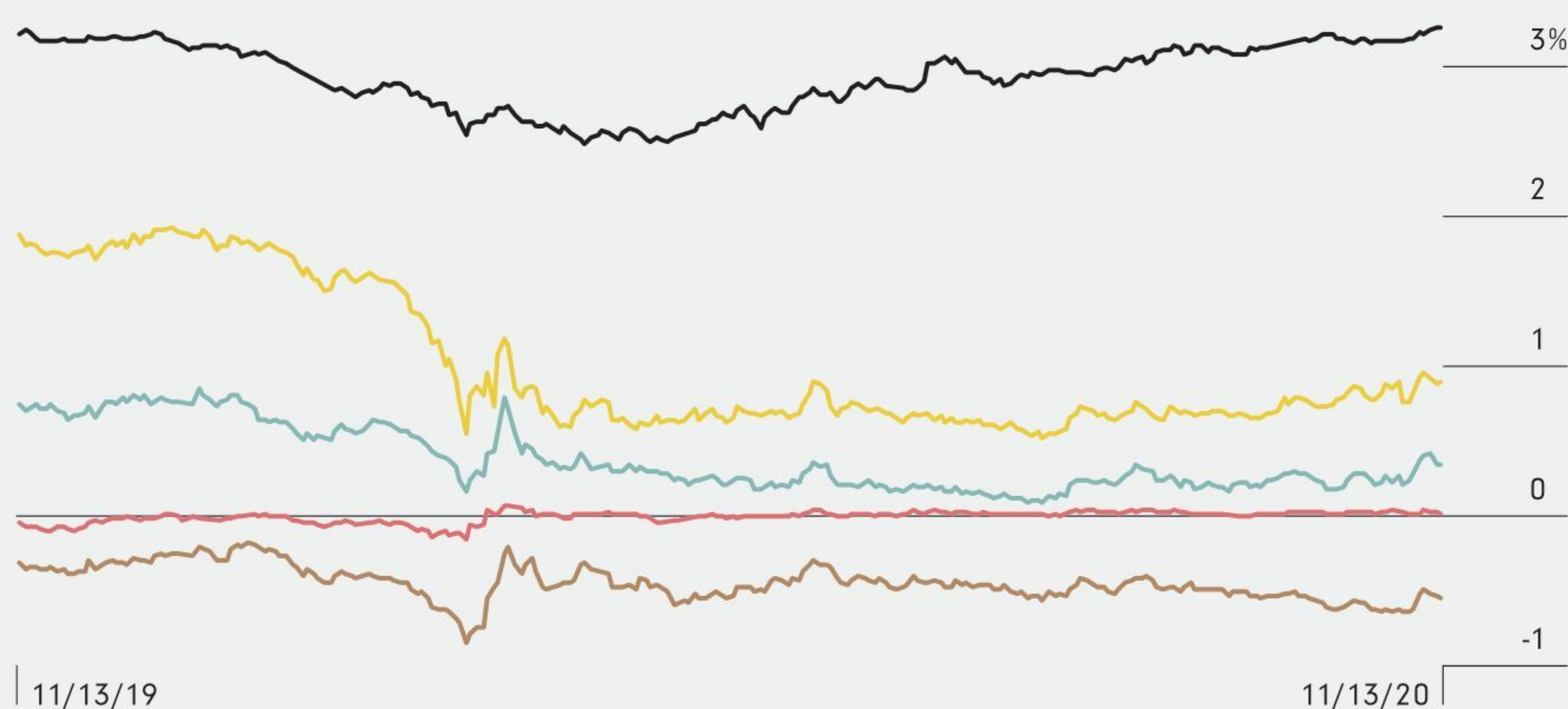
A Class by Itself

China-U.S. 10-year yield spread, in basis points



10-year government bond yield

China U.S. U.K. Japan Germany



Sources: {USCH10 G <Index>}, {GTCNY10YR <Corp>}, {USGG10YR <Index>}, {GUKG10 <Index>}, {GJGB10 <Index>}, {GDBR10 <Index>}

“The authorities may end up with domestic investors who are being crowded out of the government bond market”



Losing Control

The more open the market is, the more difficult it will be for Chinese policymakers to maintain their grip on interest and exchange rates. Moves that drive up yields—such as monetary tightening to control inflation—could spur a wave of inflows that sends the currency climbing, making exports less competitive. Similarly, measures that undermine the confidence of overseas investors could prompt a destabilizing exodus.

China’s policymakers are cautious and patient. That helps explain why they kept the financial system cordoned off even as they opened the economy in myriad other ways starting in the late 1970s. They welcomed investment in manufacturing, but portfolio inflows were another matter. After all, emerging-market crises in the 1980s and 1990s showcased the danger of “hot money” that can quickly exit a country, causing wrenching financial turmoil.

“With an open financial market with easier inflow and outflow, the Chinese government and central bank will have to be more cautious managing those funding costs and interest rates,” says Lu Ting, chief China economist at Nomura Holdings Inc. in Hong Kong. “And of course, it will make it more challenging to manage the exchange rate.”

China might need to reestablish controls and limits if the financial market opening spurs excessive volatility. Authorities in recent years have managed swings in the currency by introducing or removing curbs on the foreign exchange market. So while China’s policymaking elite seemingly agree on the benefits of opening, the process is likely to be a stop-start one.

Pros Outnumber Cons

China wants and needs overseas capital to fund its growth and promote the global use of its currency, which remains a bit player in international transactions. The country’s growth rate has steadily decelerated in recent years, even before the pandemic, and the era of outsize current-account surpluses is over. With an aging and shrinking labor force, China risks falling into the “middle-income trap”—stagnating before it reaches rich-world levels of development. Improved financial transparency, a diverse funding mix, and more productive investment will be key to ensuring that doesn’t happen.

For the rest of the world, China’s financial integration will bring unpredictable change, just as the country’s entry into the global trading system did. Its giant labor force made goods more affordable around the world, improving the lives of millions. But it also hollowed out manufacturing towns from Michigan to northern England, imposing social costs with political consequences that are still playing out. Similarly, the coming shift of trillions of dollars of capital across borders seems likely to create winners and losers around the globe. ●

—*With Tian Chen and Katherine Greifeld*

Anstey is a senior editor in Boston, and Curran is chief Asia economics correspondent in Hong Kong.

“I’ve Had to Think

By JENNY SURANE

PHOTOGRAPHS BY CELESTE SLOMAN

Differently”

IN SEPTEMBER, Jane Fraser shattered the financial industry’s ultimate glass ceiling when she was named the next chief executive officer of Citigroup Inc., one of the world’s three most important banks. Weeks later, she was saddled with regulatory homework by the U.S. Federal Reserve and the Office of the Comptroller of the Currency, which said the bank must update its technology and systems to better manage risk. ¶ Born in Scotland, the 53-year-old Fraser comes to the job with a gold-plated résumé: degrees from Cambridge and Harvard and career stops at Goldman Sachs Group Inc. and McKinsey & Co. before she joined Citigroup in 2004. There she served under three CEOs as the New York-based megabank grappled with losses, bailouts, and strategic repositioning during the Great Recession and its aftermath. She helped as the company disposed of almost half of its assets and cut tens of thousands of jobs, an experience she says will guide her in managing future challenges. ¶ As she prepares to take over in February, Fraser says she is planning to invest in some of the bank’s largest businesses, including its sprawling custody network and its burgeoning wealth management effort. In mid-November, as Covid-19 cases were spreading rapidly, she spoke with *Bloomberg Markets* via videoconference from her office in New York about her career and her thoughts on the future of finance. ▶



JENNY SURANE: To start, I'm very curious what it's been like to experience this huge career change at a crazy time like this. It's probably not what you were expecting.

JANE FRASER: It is an interesting time because I think Covid has changed quite a few things. It has certainly accelerated digitization. It's changed the structures of our clients' industries. It's changing our own industry faster than we thought would happen. So you're trying to bring a fresh perspective to what the firm will be focused on in terms of strategy, but also thinking about our people, thinking about the macro environment, those other dimensions. It's sort of been a confluence of good timing to think all of those things through.

But I also think it's been quite a divisive period. We're certainly worried there's a bit of a K-shaped recovery coming out of Covid. Banks are going to play a very important role in helping to drive the recovery. We do anticipate it to be quite sluggish. We're certainly seeing it in consumer [banking]: You've got the "haves" and you've got those who are really struggling. I think it goes to that sense of, what are the values of the industry? How do we make sure we're part of the solution? Not just from the financial market perspective. I think we all learned many lessons out of the last crisis about what a bank really is and [the role it] needs to play.

So it's digital. It's about humanity. There's obviously the ESG [environmental, social, and governance] agenda, but in a real way—not a plaque on the wall or just nice statements. And Mike [Citigroup CEO Michael Corbat] has given me a huge gift in terms of a good time of transition. He's been a leader of such integrity in the bank. His legacy is going to be thought of in [terms of] where we were coming out of the crisis to where we are today—it has been pretty remarkable. Big shoes to fill. The apprenticeship I have had with him over the last couple of months and going forward has been very helpful because it means it's not such a jolting transition for the firm.

JS: I was hoping we could also go way back and talk about your

**“I learned to be much bolder.
And if you make a wrong decision,
you make another decision”**



upbringing in Scotland. You're only the second Citi CEO born outside the U.S. after Vikram Pandit, who was born in India. Does that give you a different perspective?

JF: We're a very global bank. We're firmly American, but we're also very global. I actively chose to come and live in the States. But on the other hand, I come with the perspective of someone who's lived all over the world and who's seen the good, the bad, and the ugly around that.

I don't think it makes a huge difference for Citi because a lot of the people's careers in Citi have been in different businesses all around the world. I look at the management team and, you know, it's a veritable United Nations. It is more of a global mindset. Globalization has had a bad rap of late. But there's good and bad in everything. The global mindset is a positive one because it does make you not just think you've got a monopoly on the best way of doing things. You do tend to be very curious about how things are being done in other places. And that's a lot of the mindset in the firm, and it's a great one.

JS: Could you take me back to why you decided to join Citi in 2004 from McKinsey?

JF: Yeah, I think there were a couple of things. When I became partner at McKinsey, I worked part time all the years of my partnership. The kids were little, and my husband was sort of at the peak hard work part of his career as well. He's 11 years older than me, as I like to remind him constantly. He says it makes him more wise. At that point [in 2004], the kids were at school, they were settled, and I was ready to go back full time. I loved McKinsey, but I was ready to not just advise but to actually do. I wanted to see if I could actually do rather than just write the presentation.

And what I loved about Citi is the globality of the place. It was similar to McKinsey—that global mindset of people from all over the world with different points of view and complicated, fascinating opportunities and issues to solve for clients.

It is a company that really helped companies and individuals to grow globally and to access global markets. What's truly unique about the firm is that it doesn't just do so out of global hubs, that it does so locally as well and really has an impact on the ground.

And I see it on different dimensions. We've given micro-finance [loans] now to 3 million women around the world. It's happening at the grassroots level in countries all over the world, and it's not a number you hear as often, but it's a huge number. If you're going to enable progress, a lot of this happens at a community level and at the local level. And I love the fact that we're able to do both. Do the big global impacts, but also have the impact locally. It's a bit quieter, but it's often more impactful in some ways.

JS: Are there key moments from your career that you think really prepared you for this next role?

JF: Yeah, I think a lot of the time during the [financial] crisis. I had been working on [then-Chief Financial Officer] Gary Crittenden's team with [current CFO] Mark Mason, Sara Wechter, who's head of HR. There was a group of us who were part of that real crisis where we thought the system was going down. We were all in the corporate center, trying to set the strategy and help lead the firm through this. And there were several seminal moments.

I'd say one was with Vikram. We were sitting in one of the big conference rooms up at the old head office and Vikram's there, and over the Sharpie and the whiteboard we just fully recognized that the firm had failed in many of the core missions. We'd

forgotten to be a bank. We were sitting there saying, “OK, but there are some extraordinary things in the bank itself, assets and businesses.” And he basically said, “So if you’re starting from scratch, what would you pull from Citi?” And it was how we separated Citi from Citi Holdings [the unit that contained assets the bank no longer wanted].

And we started with the customer base—the multinationals—and said that’s what everyone wants from Citi. It’s a systemically valuable network that provides cash management, foreign exchange, trade, lending. That platform and that network globally would be almost impossible to replicate. And we basically built out what the firm was from there, and therefore what went into Holdings. And what went into Holdings, it was pretty bold: 48% of the assets of the bank at the time, 100,000 employees. It was a lot of businesses, some of which were really troubled from the financial crisis, but others that were just great businesses that didn’t really fit with his vision of what the firm was.

That’s something I try to bring every time: to mortgages, to the private bank when I ran it, to Latin America and Citibanamex [Citi’s Mexican bank]. You start with: What’s the vision of the future? What’s that growth, return, client story going to be? And then you go and solve for the rest. That really shaped me.

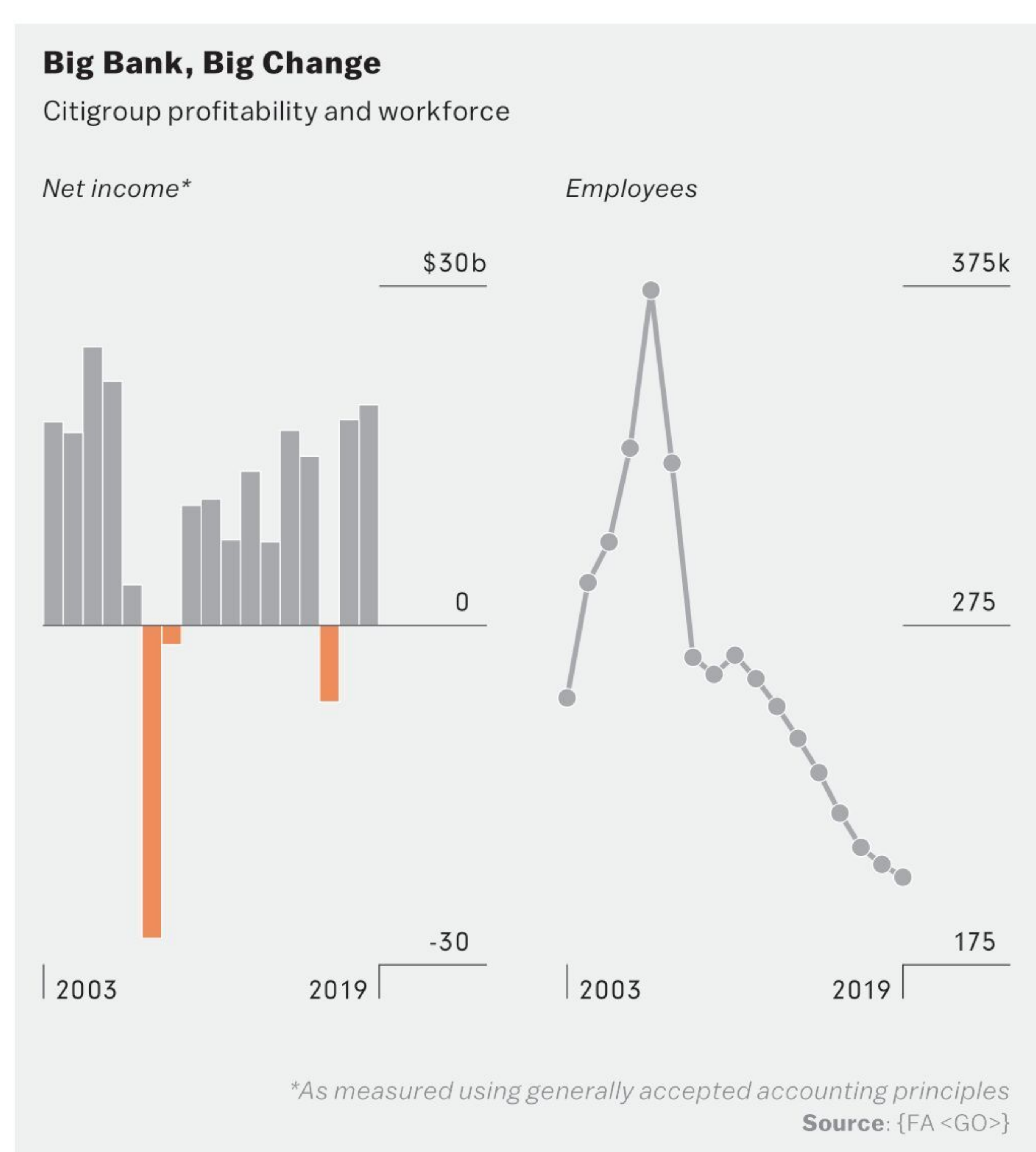
And I think the other piece that shaped me was just being bold, being courageous. You had to be very decisive, you had to take tough decisions, much better to take them early. If we hadn’t sold our German consumer franchise, if we hadn’t sold our big commercial real estate business—there were a lot of different businesses that we exited in 2007 and in early 2008, thank goodness, because when the crisis really hit, we would have had a much tougher time. So I learned to be much bolder. And if you make a wrong decision, you make another decision. Those were really the two things: What’s the vision? And be bold. Take those tough decisions. Gumption. I’m trying to bring the same values and thinking to the firm going forward.

JS: When I look at your path through the bank, there are a lot of recent stops on the consumer banking side. Does your elevation to CEO tell us anything about where Citi is looking for growth?

JF: Actually, I spent most of my career at Citi and before on the wholesale side. My first three years at Citi were in the investment and the corporate bank, and then corporate center, and then the private bank was in the institutional division. And so it was only in mortgages and then the retail bank that was my first time in consumer. And then in Latin America we sold our [retail] franchises in South America. And there we were really running a big institutional franchise, although obviously Citibanamex is much more retail. So I have actually had more of a wholesale and institutional focus. The same when I was at McKinsey. I’ve enjoyed learning more about the consumer franchise.

Look at the payments space going forward. I saw this in Latin America and a lot of geographies as we were digitizing the wholesale clients. Take [Argentina’s state-run] YPF, one of the big oil companies. We were digitizing their payment system from the gas pump all the way to the treasury. But we were starting to bring some of our know-how from the consumer side into that because wholesale and retail payments are converging.

So, having been involved in both sides of the business, you start seeing where the points of connectivity are as we look at how digitization is changing. I’ve benefited by working in different



regions of the world and in different parts of the business.

When I first moved into mortgages, I knew nothing about mortgages. So one of the pieces I certainly learned is that you have to get a team around you who knows more than you do, and who are stronger subject matter experts, and then get them to work well and flourish together. I now have the confidence to do that, otherwise you’re not going to succeed.

JS: I did want to drill down into your experience in Latin America because that was the role you held the longest and that you had before you were named president and put on this path to becoming the next CEO. Did that step feel like a career risk, or was it more strategic? You flew under the radar there for a little while.

JF: One of the best pieces of advice I ever got was, don’t think about what are the jobs that will get you to the more senior job. Think about the experiences and the roles that will make sure that once you’re in something [bigger], you’ll be much more successful at it. When I went from the private bank to mortgages, a lot of folks were questioning why. But it was because it gave me exposure to different risks. I hadn’t managed unsecured risk before. I hadn’t had a lot of experience running an organization more focused around ops [operations] and tech. I hadn’t had a lot of regulatory experience and working with [Capitol] Hill or with the board and getting exposure there.

And then obviously emerging markets in Latin America. When I was down in LatAm [from 2015-19], we had the Venezuelan crisis. Negotiating with the government there was not easy. [We were] making sure our people were safe. We’d been in Venezuela a century, and a lot of multinationals depended on Citi’s presence there. We worked through the crisis in Argentina, which was a major financial crisis. We had the Brazilian depression—they had the worst economic conditions in a century.

But a lot of the time in Mexico was [figuring out] how to take what was an iconic bank, but one that was challenged, and bring ►

it into a much more modern era, a more modern culture, and rein-still the pride and the purpose behind the work. It's a similar approach to the work we're doing now in response to the [U.S. regulators'] consent orders. What's the vision of the bank? What's this much more modern bank? And galvanizing the organization around the transformation agenda rather than just remediating issues in the order. We have a lot of support from the regulators and the board around that.

JS: What are you learning from the work you're doing so far?

JF: One of the things has been "phone a friend." I was on the phone talking to [CEO] Brian Moynihan at Bank of America and talking to [consumer lending division CEO] Marianne Lake over at JPMorgan. They've gone through similar transformations. When it comes to safety and soundness and these issues—we'll be die-hard competitors on a deal or a pitch—but when something's good for the whole financial system, there's a more noble purpose in there. Talking to them has been very helpful. And having [chief administrative officer] Karen Peetz, who's had experience from outside [as president of BNY Mellon Corp. and a board member at Wells Fargo & Co.].

The investments we need to make to satisfy the orders, we're putting a world-class bar against them so that we're actually really modernizing them for a digital era and that post-Covid world where all of those industry structures would have changed. So a lot of work on end-to-end business processes, a lot of cultural work as well. We just talk about excellence and how to make sure that we've got excellence in what we do for clients and what we do operationally and what we do from a risk and control perspective. And that's a good bar. But it's also one that feels in tune with the age where you get rid of the bling and just focus on the basics and make sure they're really strong and make people proud. That's the goal.

JS: Competitors admire Citigroup's treasury and trade solutions network and your branch-light consumer model in the U.S. What other parts of Citi do you think deserve more attention?

JF: I think wealth [management] is certainly an area that Paco [Ybarra, CEO of the institutional clients group] and I have been looking at very closely. We look at Asia with Peter Babej, who's our partner [and CEO of Citi business] out in Asia, we look at the growth in wealth that's out there. Citi does have an iconic brand, an aspirational brand in Asia. The consumer franchises, particularly in Singapore and Hong Kong—a lot of that's been around a wealth proposition.

We have our commercial bank around the world, which really helps entrepreneurs. There are \$100 million companies in revenues today who will often be thinking in multiple geographies. So they need our platform and our network on cash management, foreign exchange, etc., to do that. So we help them. That's often where the source of a lot of the wealth is being created—in those commercial bank relationships as well as the institutional division. We've got a really superb high-end private bank. So as we look at wealth, we see this as an opportunity to bring the consumer and the institutional business together in this space over the next few years. That's an area that we think is underappreciated. It fits with the brand, with the history, with our strategic identity as a bank. So it's one you'll hear more from us on going forward.

Security services is another area. I saw that in Latin America. Our custody network was extraordinary there, and many of our competitors used our network around the world. It's another

underappreciated piece that we'll be investing significantly in. Paco and the team have a great strategy there.

The same again in payments, as we see wholesale and retail coming together. That B2B2C [business-to-business-to-consumer] space is a pretty interesting one for us.

JS: It's interesting how much wholesale banking has been influenced by the personal experiences of bankers and clients.

JF: The discussion we've been having is how spaces are changing and a lot of the linkages between different parts of the firm. Ironically, Covid helps. I certainly imagine everyone back in [the

**“I've been very fortunate
to be the first, but I'm going to be
the first of many”**



office]. I do think from a cultural point of view—apprenticeship, the sense of belonging—you are better together. But we've certainly learned that you can have a lot of collaboration on Zoom calls and the like. We've had to think differently because of Covid. You never thought you could have 20 traders running the trading floor in New York, with everyone else working from home. That was inconceivable in January. And yet, a few months later, that's where we were. It's really helped everyone think about businesses and where opportunities lie and industry structures. It really got accelerated. I know I've had to think differently.

JS: Who were your most important mentors along the way?

JF: Let's start with Mike, because he's had the most impact and certainly from him [I learned] what the bank stands for. He's certainly taken tough decisions on getting comfortable with the uncomfortable in diversity, the pay gap, and [he's chosen to be] radically transparent around that. He's been a CEO who has huge ambitions for the bank but doesn't have his own personal ego in there. And I think that's very admirable. He will do whatever the bank needs him to do in the role.

And then from Vikram, you know, he would often bring the



trader's mindset. There were no favored children. It was that clinical, fact-based, objective decision-making on things. And he was brilliant around that. And that courage I learned, certainly. And God forbid with Vikram, if you went into his room without your HP-12C [calculator] of the day, because he could do the math in his head.

At McKinsey, Lowell Bryan was a fantastic mentor. He ran the financial institutions group there, and I worked with him. He was someone who really pushed me out of my comfort zone all the time. I've often said I wanted to be 120% prepared for everything,

but that doesn't push you to take more chances. When you do get pushed and you take those big leaps, that's when you learn the most. And when you fail at something or you don't do as good a job as you could have done, get comfortable picking yourself up and learning from it. That's one of the things I like about the States. I wanted to bring my kids to the States for that reason. It's that, OK, that didn't go as well, pick yourself up and get on with it and go get 'em. I love that about this country.

JS: When you were named CEO, there was a huge outpouring of support from all over the banking industry and beyond. Were there any reactions that stood out to you as particularly important or meaningful?

JF: I loved the dads who were saying it was their daughter or even their sisters or wives, but particularly their daughters, that had texted them or talked about it. And, you know, I'm a working mom. I've had a phenomenally supportive husband, a very patient man, and great kids. But, nonetheless, I'm a working mom. And that just shows it's doable without being superwoman. You can be yourself. And I think that's something that is so important.

There are so many amazing women in financial services. They're a really impressive group and a supportive group. All of us have great male mentors and supporters. I've been very fortunate to be the first, but I'm going to be the first of many.

[General Motors Co. CEO] Mary Barra has been super and gave me some fabulous advice. [U.S. Chairman] Tim Ryan over at PwC has been giving me some coaching sessions on weekends. And it's not just because I'm a woman. There's a bit of a sense of let's help you along here, which is a great spirit. I think it makes you feel positive about capitalism, that it's not just about profits.

JS: To wrap up, I'd love to hear about the moment you are proudest of in your career.

JF: One I really loved was when we put in place the QR code system for payments in Mexico. This started as Ernesto Torres Cantú, who was our Mexico head at the time, saying there's a lot of people here who have been left behind, are not part of the banking system, and are really disadvantaged. We'd looked at India and seen from our partner there—Paytm and others—how quickly a QR code-based system [can take effect]. It doesn't need to be that smart of a phone that is in everybody's hands. And in the previous few years everyone had got a mobile phone in Mexico, but they didn't all have a bank account. Working with the central bank in Mexico and then getting the other banks on board, we put in a national payment system that worked on the bank rails. It was therefore well-regulated. It would be fair. And transparent and equitable. But could make a huge difference.

There was a shoeshine guy who sits outside the building at Citibanamex. He was one of the first people we showed how to put the system on his phone. And a couple of months later, he said that he used to get robbed as he commuted home at least every six weeks. He would be physically attacked and his money taken. And he said, "I don't get robbed anymore because it goes into a digital system."

We're a bank that can affect stuff at the local level as well as take the big global ideas. But when you can translate it to the local communities quietly is when you can actually make a difference. Those are those human moments where you realize this is the stuff it's about. ●

Surane reports on financial companies, including Citigroup, in New York.

Resolutions for 2021

By FRANCINE LACQUA



Ann Cairns

*Executive vice chairman,
Mastercard Inc.*

Morning ritual when working from home?

Up around 6:30 to 7 a.m. for a cup of tea. Down in the lift to walk Bessie, our spaniel, whom we adopted in lockdown.

What has brought you joy this year?

Spending unexpected time with our 26-year-old daughter, Sophie.

What was your most significant accomplishment in 2020?

Speaking at a conference in Beijing in the morning, South Africa at lunchtime, and New York in the afternoon.

What would you do differently if you had to go through a lockdown again?

Get a haircut immediately beforehand and be more chilled out about it. What can you do? Not much.

What is your resolution for 2021?

Help as many women as I can inside and outside my company. Have a real impact on women's success in business through the 30% Club and Mastercard.



Philipp Hildebrand

*Vice chairman,
BlackRock Inc.*

Morning ritual when working from home?

Coffee, meditation, workout.

What has brought you joy this year?

My girls, the city of Florence, and Tuscany.

What was your most significant accomplishment in 2020?

Helping Larry Fink and BlackRock partners drive our firmwide strategic pivot toward sustainability.

What would you do differently if you had to go through a lockdown again?

I would love to have all our children under the same roof.

What is your resolution for 2021?

Stay focused on what really matters.



Benoît Cœuré

*Head of Innovation Hub,
Bank for International Settlements*

Morning ritual when working from home?

I have a nice balcony overlooking trees in Basel, and whatever the weather, the first thing I do is to sip an espresso there, watching squirrels chase each other—and recapping and prioritizing for the day.

What has brought you joy this year?

Being able to spend time at home in the French Alps this summer.

What was your most significant accomplishment in 2020?

When I moved to Basel last January to join the Bank for International Settlements' new Innovation Hub, the hub's head count was exactly three—one in Basel and two in Hong Kong. We're now more than 20.

What is your resolution for 2021?

To keep developing the Innovation Hub and expand on the BIS's core areas of expertise—that is, payments, digital currency, and so on.

Lacqua is co-anchor of Bloomberg Surveillance and host of Leaders With Lacqua.

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NEW ENHANCEMENTS TO TRY RIGHT NOW

- FRNT** Front Page is a new function that displays top news from Bloomberg and other premium sources relevant to your region. Run {FRNT <GO>}. To toggle among countries and see the top news there, click the Regions button on the red toolbar.
- IB** Instant Bloomberg has been enhanced with a number of features. Run {IB <GO>}. You can share a NOTE via IB: Pasting a NOTE link into a chat will render it as a pill for users to preview. IB also now enables you to hide chat history and add or remove a participant across multiple persistent chats.
- MLRT/ANR** The Market Alerts function lets you set alerts that will notify you when specific analysts change recommendations or initiate or drop coverage on a selected equity. You can set up these alerts via the Analyst Recommendations function. Run {JNJ US <Equity> ANR <GO>} to load health-care products company Johnson & Johnson, for example. Click on the Alert button, and the ticker will be loaded in MLRT. To specify particular brokerage firms for your alert, click on the All Brokers blue link.
- EQRV/RV** The Equity Relative Value and Relative Value functions have been enhanced to allow users to share their custom peer groups with colleagues and to include Note Indicator columns. Run {EQRV <GO>} or {RV <GO>} for a selected equity, and a Note Indicator column will appear in the grid at the bottom of the screen.
- CRPR** The Credit Profile function has been enhanced with a Credit Benchmark Consensus Rankings section, which displays ratings and trends aggregated from multiple financial institutions. Run {AAL US <Equity> CRPR <GO>} to view American Airlines Group Inc.'s ratings, for example. For more info, go to {CRDT <GO>}.

Faster, better answers—24/7. <Help><Help> for Bloomberg Analytics

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Test Your Market Smarts

By BARRY PORTER

WHICH CENTRAL BANK is winning the race to launch a digital currency? Which governments have the biggest green stimulus plans? How many active users does Alipay have? Test your knowledge with Bloomberg's Functions for the Market quiz. Then follow the steps to see if you had the correct answer, and learn a bit about how to tap into data and analytical tools in the process. —*With Jamie Douglas Coutts*

1. Which major central bank is aiming to be the first to introduce its own digital currency?

- European Central Bank
- Sweden's Riksbank
- People's Bank of China

3. Which country has announced the largest green economic stimulus plan?

- Germany
- China
- South Korea

Type "quick" in the command line and select QUC - Bloomberg QuickTakes for a library of authoritative one-page guides to current news topics. The shortcut is {QUIC <GO>}.
In the <Search by Keyword> field, type "digital cash" and press <GO>. Click on the story headlined "Digital Cash & Central Banks."

Type "BNEF" in the command line and pick BNEF - BloombergNEF Research for proprietary data, forecasts, and insights on the transformation of energy and transportation. The shortcut is {BNEF <GO>}.
Type "green stimulus" in the amber <Search BNEF> field, choose Exact Match, and press <GO>. Click on Themes | More >> and select "BNEF Theme: Green Stimulus: The Policies and Politics."
Check the first chart for a breakdown of approved stimulus plans using a BNEF definition explained above.

2. Bitcoin and Ethereum are the cryptocurrencies with the highest amount in circulation by dollar value. What's the third-ranking cryptocurrency among those tracked by Bloomberg?

- Litecoin
- XRP
- Bitcoin Cash

4. Alipay, Ant Group's mobile and online payments arm, has how many active users?

- About 1 billion
- About 700 million
- About 500 million

Type "crypto" in the command line and choose CRYP - Cryptocurrency Monitor. The shortcut is {CRYP <GO>}.
Tick the radio button to select Network Data (Supplied by Mosaic) and then click the Market Capitalization column heading and sort from high to low.

Type "Bloomberg Intelligence Internet" in the command line and click on BI INET - Bloomberg Intelligence: Internet Media. The shortcut is {BI INET <GO>}.
In the left-hand sidebar, click on China under Data Library. Under the Mobile App tab, scroll down to the Others section and read off the most recent number of monthly active users (in millions). For a graph, click the chart symbol next to Payment Alipay.



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Dalian Commodity exchange (DCE) is one of the world's most important commodity derivatives marketplaces, enabling farmers, producers, processors and other businesses to manage risks and find prices. A total of 20 futures and 7 options have been listed for trading on DCE, covering major sectors including agriculture, petrochemicals, steel and energy. According to the Futures Industry Association, DCE was China's largest and the world's 10th largest derivatives exchange by trading volume in the first half of 2020.

In May 2018, DCE opened its Iron Ore Futures—the world's largest and only physically delivered Iron Ore Futures—to foreign traders. In December 2020, DCE also opened Palm Oil Futures to foreign traders. DCE has endeavored to expand its role as a supplier of a full range of derivatives products and specialized industry services. By developing into a world-class commodities pricing and risk management center, DCE taps into the function of derivatives to serve global businesses and market participants.



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