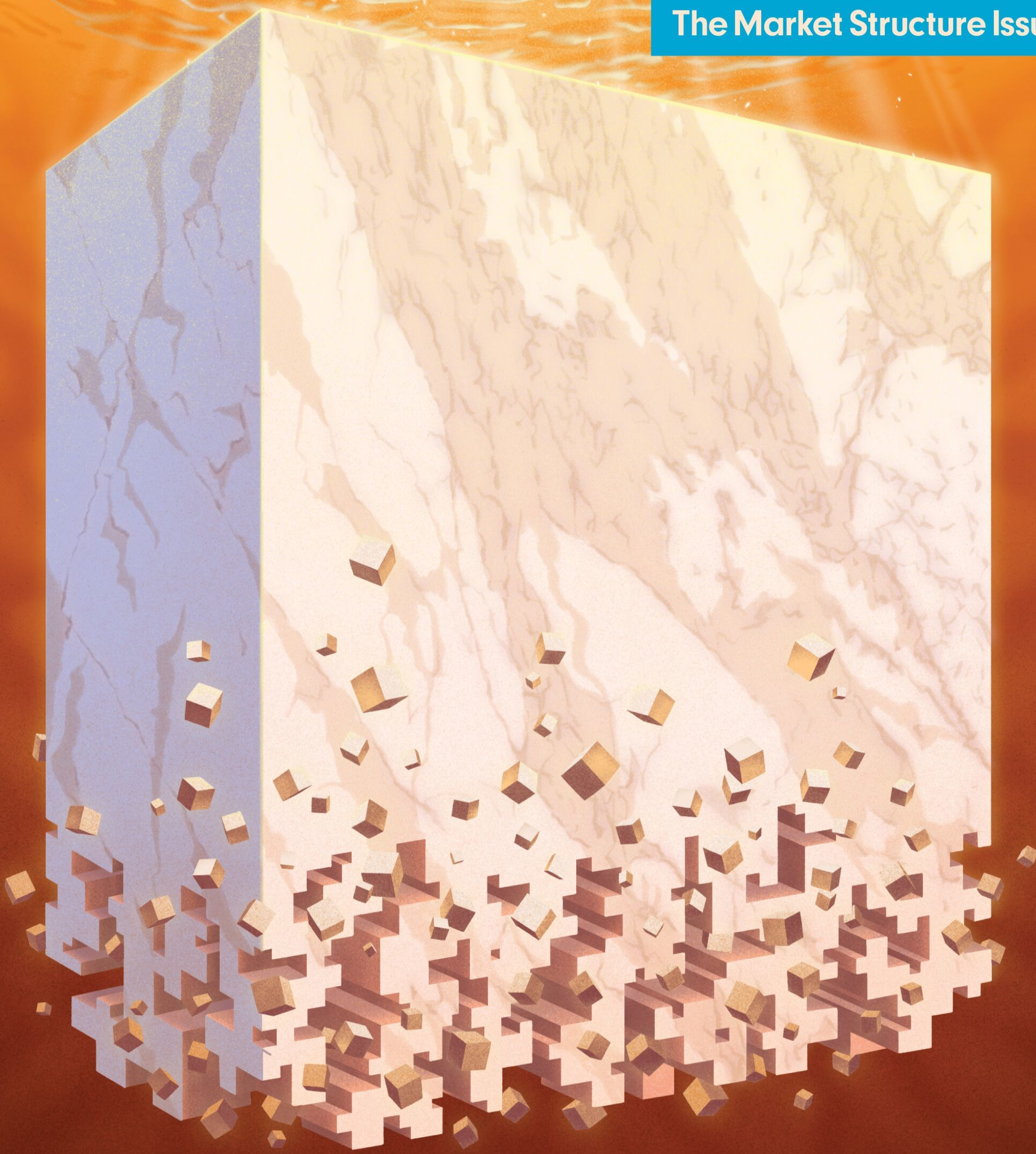
Bloomberg Markets

VOLUME 30 ISSUE 2 APRIL / MAY 2021

The Market Structure Issue



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THE MARKET STRUCTURE ISSUE
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The Market Structure Issue

It's time to take a closer look at the technology, systems, companies, and people that underpin the financial markets. **Lananh Nguyen** talks to the chief executive officer of the fledgling Members Exchange for "Jonathan Kellner Has Big Money Backing His U.S. Stock Trading Startup" (page 13), while in "Who Should Set the Rules?" (page 17), **Sonali Basak** examines why two of the U.S.'s most powerful stock exchange leaders have different views on whether to require companies to disclose boardroom diversity data. Speaking of data, Bloomberg Intelligence's **Larry Tabb** teams up with **Brian Chappatta** and **Siobhan Wagner** to create data-driven graphics that show how trading is evolving in "The Measure of a Market" (page 54).

In "Big Oil's Secret World of Trading" (page 58), **Javier Blas** and **Jack Farchy** describe how some energy companies make billions of dollars in Wall Street-like commodities trading. **Olga Kharif** speaks to the founder and chief executive of the world's biggest cryptocurrency exchange in "Binance's Changpeng Zhao: I'm Not Using Crypto to Buy Fiat, I'm Not Using Crypto to Buy Houses, I Just Want to Keep Crypto" (page 66). And in "Citadel Feels the Heat" (page 72), **Tom Maloney** writes about the Chicago-based company's success in building a powerful market maker—and the political and regulatory pressure that power might attract.

We hope you find this issue interesting and informative. As always, we welcome your feedback.

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Editor

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Making Markets

By NICK BAKER

LEARNING ABOUT financial market structure can make for sleep-inducing reading. But stock market plumbing became a topic of global interest earlier this year. GameStop Corp.'s social media-fueled surge was underpinned by changes in how brokerages make their money, and it was halted by old rules on how much collateral they need to keep on hand. So here's a guide to some of the most important concepts to inform your next Reddit debate.

Penny stocks

Despite their name, penny stocks sometimes cost more than a dollar. The core idea is this: They're the tiniest companies, the backwater of equities. Although some stocks listed on the New York Stock Exchange or Nasdaq meet the definition, the vast majority trade over the counter—basically the Wild West, where there are no listing requirements and almost anything goes. Before the pandemic, daily over-the-counter volume was usually below 10 billion shares. When people were locked down at home, retail trading exploded. Total OTC volume topped 20 billion shares in November, then exceeded 140 billion by Feb. 8. Companies such as Zomedica Corp., a maker of pet medicine with no revenue, were suddenly the most-traded stocks in the U.S.

Payment for order flow

Orders placed by individuals with Robinhood, Charles Schwab, or any of the other big retail brokers rarely make it to public markets such as the NYSE or Nasdaq. Instead, they're typically routed to a middleman like Citadel Securities or Virtu Financial Inc., which pay the brokers for the privilege. Those so-called high-frequency trading firms use advanced technology to execute orders so efficiently they can reap profits by collecting a tiny spread on vast trading volumes. They want orders from retail customers, whose buying and selling tends to even out, instead of from institutions, which are more likely to make big, savvy bets that leave the high-frequency firms with losses.

No-fee trading

Payment for order flow has allowed retail brokers to stop charging their customers for trading. Without the barrier of fees, apps such as Robinhood that make trading seem easy and fun have generated soaring retail volumes and social media-driven trading. But when the retail brokers earn money from payment-for-order-flow deals, not from trading fees, it raises the question of which customers they're really trying to serve.

Meme stocks

GameStop is the most famous example, but a meme stock is any investment being hyped on a social media site such as Reddit. In January a collective online campaign boosted prices for GameStop, theater operator AMC Entertainment Holdings Inc., and even silver. During the height of the frenzy, the rallying cry on the WallStreetBets subreddit was "diamond hands," a call to hold on no matter what—and to give the traditional investing industry a figurative middle finger. But when losses escalated, many participants were forced to sell. Some critics have compared the social media campaigns to the pump-and-dump scams in which unscrupulous brokers tout stocks they already own to boost their value before dumping the shares at a huge profit.

DTCC

All U.S. stock trades are backstopped by the Depository Trust & Clearing Corp., a piece of the market bedrock that rarely attracts attention. When GameStop's shares—which traded at an average price of about $7 throughout 2020—reached a dizzying peak of $483 on Jan. 28, the DTCC told Robinhood to pony up more money to cover potential losses. That led Robinhood to temporarily ban trading of GameStop and other hot stocks, popping the bubble.

Settlement, or T+2

Stock transactions, though they seem instantaneous, actually take two days—known as T+2—to settle. In other words, the buyer doesn't get the stock and the seller doesn't get the money for two days. In the meantime, the DTCC keeps money on hand to protect both sides of the transaction from losses if something goes wrong. Robinhood's executives say two days is too long and trades should settle in real time. The DTCC has proposed splitting the difference, moving to one day, or T+1, by 2023. Some have argued that a blockchain—the type of shared database that underpins digital currencies such as Bitcoin—is well suited to the task. Others say reducing settlement times will impose onerous implementation costs for the financial industry.

Baker is a markets editor for Bloomberg News in Chicago.


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By LANANH NGUYEN

Jonathan Kellner Has Big Money Backing His U.S. Stock Trading Startup

When he was handed a debit card with $70 million in the bank, Jonathan Kellner realized his startup was different. ¶ Members Exchange, known as MEMX, started as a protest by banks and market makers against the rising data and connectivity fees charged by U.S. stock exchanges. In the two years since Kellner, 52, signed on as chief executive officer, MEMX Holdings LLC has locked in more than $135 million in funding from 18 stock trading and investing heavyweights, including BlackRock, Citadel Securities, and Morgan Stanley. ¶ Since it went fully live in October, MEMX has clinched 1% of the U.S. market share. Kellner, previously the CEO of Nomura Holdings Inc.'s Instinet, spoke with *Bloomberg Markets* in February about launching during a pandemic and the surge in meme stocks.

ILLUSTRATION BY RYAN MELGAR FOR BLOOMBERG MARKETS; PHOTO REFERENCE: BEOWULF SHEEHAN

Why did you join?

► When I started talking to MEMX about coming on board, my biggest concern was that it was all about [trying to reduce] market data fees and connectivity fees. And I asked, "If all of a sudden Nasdaq, the New York Stock Exchange, and Cboe changed their fees, are you done with MEMX?" [But it became] clear to me that it was much bigger. The investors were incredibly frustrated with the incumbent exchanges and felt it was really important to bring competition, technological innovation, and more efficiency to the exchange space and really to be a voice for them around the market structure debate.

Your 18 investors include many fierce rivals in the markets. How do you balance their competing interests?

► Fortunately, one thing that seems to be consistent is that all of our investors ultimately want a level playing field. We focus on what is fair. And then they all go off and compete based on what is unique about what they bring to the table.

U.S. stock exchanges handle more than $360 billion in trading daily. What's your edge?

► One area where we are really differentiated is the fact that we do our whole exchange on one [server] rack. We are able to put a lot of computing, storage, and networking in a small amount of space. A much smaller footprint is much more cost-effective for us. Second, you have fewer hops across the exchange, so you have fewer points of failure and a more stable exchange. And you also have a much shorter distance from when the customer gets to our exchange to when they get to the matched order.

Our operations team can monitor the exchange from the cloud. That's been a huge benefit. We are able to run our whole firm in a distributed manner because we can get data from the cloud. Part of our mission is to bring some of this innovation to the industry. We would be encouraged by other exchanges leveraging the same technology that we're using.

We ended up having to have a custom-built liquid-cooling setup in NY4 [the Equinix data center in Secaucus, N.J.]. The servers generate an incredible amount of heat, and it's just making sure that you're dissipating that heat away so the servers stay cool.

How did MEMX adapt to the pandemic?

► Because we were building from scratch, we built everything in the cloud. So from the get-go, any of us could work from anywhere. We didn't design this because we knew a pandemic was coming, of course, but because we wanted to make sure that we had the flexibility to work from anywhere. We hired experienced people. We really focused on building a culture that was adaptable.

Chief Operating Officer Thomas Fay and Chief Technology Officer Dominick Paniscotti said severe weather was one of the biggest challenges as you were preparing for a user acceptance test (UAT), a milestone that usually requires all hands on deck. What happened?

► During a storm in August, right before one of our UATs, there were two days where people had power outages all over the tri-state area. We had people working off of their phones. We've joked about not building an exchange out of a garage, but we did have some of our switches shipped to Nick's [Ciarleglio, head of member experience] house, and he configured them in his garage before he shipped them out. If we could get people generators, we did. Or we got them backup batteries. So there were a lot of big, heavy boxes going in and out of different people's homes.

How do you and Chief People Officer Lindsay Gilliam keep your 56 employees engaged and productive during these stressful times?

► We evolved. There were times when we had to have daily standups with certain groups, or we were doing them too often. We've realized that we can run very effectively in this remote environment, and we've been able to maintain a strong culture in a distributed environment. We do still have Scotch o'clocks on Zoom, but they're not the same.

You built a new office in Jersey City that's virtually unused. What does its future look like when the pandemic abates?

► We learn more and more every day. I do think in the long run we will end up with some sort of hybrid model where we come together periodically. The frequency of that is still unknown. But I do think there's a value to coming together. One of the huge benefits we've seen is people don't have to commute. So people can use their time much more efficiently.

How did you fare during January's rally in meme stocks?

► That volatility increased the amount of volume on our exchange, and the important part for us was that we were able to deliver technology that was stable and consistent for clients. Overall, the idea that retail is more involved in markets is a positive. It's helped the overall market. We as an industry need to continue to work on the issues. We want to make sure that price discovery is robust and that each segment of the market can continue to interact with as much order flow as possible. At the same time, we have to make sure that we don't harm the new entrants.

What's your biggest challenge?

► We're incredibly happy with where we are. The biggest challenge is that there are a lot of other things going on in people's lives. We did this amidst a pandemic that is constantly changing—people [market participants] are adapting their work. At the same time, they have to adapt to what we're doing, monitor our performance, and figure out how they're going to add us. They also have to deal with volatility because of an election or different issues around retail volume increasing. Our biggest challenge is distraction, and that's probably amplified in the environment that we have, where we're still in a pandemic and we're going through a new political cycle here in the U.S.

One issue unites the exchanges and many of the big trading firms: opposition to proposed financial transaction taxes (FTT) in New Jersey and New York. Have other states reached out in an effort to lure your business?

► We've been involved with the other exchanges, as well as our clients, to discuss the impact of FTT and make sure that the regulators and legislators are aware of the negative impact an FTT would have, whether on the state level or on the federal level. We've been involved in conversations with other states in terms of what the opportunities are.

Nguyen reports on U.S. financial companies for Bloomberg News in New York.


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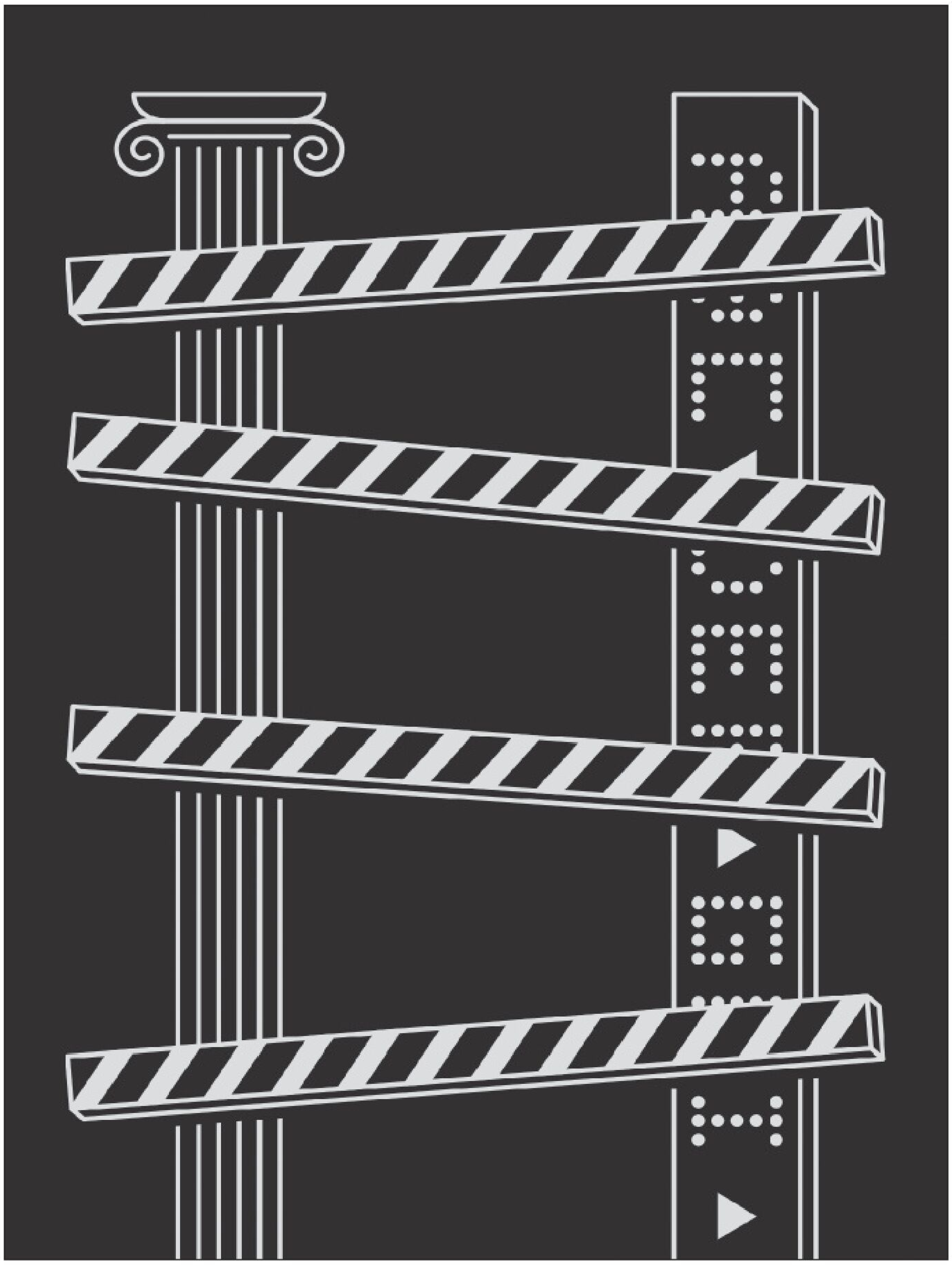
Who Should Set The Rules?

By SONALI BASAK

ILLUSTRATION BY MATT CHASE



TWO OF THE MOST powerful women in finance are at odds over how to use their power.

In one corner is Adena Friedman. The chief executive officer of Nasdaq Inc. oversees the Nasdaq Stock Market, which pioneered electronic trading 50 years ago and is now the primary exchange for all-powerful technology companies including Amazon, Apple, and Microsoft. Nasdaq is seeking to change its listing requirements to require companies to disclose diversity on their boards—and explain themselves if they don't have directors who self-identify as a woman or a member of an underrepresented minority. The proposal, under review by the U.S. Securities and Exchange Commission, aims to be "one step in a broader journey to achieve inclusive representation across corporate America," Friedman, 51, said in the company's Dec. 1 statement.

In the other corner is Stacey Cunningham, president of NYSE Group, which oversees the New York Stock Exchange, the oldest and most famous U.S. stock market. Like Friedman, Cunningham, 46, is the first woman in her role. While she says she supports Nasdaq's goal, she doesn't think it's the role of exchanges to try to change society. "The data is very, very clear that businesses perform better when there's more diversity on their board," Cunningham told me late last year in a Bloomberg TV interview. However, she added, "When we use exchange listing standards to require things like ►

diversity profiles or others, we're defining the investable universe."

It's an increasingly difficult question for business leaders: Whose job is it to define and encourage diversity? And even more pointedly: What is the responsibility of a powerful platform like a stock exchange? These two businesses are under pressure from activists to act as a form of social police and to produce data tracking progress on topics ranging from carbon emissions to the proliferation of automatic rifles. Some critics say Nasdaq's proposal doesn't go far enough—New York City's Office of the Mayor believes it should also include disclosure of board members with disabilities.

The fundamental issue here is, where do the responsibilities of the two exchanges begin and end? This question has sharply divided politicians, investors, and corporations. Some argue that elected officials are better suited to establish policies that address diversity. Yet Nasdaq's proposal has won support from big U.S. pension funds and companies that are seeking greater accountability and clearer data.

Nasdaq isn't the first to wield its corporate clout in this way. Early in 2020, Goldman Sachs Group Inc., Wall Street's biggest underwriter of initial public offerings, said it would no longer bring a company public in the U.S. and Europe if it lacks a director who is either female or from an underrepresented minority. "With power comes responsibility," says Ilana Wolfe, the bank's head of corporate board engagement. "If we're taking a company public, as an adviser, we have a responsibility to make sure that they're best set up for success." Goldman Sachs's fund management unit also plans to use its position as a shareholder to vote against nominating committees on any corporate board that fails to include at least one woman as a director.

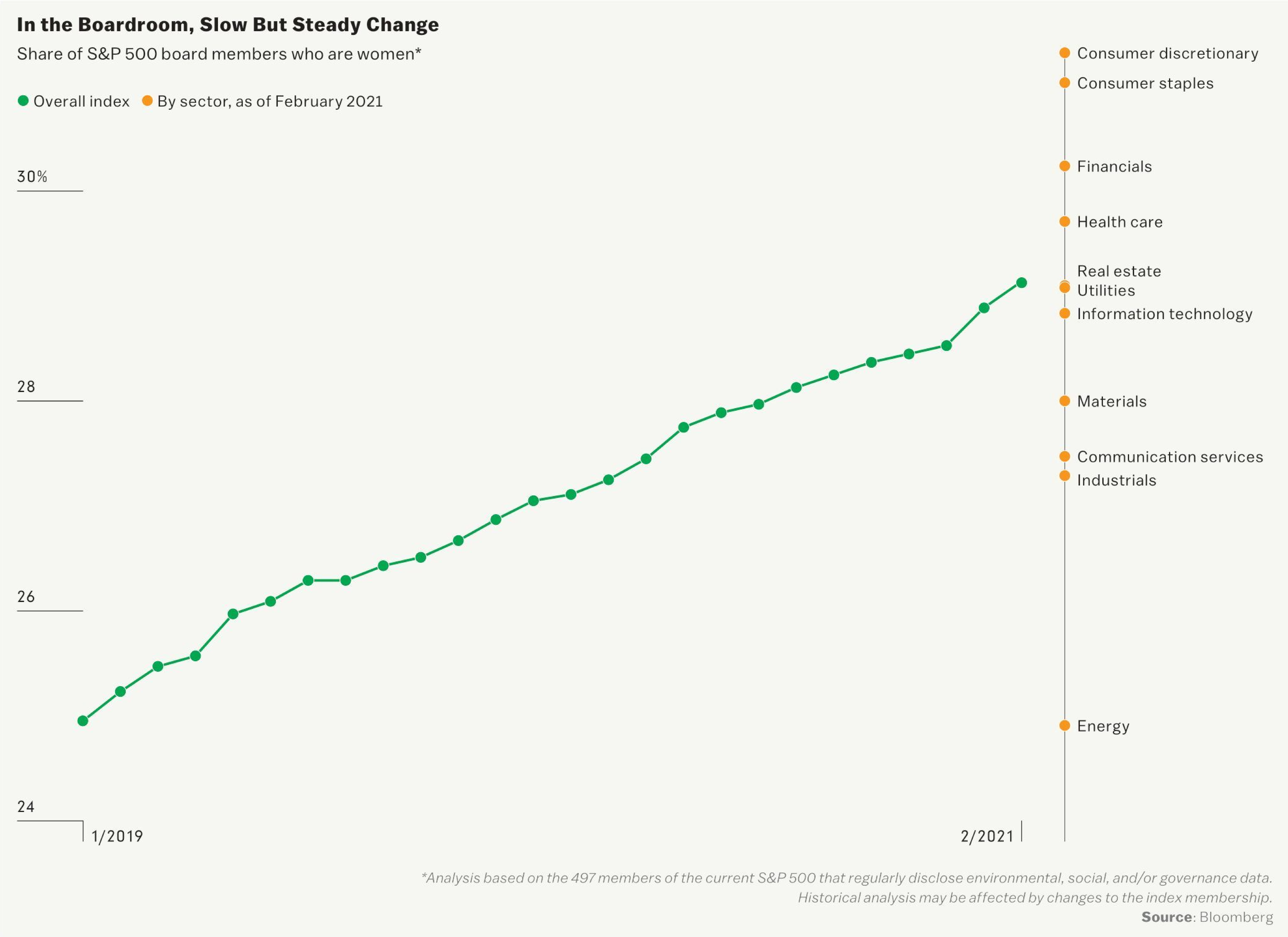
What makes Nasdaq's move different is that, as an exchange, it behaves as a quasi regulator. So its decision feels one step closer to law. Like Goldman Sachs, Nasdaq says its proposal is a matter of corporate governance and investor protection, citing research showing that board diversity leads to better corporate performance. Nasdaq isn't mandating that companies add a woman, or a Black or Latino director (and, in truth, many of the technology and other new-economy companies who are listed on the Nasdaq have already embraced diversity on their boards). The exchange is simply requiring that companies disclose in a standardized way whether they have diverse board members to help investors make an informed choice.

That focus on transparency makes Nasdaq's business case clearer. As a larger share of equities trading moves off exchanges into dark pools and other over-the-counter venues, Nasdaq and its rivals are turning to new ways to generate revenue, such as market data and consulting services on topics like environmental, social, and governance (ESG) issues. (Bloomberg LP, the parent company of Bloomberg News, provides ESG disclosure scores for 12,000 companies and board composition scores for 4,300 companies.)

Data on social and governance matters could be a growth area for Nasdaq, says Paul Gulberg, a senior analyst at Bloomberg Intelligence who follows the exchanges. Nasdaq has told investors that it expects its ESG data and consulting business to bring in $50 million in revenue by 2025, up from about $5 million last year. (That's still a small percentage of the company's $3.5 billion in total revenue in 2020.) "They can collect more data. They can potentially attract more issuers in the ESG space. There's probably the potential for some index business," Gulberg says. "As there's more ESG adoption and more index build-out in that space, that can potentially open up some opportunities."

AS FOR THE NYSE, which is a division of Intercontinental Exchange Inc., Cunningham makes an important point about imposing limitations on the "investable universe" in the U.S. The universe of private companies remains much, much bigger than the one of those listed on exchanges.

Fewer than a third of private-sector jobs were created by publicly traded companies by the end of 2019, according to recent research by Frederik Schlingemann of the University of Pittsburgh and René Stulz of Ohio State University. Morgan Stanley's Carla Harris



has for years been on a mission to boost capital moving toward minority- and women-owned businesses. The largest private equity firms—Blackstone, Apollo, Carlyle, KKR, and TPG—have all set goals to ensure diversity at their portfolio companies. Still, in terms of most gender equity policies, the U.S. lags most countries in the European Union and is actually in the bottom quartile of all high-income Organization for Economic Cooperation and Development countries, according to a study by Bank of America Corp.'s ESG research team, led by Savita Subramanian.

Progress in the U.S. has been "glacial at best," Subramanian says, and in many cases it's receded, even though expanding women's opportunities could boost the U.S. economy significantly. Separately, Citigroup Inc. researchers found that the U.S. lost $16 trillion in economic output over two decades because of the limits of opportunities for Black people.

While there are clear social and economic reasons for progress on diversity—and Wall Street is focusing more on it—the question remains: Will investors and corporate America make the changes quickly enough when left to their own devices?

Eileen Murray, a Morgan Stanley veteran and the former co-CEO of hedge fund giant Bridgewater Associates, has said she's changed her thinking on quotas after seeing how slowly progress was made during her career. "Ten years ago and before that, I was not a big fan of any kind of quotas or government regulation in this area," Murray, chairperson of the Financial Industry Regulatory Authority board of governors, said in a January interview on Bloomberg TV. "I'm a big fan of it now because I unfortunately think that's the only thing that's going to make it work."

This is both an economic and a social problem, and isn't that exactly the kind of thing that we elect public officials to try to fix? If government doesn't step in with clear rules on diversity, there will always be an arbitrage. Nasdaq's definition of diversity may fall short for people who want more change, and if companies don't like Nasdaq's rules, they can just move to the NYSE or an overseas exchange or not go public at all. There's plenty of money available for private companies.

For Nasdaq, if this is the ground it wants to compete on, it should be allowed to do so. But should Adena Friedman and Stacey Cunningham be the ones tasked with defining and policing important issues like diversity? The reality is, there's no professional training in the world that could give a Wall Street executive the tools to hold that responsibility. ●

Basak covers financial companies for Bloomberg News and Bloomberg Television. This column doesn't necessarily reflect the opinion of Bloomberg LP and its owners.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Night Moves

IN FOOD-OBSESSED Taiwan, every city has at least one place to go for oyster omelets and mango shaved ice or local inventions such as coffin bread and bubble tea: a night market. Lined with snack stalls and sometimes spread over multiple streets, these markets are still in business thanks to the island's deft handling of the pandemic—only 10 deaths and no lockdowns. Indeed, Bloomberg's Covid Resilience Ranking finds Taiwan, with a population of 23 million, to be one of the four best places to live in the world during the pandemic.

But life isn't quite normal. For example, at the Ningxia Night Market in Taipei, masks and plastic screens are among the precautions used to prevent the virus from spreading. Taiwan banned almost all foreign nationals from visiting a little more than a year ago, a move that helped curb Covid-19 but slammed tourist-reliant businesses and neighborhoods. Total arrivals last year crashed 88%, to only 1.4 million people, and more than half of those came in January 2020 alone. Although some business and diplomatic travel is now allowed, the only tourists permitted as of April 2021 are from tiny Palau, following the opening of a travel bubble.

The island's export-led recovery may help support domestic spending. In March the central bank raised its 2021 growth forecast to 4.53%, from 3.68%. Taiwan was one of the world's few significant economies to record growth last year; the lack of local infections allows it to continue running music festivals and events such as the annual LGBTQ pride parade. To monitor the market impact of the coronavirus, run **{VRUS <GO>}**.
—*Adrian Kennedy*

PHOTOGRAPHS BY AN RONG XU

A shaved ice and dessert shop at the Ningxia Night Market in Taipei, where an almost total ban on foreign arrivals has left businesses dependent on locals

The 200-plus food stalls of the Keelung Miaokou Night Market often stay open past midnight

The Shilin Night Market, which dates back more than a century, has been shifting its focus to the 100,000-plus students who study nearby

Taiwan avoided the lockdowns seen in much of the world, so locals at the Raohe Night Market can still dine out on steamed rice rolls

Here’s How to Track SPAC Issuance, Performance, and Deals

By KAI BLATNICKY, STEVEN GEE, and JIM SIMMONS

INITIAL PUBLIC OFFERINGS of special purpose acquisition companies—blank-check shell companies that sell stock and merge with previously unlisted operating businesses—continued at a torrid pace in early 2021. More than 200 deals started trading this year through mid-March. February issuance topped $36 billion, the largest volume of deals to hit the market in any month.

To track SPAC activity, use the Equity Offerings function. Type “IPO” in the command line of a Bloomberg screen and click on the IPO – Equity Offerings match. The shortcut is **{IPO <GO>}**. For a ready-made search for SPAC offerings, run {**IPO SPAC <GO>**}.

To customize the criteria of this search, click the Edit Search button on the red toolbar. The search drills down to pending or trading IPOs by SPACs. To narrow the search to deals that are trading, rather than pending, click on Offer Stage: (Pending) or (Trading), untick the box for Pending, and hit Update. Next, to focus on U.S. SPACs, click on Region/Country, expand North America, select United States, and hit Update. To save the search, click the Save button, give the search a name such as “SPAC IPOs,” press <GO>, and hit Update.

Hit the Result button. To dig into how the market has taken off, click on the Time Series tab. Use the Aggregate By drop-down to select Trading Date. To add a line charting the number of deals, tick the box next to the Deal Count (**FIG. 1**).

Click on the Deal List tab. From here, let’s create a worksheet that we can use later to examine the mergers and acquisitions involving these companies. Click the Export button on the red toolbar and select Worksheet. Give the worksheet a name such as “SPAC IPOs,” press <GO>, and click on Create.

Fig. 1 Run **{IPO SPAC <GO>}** to open a search for SPAC listings that you can customize.

Fig. 2 For a ready-made worksheet loaded with SPAC data, go to **{W #SPEC 80 <GO>}** and click on Save a Copy.

WHILE SPACs CONTINUE to raise record amounts, some observers have asked whether the asset class is in a speculative bubble. To track the performance of SPACs, you can use a worksheet that's prepopulated with current SPACs and those that have completed M&A deals. Run **{W #SPEC 80 <GO>}** (note: this worksheet was built by Bloomberg's market specialists; hence it's "SPEC," not "SPAC").

The SPAC Tracker sheet includes key information such as notable managers, targets, and details of the IPO deals. Click on Save a Copy to Edit at the top of the worksheet, and you'll have a version you can update and customize in a variety of ways (**FIG. 2**).

Let's say you wanted to add a column that tracks performance during a period of high volatility—Feb. 1 to Feb. 8, for example, when Bitcoin surged 33%. To do that, right-click on a column header in the worksheet, select Insert Column, and click on After. In the amber field that appears, type "custom total return" and select Custom Total Return Holding Period – RT095. Hit <GO>. To change the time period, right-click on the column heading and select Edit Field Overrides... . In the window that appears, click on Advanced. Here you can specify start and end dates for the period you want. We added custom return periods for Feb. 1-8 and March 1-8, when the S&P 500 index dropped 2.1% (**FIG. 3**). During the latter week, when markets were especially volatile to the downside, SPACs fell an average 4.3%.

ALTHOUGH MANY SPACs have provided good returns this year as of mid-March, the asset class is also attracting skepticism. Acting Securities and Exchange Commission Chair Allison Herren Lee in March said studies showed that for most investors the performance of SPACs didn't match the hype. ▶

Fig. 3 You can add columns in the SPAC Tracker worksheet that show returns over custom periods you choose—in this case, a week in February when Bitcoin was surging and a week in March when the S&P was dropping.

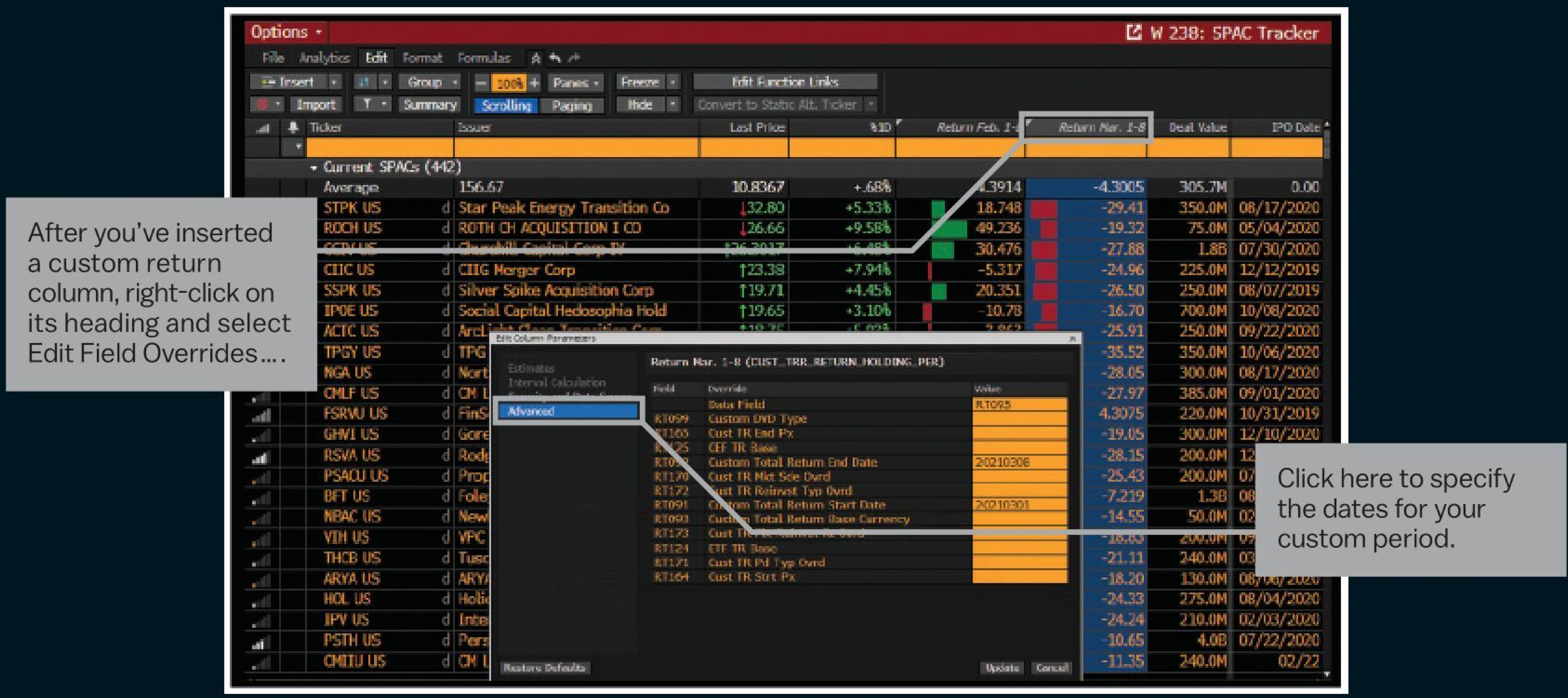


Fig. 4 Run **{MA <GO>}** to use the Mergers & Acquisitions function to track SPAC deals.

Ultimately, of course, the purpose of these vehicles is to merge with operating companies so they end up publicly traded. To look at the M&A deals that SPACs have done, let's use the worksheet you created from your IPO search. Run **{MA <GO>}** and click on the Advanced Search button. First, click on Company List in the Company Universe section of the screen. In the Company List window that appears, use the Source drop-down to select Security Worksheets. Then use the Name drop-down to select your SPAC IPOs worksheet. Untick the boxes for Target and Seller, leaving only Acquirer selected, and hit Update. Next, click on Deal Status, tick Pending and Completed, and click on Update. Then, click on Deal Type, tick the box for Company Takeover, and hit Update. Click on the Result button (**FIG. 4**). (You can also find SPAC deals by running **{MA SPAC <GO>}**.)

In 2020 there were 121 SPAC deals with a total value of $54 billion. By comparison, this year through March 11 there were 77 mergers with a value of $52 billion. A comparison of year-over-year periods is even more striking: Through March 11 the number of deals was up more than 700% in 2021, and the market value was 32-fold higher.

The largest deal so far this year is Churchill Capital Corp. IV's takeover of electric-vehicle maker Lucid Motors Inc. The $4.6 billion merger was announced on Feb. 22, four days after the stock of the Churchill SPAC soared to a high of $58 per share. As of March 11 the shares traded at $26. ● —*With Dylan X. Kelly and Min Lee*

Blatnicky, Gee, and Simmons are market specialists at Bloomberg in New York.

Analyze Social Media Darlings Without Having to Read a Single Tweet

By ALEX WISCH

HOW LONG WOULD it have taken to read 1.6 million posts on the social media platform StockTwits in the week through Feb. 24?

If you'd scrolled through one post each second for 18 hours a day, you might've found some interesting insights about special purpose acquisition company Churchill Capital Corp. IV and Canadian cannabis company Sundial Growers Inc. But you still would've been hopelessly behind: It would take more than 25 days to catch up on the week's posts.

There's a better way, of course. Now you can use Bloomberg to track which stocks are most frequently mentioned on StockTwits. You can also check their short-interest ratios and perform fundamental analysis without ever having to read an emoji-filled post by an anonymous, humorously handled "trader."

The social media-fueled gyrations of retailer GameStop Corp., movie theater company AMC Entertainment Holdings Inc., and others show the need to monitor online commentary.

TO START, type "news categories" in the command line and select NCAT – News Categories from autocomplete. The shortcut is **{NCAT <GO>}**. Click the X to remove any ticker or topic from the amber search bar, then type "StockTwits" and select STK – Stocktwits from the suggested sources (**FIG. 1**).

The total number of posts to the social media platform during the week is shown at top right: 1.6 million. The table in the top left shows the companies most frequently mentioned in StockTwits posts. The list as of Feb. 24 was led by Churchill Capital, the blank-check company merging with electric-vehicle maker Lucid Motors Inc. Churchill was followed by AMC, Chinese insurance marketing company SOS Ltd., and Sundial Growers.

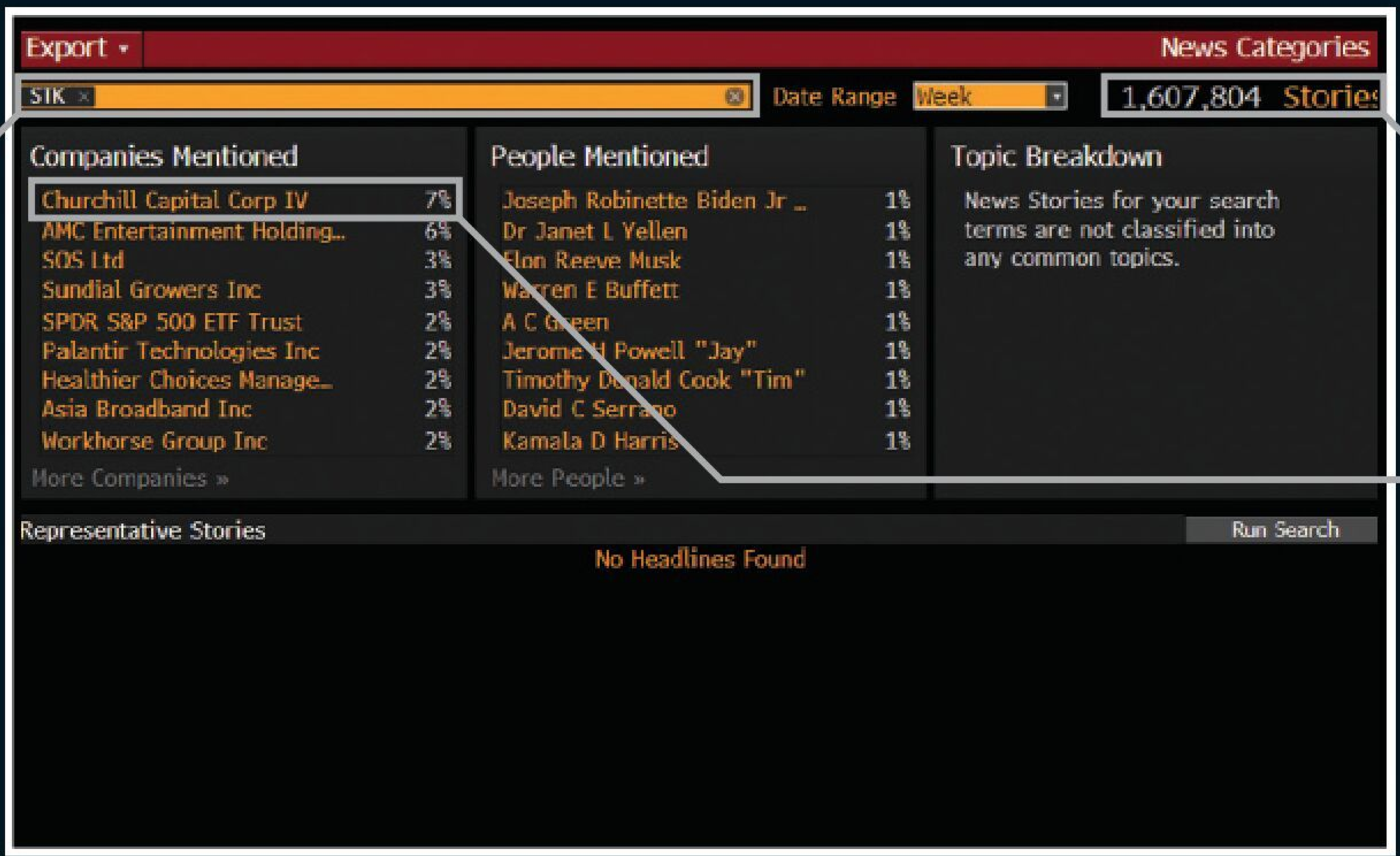
To analyze the most mentioned companies, you can load them into the Watchlist Analytics function. Click the Export button on the red toolbar and select WATC – Watchlist Analytics. That loads the roughly 50 stocks most frequently mentioned in the week's StockTwits posts.

Click the Overview tab and the Key Metrics subtab (**FIG. 2**). The screen showed that 28 of the 47 stocks had increased in price by 100% or more this year through Feb. 24, with Net Savings Link, OZOP Energy Solutions, and Asia Broadband up more than 3,000%. The average return on the 47 names was 139%. By contrast, Tesla Inc. rose 0.6% over the period amid a sector rotation targeting economic recovery stocks.

To sort by expected return, click the Exp Return column, which displays the difference between the last closing price and the average target price compiled by Bloomberg. As of Feb. 24 ►

Fig. 1 To track posts on StockTwits, go to **{NCAT <GO>}** for the News Categories function.

Remove any securities or categories in this field by clicking the x, then type “stocktwits,” and click on the STK - Stocktwits match.

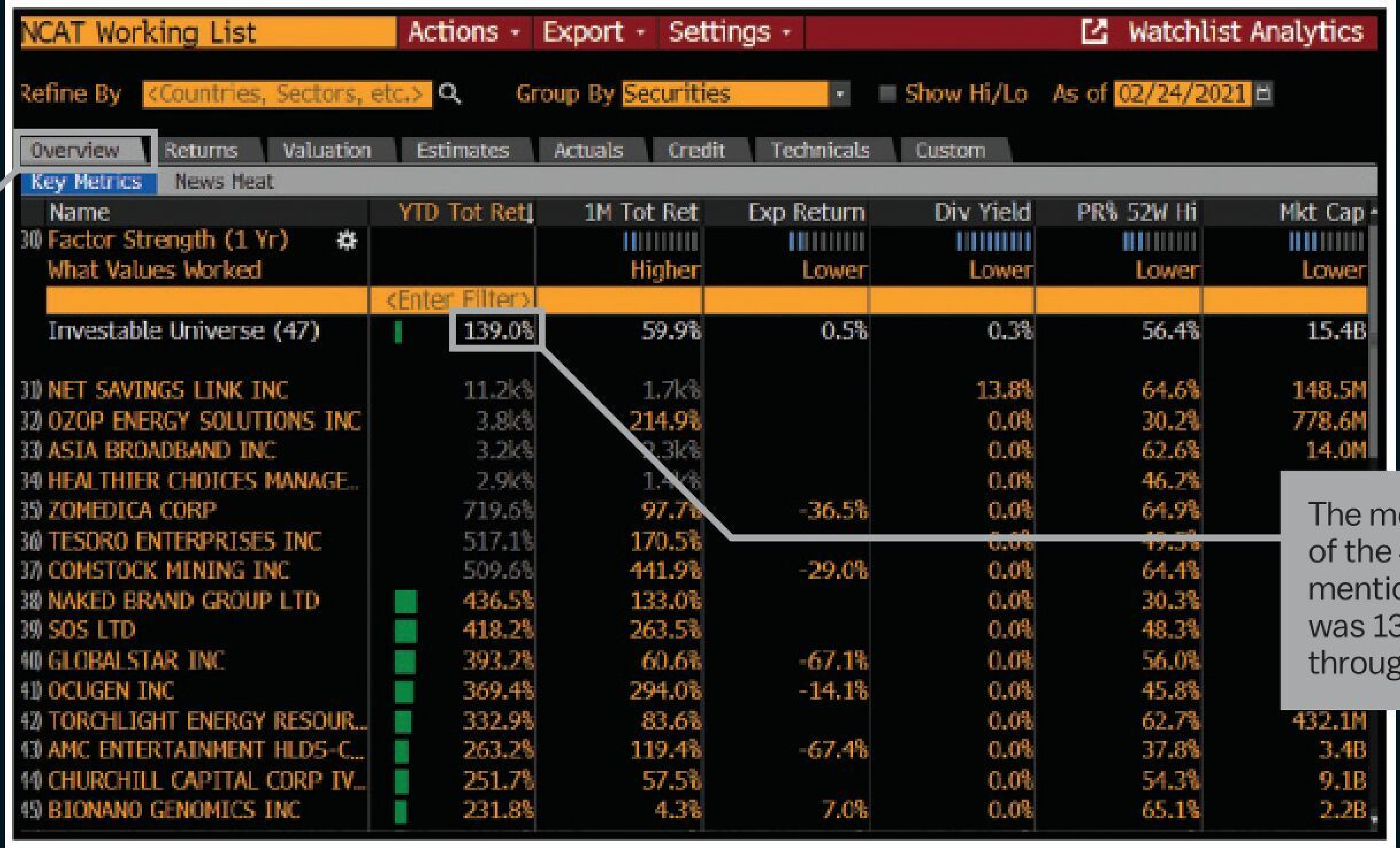


In the week through Feb. 24, there were 1.6 million posts on the social media platform.

The most mentioned stock was the SPAC merging with electric-vehicle maker Lucid Motors.

Fig. 2 To analyze the list of stocks most frequently mentioned on StockTwits, click the Export button in NCAT and select WATC - Watchlist Analytics.

Click here, and then on the Key Metrics subtab.



The median return of the 47 most-mentioned stocks was 139% this year through Feb. 24.

analysts projected that Sorrento Therapeutics Inc. may increase 176%, while Sundial Growers could decline 72% and GameStop could drop 70%.

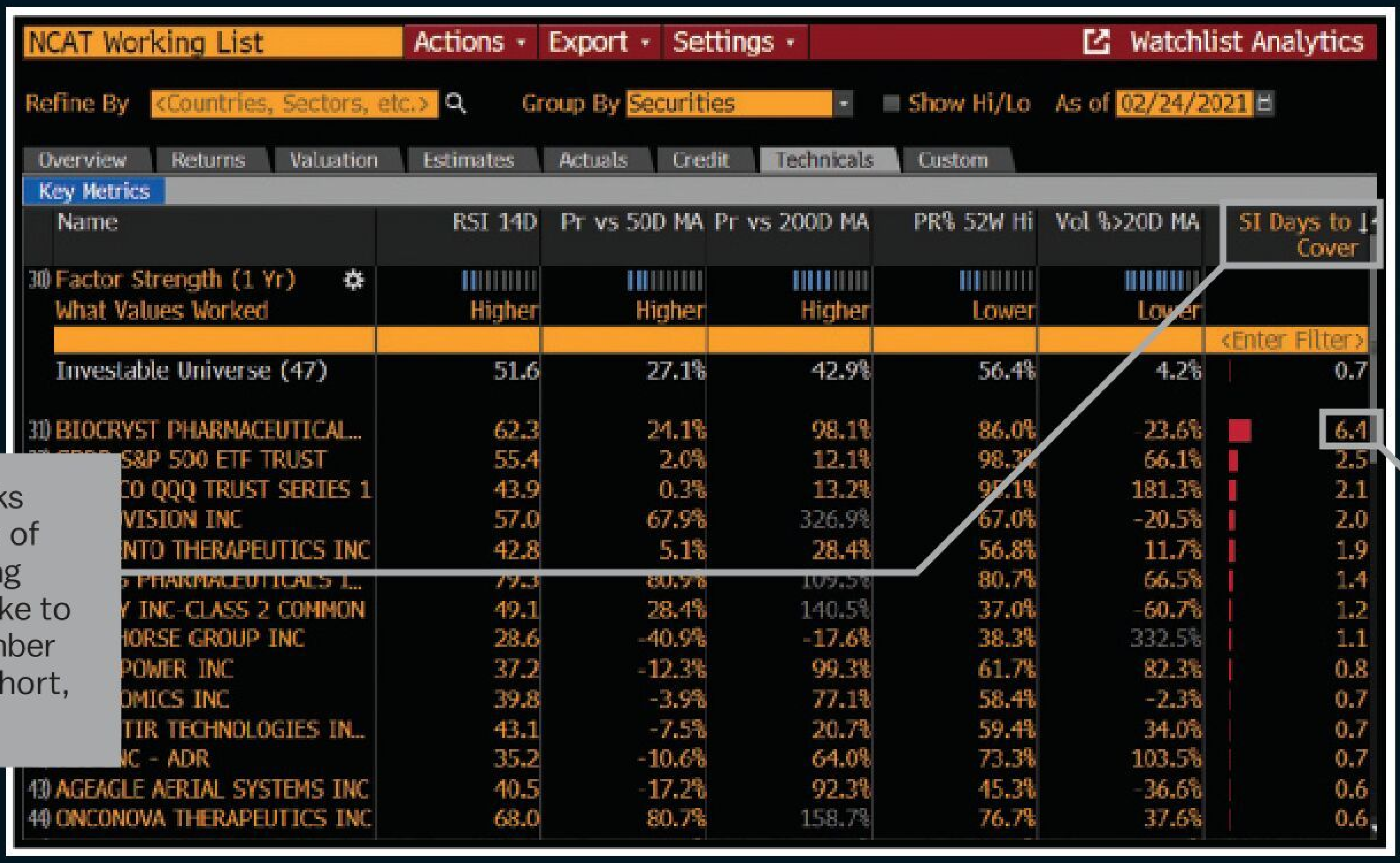
WANT TO CHECK the short interest in these stocks? Click the Technicals tab at top right. To rank the stocks by a measure of the number of days of daily trading it would take to transact the number of shares sold short, click the SI Days to Cover column (**FIG. 3**). BioCryst Pharmaceuticals Inc. topped the list as of Feb. 24. After the massive Reddit-fueled short squeeze on GameStop, the retailer’s SI days to cover stood at 0.2—an indication of how many short positions have been closed since late January. If you change the As Of date to Jan. 4, you can see that GameStop showed 6.1 days to cover as of the first trading day of 2021.

To see earnings surprises, click the Estimates tab and the Surprises subtab. Be sure to return to the current date.

GameStop beat EPS forecasts by 38%, despite missing on sales forecasts by 7.5%. Click on the figure to see details on GameStop’s results, which it reported on Dec. 8. (You can also run **{GME US <Equity> ERN <GO>}**.)

To see analysts’ expectations for growth, click the Growth subtab. To rank by consensus estimates for blended forward earnings per share growth, click the BF12m EPS Gr column heading. GameStop was near the top of the list, with a forecast EPS growth of 94.4% as of Feb 24. Sundial Growers was also expected to increase earnings by 94.4%. The median 12-month sales growth forecast for the universe, shown at the top of the BF12m Sales Gr column, was more than 178%.

Fig. 3 To dig into short interest on these stocks, click the Technicals tab.



To sort the stocks by this measure of how many trading days it would take to transact the number of shares sold short, click here.

Topping the list as of Feb. 24 was BioCryst Pharmaceuticals, with a reading of 6.4 days, similar to that of GameStop at the beginning of the year.

Fig. 4 Export the stocks from WATC to a worksheet, and you can create components to monitor news and social media posts on the list of stocks.

FOR BESPOKE ANALYSIS, you can export the list of securities to a Worksheet that you can add to your Launchpad view. Click on the Export button in WATC and select Worksheet. Give the Worksheet a name, such as "Trending StockTwits Stocks," and hit Create.

To monitor news on these securities, click the Analytics tab at the top of the worksheet, then click on Company News. For a monitor you can add to a Launchpad view, run **{LLP <GO>}**.

To create an additional component that monitors social media postings related to the companies in your worksheet, use the drop-down to the right of the same Company News button and select Social Monitor from the menu that appears (**FIG. 4**).

BLOOMBERG ALSO PROVIDES regular digests on stocks trending on social media. Run **{NI STKCAT <GO>}** for a fixture that highlights which stocks are trending on StockTwits. The twice-daily story appears before the market open in New York and again after the first hour of trading.

For automated stories that will alert you whenever the volume of tweets in any half-hour period exceeds what would be expected in a similar period during the preceding month, go to **{NI SVELBAI <GO>}**. These alerts can be an early sign of rising interest in stocks discussed on social media. You can also monitor news related to the retail investing frenzy this year by using natural language. Type "news on retail investing" in the command line and press <GO>. The shortcut is **{NI RETINVEST <GO>}**. You can run **{LLP<GO>}** to add this news feed as part of your Launchpad setup. ●

Wisch is a market specialist for news at Bloomberg in New York.

Spot Sustainable Investing Opportunities With Data-Driven Automated Stories

By CLAUDIA QUINONEZ

MANY INVESTORS expect increasing payoffs from environmental, social, and governance efforts. To identify the best opportunities, they're looking to understand the data on sustainability deals, diversifying company boards and management, environmental risk profiles, and green projects that address climate change. To explore the wealth of information related to these topics that's available on the Bloomberg terminal, here's a selection of data-driven automated stories that can help your decision-making.

GREEN DEBT

- **Green Bonds Weekly Wrap**
  {NI ESGBONDWRP <GO>}

Recaps the green, sustainable, and social bonds priced that week. This story brings together commentary, a selection of weekly highlights, and a wealth of information including pipeline and potential deals.

- **Monthly Green Bonds Issuance**
  {NI ESGBONDVOL <GO>}

Tracks sales volumes of a range of green, sustainable, and social bonds priced during a given month. Publishes on the first weekday of the following month.

- **Asia ESG Debt Overview**
  {NI ESGDEBTAS <GO>}

A fully automated weekly rundown of newly issued ESG bonds and loans in Asia, including green, sustainability-linked, and social debt. The story highlights the top issuers of green bonds and the top ESG loan borrowers over the preceding two weeks.

- **Bloomberg Barclays Green Bond Insights**
  {NI BARCGREEN <GO>}

Tracks the daily performance of the Bloomberg Barclays MSCI Global Green Bond Index Total Return Index, highlighting its best- and worst-performing bonds.

- **SASB U.S. Corporate ESG Bond Index Updates**
  {NI BARCUSESG <GO>}

Tracks the Bloomberg SASB U.S. Corporate ESG Bond Index, highlighting the best and worst performers.

ESG INVESTING

- **ESG Mutual Funds EMEA**
  {NI ESGFDPFEU <GO>}
- **ESG Mutual Fund Performance: U.S.**
  {NI ESGFDPFUS <GO>}

Weekly summaries of the best- and worst-performing ESG-focused mutual funds, drawing on the Fund Screening function at {FRSC <GO>}. Publishes on Mondays.

- **Japan-Focused ESG Funds**
  {NI ESGFDPFJP <GO>}

A weekly snapshot of ESG fund performance for vehicles domiciled in and outside Japan, but with Japan as the geographic focus. Publishes in English and Japanese.

- **ESG ETF Flow**
  {NI ESGETFFLO <GO>}

A fully automated weekly story highlighting flows data for ESG ETFs available on {ETF <GO>}.

- **ESG Score Sector Analysis**
  {NI ESRETURN <GO>}

Weekly stories focusing on chemicals, metals, and oil and gas. The stories identify the companies that outperform their peers on both stock return and the E and S parameters in Bloomberg's ratings.

- **EU Activism Wrap**
  {NI ACTWRAPEU <GO>}

This weekly piece identifies new activist campaigns, upcoming events, biggest movers among activist targets, and recent related news. The story is pulled from Bloomberg's activist database at {BI ACT <GO>} and publishes on Fridays.

GOVERNANCE

- **S&P 500 Women on Boards**
  {NI SPXWMNBRD <GO>}
- **Women on S&P 500 Bank Boards**
  {NI S5BANKXBRD <GO>}
- **ASX Women on Boards**
  {NI ASXWMNBRD <GO>}
- **Women on Biggest Bank Boards**
  {NI TOPBANKBRD <GO>}

These stories provide transparency and identify changes in the gender balance of corporate boards. Tapping data from Bloomberg's Profiles database, which tracks 12,000 public and private companies globally, the stories tally the number of board seats gained or lost by women, the average age and tenure of board members, and boards' size. The data are also available on the terminal via functions such as {MGMT <GO>} and in API.

ENVIRONMENTAL RISK

- **Heating Degree Days Historical**
  {NI HDDUSWH <GO>}

Shows weekly U.S. heating degree days (HDD), a measure of energy demand needed to heat buildings, by region and state, and the deviation of the week's reading from long-term normal.

- **Heating Degree Days Forecast**
  {NI HDDUSWF <GO>}

Forecasts U.S. heating degree days for the next week. The story aims to surface the difference between the forecast and the normal level for that time of the year, which can be helpful for investors analyzing risks of extreme weather.

- **Cooling Degree Days Historical**
  {NI CDDUSWH <GO>}

Displays U.S. cooling degree days (CDD), a measure of energy demand needed to cool buildings.

- **Cooling Degree Days Forecast**
  {NI CDDUSWF <GO>}

Forecasts U.S. cooling degree days for the next week.

- **U.K. Temperature Forecast Deviation**
  {NI UKTEFD <GO>}

The story, which uses population-weighted weather data, compares Monday's seven-day forecast to the forecast for the same period made the previous Friday and publishes if there's a change of at least 1C.

- **Rhine Water Level Alerts**
  {NI RHINELEVEL <GO>}

Tracks water level at key bottleneck points—Kaub and Maxau—on Germany's Rhine river and alerts readers when it falls below or rises above certain levels. The water level determines whether barges can navigate the river safely and supply materials to the industries along it.

CARBON TRADING AND ENERGY

- **EU Carbon Emissions Market**
  {NI EUCARBEMI <GO>}

Reports on changes in carbon-permit trading under the European Union's system. The headline shows the percentage change and contract trading price.

- **EU Power Market Update**
  {NI EEUMKT <GO>}

Twice-a-day roundup of news, data, and charts relating to the European power market, with commentary and insights.

- **Best of BNEF Research: Automotive**
  {NI BNEFBSTAUT <GO>}
- **Best of BNEF Research: Oil and Gas**
  {NI BNEFBSTOIL <GO>}
- **Best of BNEF Research: Utilities**
  {NI BNEFBSTUTI <GO>}

Daily overviews highlighting valuable research produced by BloombergNEF.

- **BNEF LNG U.S. Exports**
  {NI LNGUSBNEF <GO>}

Provides daily estimates of deliveries from the U.S. natural gas pipeline system to liquefaction terminals.

- **BNEF LNG Alerts**
  {NI USLNGALRT <GO>}

This story is triggered when estimated deliveries from the U.S. natural gas pipeline system to a number of liquefaction terminals cross certain daily thresholds, leveraging BNEF's LNG Feedgas Model. ●

Quinonez is managing editor for news automation at Bloomberg News in London.

Do Cannabis Funds Still Offer a Potential Jackpot for Investors?

By CATALINA OLEA

THE REDDIT-FUELED stock frenzy grabbed a lot of attention earlier this year, but while that was happening, a group of thematic exchange-traded funds was also on fire.

Cannabis ETFs soared to records in February before coming down in early March. Even so, four of this year's five top-performing U.S. ETFs through March 25 were cannabis-related. With returns as high as 64%, they far outperformed the 4% return of SPY, the SPDR S&P 500 ETF Trust. Flows of almost $1.7 billion went into cannabis-themed ETFs, almost doubling assets under management, to a total $3.7 billion.

WHAT'S DRIVING the cannabis story? One key factor is the steady march of legalization in the U.S. Five additional states—Arizona, Mississippi, Montana, New Jersey, and South Dakota—voted for some form of legalization in November. One upshot: Legal cannabis sales could surge about 30% this year, according to Bloomberg Intelligence. What's more, BI projects that sales in New York—where the governor signed a bill on recreational legalization in late March—and New Jersey could reach a total of $3.3 billion in 2024.

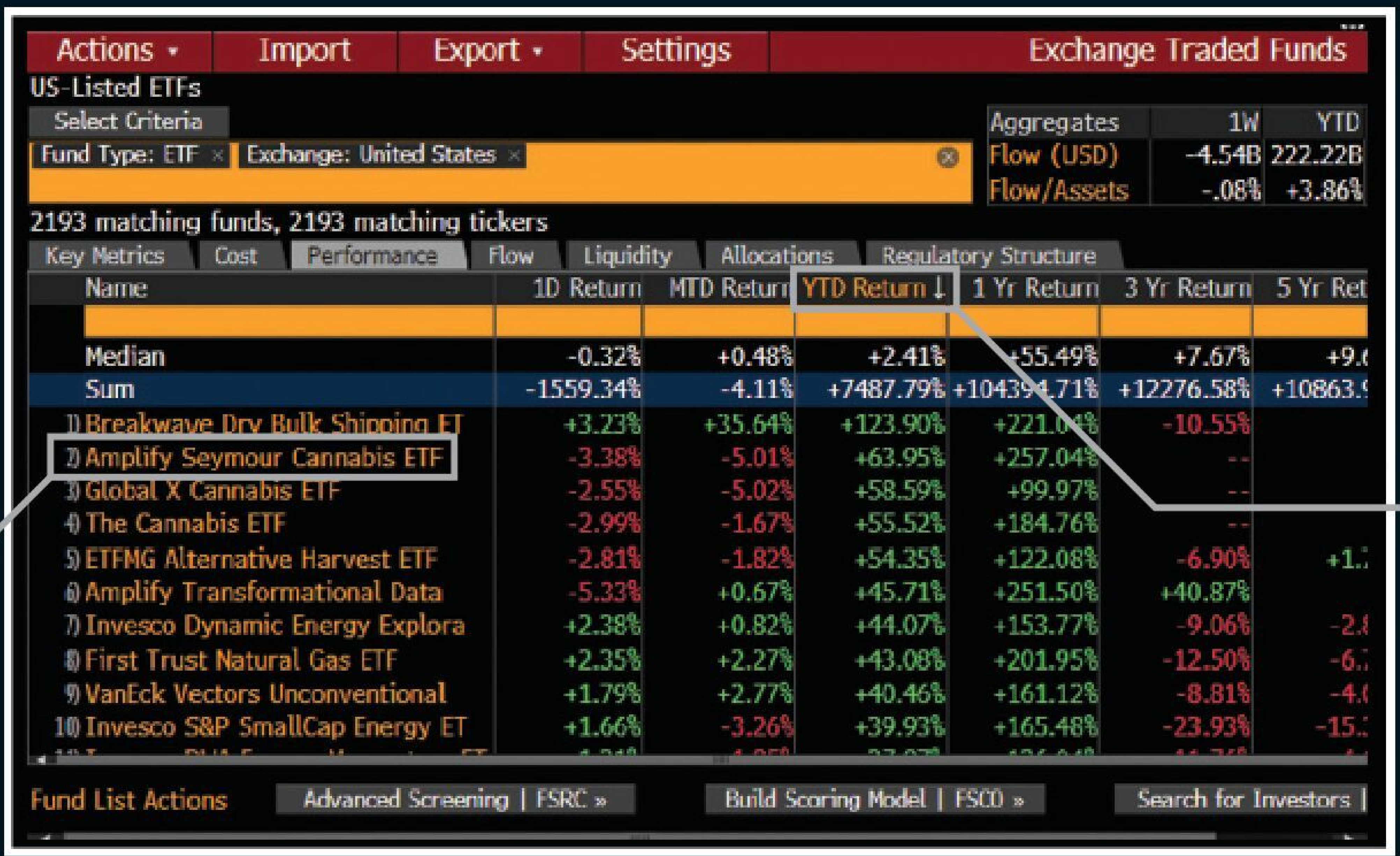
Given that growth, could cannabis ETFs still be a potential jackpot for investors? To track the performance of ETFs, type "ETF" in the command line and select the ETF – Exchange Traded Funds match. The shortcut is **{ETF <GO>}**. The ETF function lets you specify criteria so you can drill down to funds that interest you. To see the best-performing U.S. ETFs, set the criteria to Fund Type: ETF and Exchange: United States, click the Performance tab, and then click the YTD Return column heading (**FIG. 1**).

To build a list of cannabis ETFs, type "fund screening" in the command line and click the FSRC – Fund Screening match. The shortcut is **{FSRC <GO>}**. In the Universe Criteria section at the top of the screen, click Fund Type. Click on Exchange Traded Products so it appears in the Included Options section of the window. Hit Update. Next, click Fund Description. Type "cannabis" in the Contains field and click Update. To save the search so you can use it in other functions, click the Actions button and select Save As. Give the search a name such as "Cannabis ETFs" and click Update. The search returned 11 matching funds as of late March—nine listed in the U.S. and two domiciled in Ireland.

Now, if you run **{ETF <GO>}** again, you can analyze these funds. Click the Import button. Under List Sources, click Fund Screen (FSRC). Type "cannabis ETFs" in the amber field, press <GO>, and click on the matching search to select it. To compare costs, click the Cost tab. To compare returns, click the Performance tab again. If you load the top performers of this year into the Comparative Returns (COMP) function, you can see they all had a big price spike in February and then retreated (**FIG. 2**).

FOR INVESTORS WITH various appetites for exposure and diversification, the ETFs provide the opportunity to target different pockets of the North American market and supply chain. Go to

Fig. 1 To analyze exchange-traded funds, run **{ETF <GO>}**.



Name	1D Return	MTD Return	YTD Return ↓	1 Yr Return	3 Yr Return
Median	-0.32%	+0.48%	+2.41%	+55.49%	+7.67%
Sum	-1559.34%	-4.11%	+7487.79%	+104394.71%	+12276.58%
1) Breakwave Dry Bulk Shipping ET	+3.23%	+35.64%	+123.90%	+221.04%	-10.55%
2) Amplify Seymour Cannabis ETF	-3.38%	-5.01%	+63.95%	+257.04%	--
3) Global X Cannabis ETF	-2.55%	-5.02%	+58.59%	+99.97%	--
4) The Cannabis ETF	-2.99%	-1.67%	+55.52%	+184.76%	--
5) ETFMG Alternative Harvest ETF	-2.81%	-1.82%	+54.35%	+122.08%	-6.90%
6) Amplify Transformational Data	-5.33%	+0.67%	+45.71%	+251.50%	+40.87%
7) Invesco Dynamic Energy Explora	+2.38%	+0.82%	+44.07%	+153.77%	-9.06%
8) First Trust Natural Gas ETF	+2.35%	+2.27%	+43.08%	+201.95%	-12.50%
9) VanEck Vectors Unconventional	+1.79%	+2.77%	+40.46%	+161.12%	-8.81%
10) Invesco S&P SmallCap Energy ET	+1.66%	-3.26%	+39.93%	+165.48%	-23.93%

Cannabis-themed ETFs were among the best-performing funds this year through March 25.

Click here to sort by year-to-date return.

Fig. 2 Run **{COMP <GO>}** and load the best-performing cannabis ETFs, and you can see how they've all come back down after a big spike in February.

Security	Currency	Price Change	Total Return	Difference
1) CNBS US Equity	USD	240.08%	242.07%	150.49%
2) POTX US Equity	USD	81.99%	91.58%	--
3) THCX US Equity	USD	154.64%	166.32%	74.74%
4) MJ US Equity	USD	103.64%	112.74%	21.15%
5) YOLO US Equity	USD	203.94%	214.60%	123.02%
6) TOKE US Equity	USD	101.41%	113.32%	21.73%

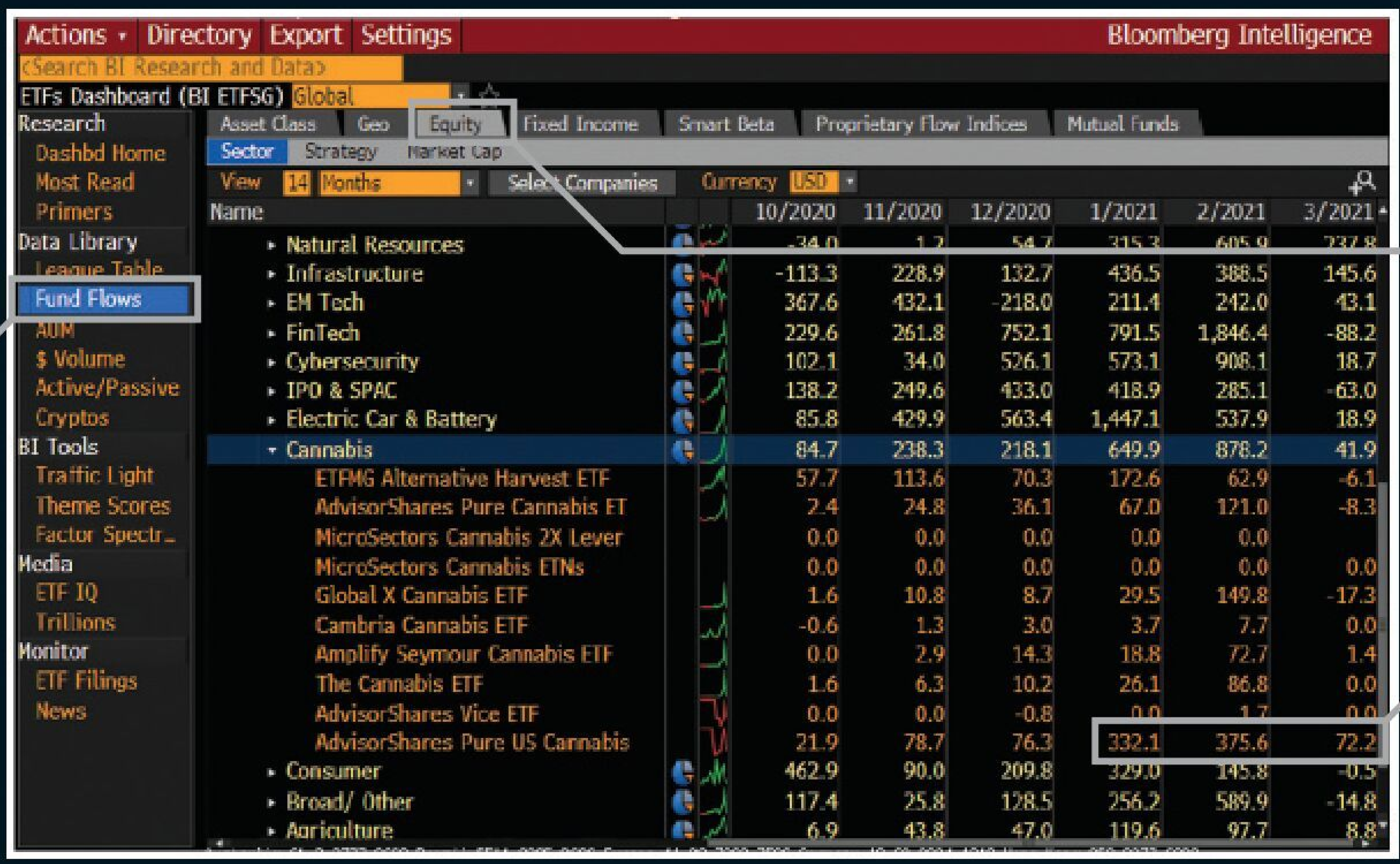
{CNBS US <Equity> DES <GO>} for a description of the Amplify Seymour Cannabis ETF, the best-performing fund this year. CNBS tracks companies engaged in cannabis- and hemp-related activities; about 45% of its holdings are shares of companies domiciled in Canada, where cannabis is legal for recreational and medical purposes. Run **{POTX US <Equity> DES <GO>}** for the Global X Cannabis ETF, which tracks the performance of an index with about 75% weighting in Canadian stocks. Go to **{THCX US <Equity> DES <GO>}** for the Cannabis ETF, which tracks the return and performance of a benchmark primarily focusing on distributors and manufacturers.

What do key indicators such as assets under management and fund flows signal for these funds? To analyze AUM, run **{BI ETFS <GO>}** for the Bloomberg Intelligence ETFs Dashboard. Select AUM under data library on the left-hand panel. Click the Equity tab, then the Sector subtab. Scroll down to Thematic and expand the list if it isn't already expanded. Then click the triangle to open the list for Cannabis. Here, you can see that the ETFMG Alternative Harvest ETF was the biggest cannabis-themed ETF, with $1.8 billion in assets.

To analyze fund flows, select Fund Flows in the navigation panel and then click Equity and scroll down to Cannabis again (**FIG. 3**). Here you can see that the AdvisorShares Pure US Cannabis ETF accounted for most of the positive flows this year.

To perform a relative valuation analysis of cannabis ETFs so you can benchmark against comparable funds, go to **{MSOS US <Equity> RV <GO>}** to load the AdvisorShares ETF. By default, the peer group will pull ETFs with a similar fund objective, country of domicile, and domicile type. To customize the ►

Fig. 3 To track monthly fund flows for thematic ETFs, go to **{BI ETFS <GO>}** for the Bloomberg Intelligence ETFs dashboard.



Click here for fund flows data.

Select Equity and scroll down to Cannabis under Thematic.

This AdvisorShares fund had the largest share of flows this year.

Fig. 4 Run **{MSOS US <Equity> RV <GO>}** to analyze relative value of the AdvisorShares ETF and peer funds.

To customize the list of peers, click here.

To select the list of cannabis-themed ETFs you created in FSRC, use the Peers drop-down to select Fund Screen (FSRC).

peer group, select customize in the red toolbar and select custom peers. You can also load your list of ETFs from FSRC by using the Peers drop-down to select Fund Screen (FSRC) and then selecting Cannabis ETFs and pressing <GO> (**FIG. 4**).

ALONG WITH THIS YEAR'S surge in ETF prices, recent industry mergers and acquisitions have sparked optimism that could lead to greater ETF volume and market momentum. On Feb. 3, Dublin-based Jazz Pharmaceuticals Plc said it had agreed to buy GW Pharmaceuticals Plc for $7.2 billion. The Cambridge, England, company makes the first cannabis-derived drug to win approval from the U.S. Food and Drug Administration. The acquisition followed last year's C$4.8 billion ($3.8 billion) merger of Canada's Tilray Inc. and Aphria Inc.

To view deal details for recent M&A activity, run **{MA <GO>}** for the Mergers & Acquisitions screening tool and click the Advanced Search button on the red toolbar. To search for deals announced in the past 12 months, click on Date Range. Use the drop-down to select Last 12 Months. Tick the box for Announced Date and click Update. Next, click Deal Type. Select M&A and hit Update. Under Company Universe, click Description. Type "cannabis" in the Enter Keywords field, press <GO>, and hit Update. Click on Results. To see details of a particular deal, click on it in the Deal List.

With rising profits, a surge in trading volume, recent mergers, and widening legalization, cannabis ETFs could reach new highs in 2021. ●

Olea is on the staff of the sales department at Bloomberg in New York.

Identify the Best Opportunities for FX Hedging, Borrowing, and Lending With These Formulas

By OWEN MINDE and ANDREW GIRARD

CORPORATE TREASURERS aim to mitigate foreign exchange risk, borrow needed funds at the lowest possible interest rate, and lend excess cash at the highest possible rate.

To those ends, they need to analyze the cost of hedging a currency with an FX forward, evaluate how those costs have changed over time, and calculate whether it's advantageous to convert from the company's home currency to a foreign currency to borrow or lend. New Bloomberg Excel formulas make it easier than ever to stay on top of such tasks.

TO SEE HOW THIS WORKS, let's start with a quick refresher on covered interest-rate parity. CIRP is a textbook arbitrage-free relationship between currency interest rates and spot exchange rates. The basic idea of CIRP is that FX forwards should be priced such that a market participant can't make a risk-free profit in the following way: Borrow money in one currency, exchange it for another in the spot market, lend in the foreign currency, and then buy back the original currency at the forward rate, covering the original loan and making a profit on top.

Mathematically, CIRP is

$$F = S\,\frac{(1 + i_1 T)}{(1 + i_2 T)}$$

where F = forward rate, S = spot rate, i_1 = interest rate in currency 1, i_2 = interest rate in currency 2, and T = time factor.

This relationship between the spot, forward, and interest rates enables you to imply any one variable from the others. Rearranging the equation a little, for instance, you can solve for the foreign interest rate. This "implied" rate is calculated from the market FX forward points and the domestic interest rate.

Run **{USDZAR <Curncy> FXFA <GO>}** for the FX-Interest Rate Arbitrage function, and you can use CIRP to calculate any of the facets for South African rand. Click on the Settings button on the red toolbar and select Trade View Settings. Then use the Trade View drop-down to select Mid View and click on Update.

To derive the annualized implied yield for the rand for each of the tenors, use the Imply drop-down to select ZAR Yield (**FIG. 1**). The difference between the implied yield and the USD yield is the annualized cost of hedging South African rand. When we ran the function in mid-February, with the three-month USD yield of 0.0718% (using the USD overnight index swap curve) and the three-month FX swap points of 1,820 ZAR pips, the implied ZAR yield was 5.0461%. (A pip refers to the smallest price change in an FX quote, in this case 0.0001 of a rand.) The annualized hedging cost of selling rand and buying dollars for three months was therefore 4.9743%—the difference between the implied ZAR yield sacrificed and the USD yield of 0.0718% earned over the period.

ALL THESE CALCULATIONS can be retrieved directly in Excel using the FX Toolkit found in the easy-to-use Function Builder. Open a spreadsheet and click on Bloomberg for the Bloomberg ribbon. Open the Function Builder on the Bloomberg ribbon and type "bfximplied" to bring up the new functions: =BFxImplied(), =BFxImpliedForward(), and =BFxImpliedSwap(). These functions can be used to retrieve market and implied interest-rate yields, the spreads between them, and FX swap rates, or to replicate the entire **{FXFA <GO>}** screen in Excel.

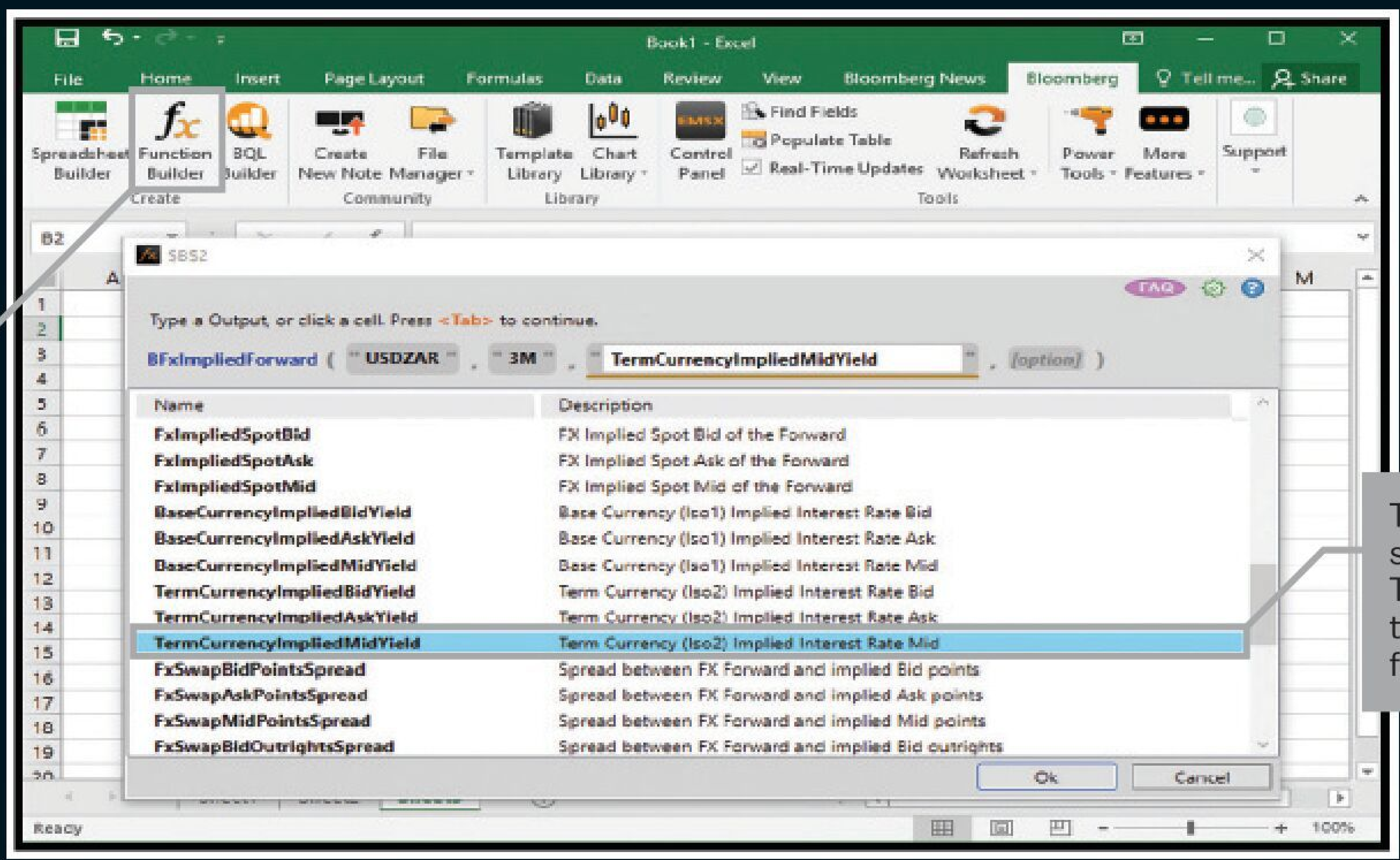
To pull the two rates used to calculate the annualized cost of hedging South African rand, click on BFxImpliedForward to select the function. You can then add the parameters of the function by pressing <Tab>. The first parameter is CurrencyPair. For South African rand, enter "USDZAR" and press <Tab>. In the Settlement parameter, type "3M" for three months and press <Tab> again. Finally, in the Output parameter, we want the ZAR implied yield. From the list of choices, scroll down to TermCurrencyImpliedMidYield and click on it (**FIG. 2**). (In the USDZAR currency pair, USD is the base currency and ZAR is the term currency.) Press <GO> to pull the data into a cell in Excel. ►

Fig. 1 Run **{USDZAR <Curncy> FXFA <GO>}** to use the FX-Interest Rate Arbitrage function to calculate the implied yield of South African rand.

For the rand yield implied by USD rates and USDZAR FX forwards, select ZAR Yield here.

The three-month implied yield was 5.0461%.

Fig. 2 To access the new functions in an Excel sheet, click on Bloomberg for the Bloomberg ribbon.



Click here, then type "BFxImplied" and click on the BFxImpliedForward match to select it. Press <Tab> and enter parameters for the formula such as "USDZAR" and "3M."

To output ZAR implied yield, scroll down and click on TermCurrencyImpliedMidYield, then press <GO> to enter the formula in the selected cell.

To add the three-month USD yield, select another cell and click on Bloomberg and Function Builder again. This time fill in this formula and parameters: =BFxImpliedForward("USDZAR," "3M," "BaseCurrencyMarketMidYield") and press <GO>. Netting the two outputs of the formulas gives the annualized hedging cost.

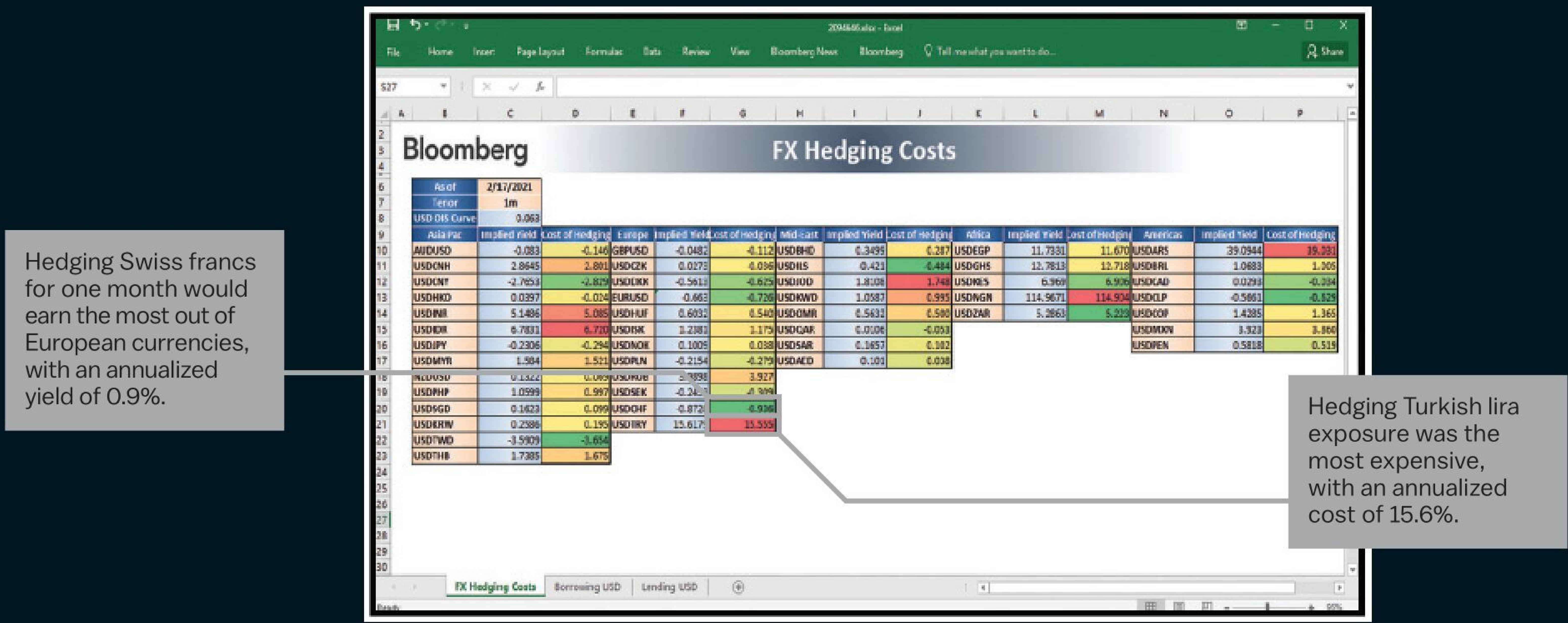
FOR A SPREADSHEET that shows how this functionality can be used to simplify treasury workflows, go to **{DOCS 2094646 <GO>}** and click on the Download Document button.

Click on the spreadsheet's FX Hedging Costs tab if it's not already selected. Here you can derive the cost of hedging for multiple currencies at once from the point of view of a U.S. corporate treasurer who's hedging by selling foreign currencies forward in exchange for U.S. dollars. If you select 1m from the Tenor drop-down, the Implied Yield of the foreign currency is calculated from the one-month FX forward points and the one-month USD OIS curve (**FIG. 3**).

The Cost of Hedging is the Implied Yield minus the USD OIS Curve, which is shown for the selected tenor in cell C8. The sheet lets you evaluate the cost of hedging currencies within a region. Looking at the Europe section, for example, in mid-February showed that a U.S. corporate treasury could actually be paid to hedge many potential exposures by selling those foreign currencies forward against the dollar for one month. Selling Swiss francs would earn the most, with an annualized yield of 0.936%. By contrast, hedging Turkish lira exposure was the most expensive, with an annualized cost of 15.555%.

The sheet also lets you see how hedging costs have changed historically. Say you wanted to compare hedging costs at the

Fig. 3 For a ready-made spreadsheet that lets you compare the cost of hedging across multiple currencies, go to **{DOCS 2094646 <GO>}** and click on the Download Document button.



beginning of 2020. Simply enter "01/01/2020" in the cell to the right of As Of and press <GO>. (To see what's happening under the hood here, click into any Implied Yield cell to display the formula. The PricingDate parameter at the end of the =BFxImpliedForward() formula makes it easy to view historical point-in-time hedging costs. Here the formula calls the date in cell C6.)

As of mid-February the cost of hedging all the currencies in the Americas region had become significantly cheaper. The cost of hedging Brazilian real exposure decreased, with the annualized cost of selling BRL forward for one-month dropping to 1.01% from 3.26% at the beginning of last year.

THE SAMPLE SPREADSHEET also has you covered when it comes to borrowing or lending cash. The Lending USD tab lets a treasurer quickly see a potential pickup in yield by swapping excess U.S. dollars into a foreign currency for a period of time, before selling the foreign currency back via an FX forward.

Taking a look at the Asia-Pacific currencies, you can see how swapping U.S. dollars into Japanese yen for one month provides a pickup in annualized yield of 16 basis points over the prevailing market OIS rate of 0.061% to lend U.S. dollars.

Whether you're comparing current or historical hedging costs, or borrowing/lending currencies, the FX toolkit provides an all-encompassing way to perform each of these tasks. You can find a complete guide to this toolkit by running **{XLTP XFXTK <GO>}**. ●

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

Identify Potential Short Squeezes With These Tools

By MARK JORDAN and MEGAN MARK

WHEN REDDIT AND its Wall Street Bets community fueled an astronomical rise in GameStop Corp. shares in January, the meme stock saga marked the arrival of social media as an equity market force. It also shined a spotlight on a market phenomenon that rarely gets attention: short squeezes.

A short squeeze occurs when a stock's price rises unexpectedly, inflicting losses on the traders who sold it short. If the loss gets too big, short sellers are forced to close out positions by buying back their shorted shares at the market level. When a lot of traders have shorted a stock—or if a few have taken large short positions—this process creates its own buying pressure because of the "extra" demand for shares needed to exit short positions quickly. In turn, this puts a squeeze on any remaining short sellers to close out their losing positions at ever-increasing prices. Hence, the more heavily shorted a stock is, the more impact the short squeeze will have.

Short squeezes can be very profitable for people who own the stock, especially those who bought just before the squeeze started. This is what happened when Reddit alerted an army of retail investors to the overly bearish sentiment about GameStop. Fueled by the YOLO mantra—you only live once—and rocket ship emojis, Redditors bought GameStop en masse to trigger a vicious short squeeze.

The stock's vulnerability to a short squeeze was visible in two key metrics: the short-interest ratio and short interest as a percentage of free float. The short-interest ratio is calculated by taking the number of shorted shares and dividing it by the stock's average daily trading volume. That tells you in effect how many days it would take short sellers to buy back their positions. The higher the number, the longer it takes and the more pronounced a short squeeze. Short interest as a percentage of free float is calculated by taking the number of shares sold short and dividing it by the number of shares available for the public to trade, known as the free float. Unlike volume, which can change daily, free float is a relatively fixed number and gives a more definitive picture of bearish sentiment.

To examine both of these key metrics, you can use the Short Interest function. Run **{GME US <Equity> SI <GO>}** to view data for GameStop (**FIG. 1**). The screen shows the collapse of short interest in January and the squeeze that pushed GameStop shares up 1,625% on high volume.

You can also analyze short-interest data across industries by running **{SIA <GO>}** for the Short Interest Analysis function. As of mid-March the real estate industry had the highest SI Ratio. The most-shorted industry as a percentage of float was consumer discretionary (**FIG. 2**). Interestingly, as of Feb. 26 (short-interest data are released bimonthly), GameStop was still the second-most-shorted stock in terms of short interest as a percentage of float, even in this heavily shorted sector.

YOU CAN ALSO set an alert that will notify you of spikes in short interest in the stocks you follow using Bloomberg's Automated Intelligence. Run **{NI SIBAI <GO>}** and click on a story. Then, click the Subscribe to Short Interest Updates on a List button. In the window that appears, you can select a portfolio, monitor, or other list of securities. On March 9 an alert was triggered when Koss Corp.'s short interest rose to 42.9% of float (**FIG. 3**). The next day shares of the Milwaukee-based headphone maker rose 69% on volume that was 956% higher than the previous day.

Finally, the options market may also help identify stocks that are facing potential short squeezes. Owning short-dated, upside calls is a way of profiting from (or hedging against) rapid stock appreciation. Hence, when call volumes jump on heavily shorted stocks, it suggests that market participants may be positioning themselves for a short squeeze. Run **{MOSO <GO>}** to scan the most actively traded options on an exchange. It's worth noting that 14 of the most active options in the U.S. on Jan. 27 were names discussed on Reddit.

GameStop's unprecedented price action sent a message to Wall Street that Main Street is a force to be reckoned with. The terminal can alert you to trading opportunities related to that. ●

Jordan is an equity derivatives market specialist, and Mark is an advanced equity specialist, both at Bloomberg in New York.

Fig. 1 To track short interest on a selected stock, go to {SI <GO>}.

The GameStop short squeeze contributed to the huge rise in the retailer's stock price in January.

At the end of 2020, GameStop's short-interest ratio was 6.14, meaning it would take about six days of average volume to transact the number of shares sold short.

Fig. 2 Run {SIA <GO>} to analyze short interest by industry or security.

	Industry	Short Interest	% SI Change	SI Ratio	SIR Change	% Float	% Float Change
1)	Consumer Discretionary	1.52B	-0.46	4.29	0.07	5.16	-0.16
2)	Information Technology	1.1B	0.36	4.18	-0.06	4.74	0.19
3)	Communication Services	883.85M	2.69	4.28	0.07	4.23	0.12
4)	Consumer Staples	593.65M	3.70	4.53	0.15	4.16	0.05
5)	Energy	1.28B	-7.15	2.73	-0.69	3.85	-0.13
6)	Health Care	692.32M	2.65	4.40	-0.37	3.69	0.09
7)	Real Estate	856.86M	1.28	4.77	-0.75	3.68	0.03
8)	All Securities	10.52B	0.36	3.89	-0.36	3.53	0.03
9)	Industrials	1B	1.47	3.94	-0.48	3.04	0.04
10)	Materials	830.46M	-1.59	3.06	-0.32	2.49	0.01
11)	Financials	1.4B	3.91	3.63	-0.46	2.36	0.12
12)	Utilities	364.95M	3.59	3.48	-0.77	1.91	0.14

Consumer discretionary was the most-shorted industry in terms of short interest as a percentage of float.

Fig. 3 For automated stories on short-interest spikes, go to {NI SIBAI <GO>}.

Click here to subscribe to alerts that will notify you of short-interest spikes on stocks in a portfolio, monitor, or other list of securities.

Singapore's Stock Nursery Risks Becoming a Nursing Home

By ABHISHEK VISHNOI and TOM REDMOND

ON MOST OF THE WORLD'S major stock exchanges, companies usually graduate from the secondary board to the main venue. That's what junior boards are—stepping stones for growing businesses en route to the big leagues. And yet at Singapore Exchange Ltd. (SGX), 27 stocks have dropped from the Mainboard to the Catalist, its junior venue, since 2014, according to data from Mak Yuen Teen, an associate professor of accounting at the National University of Singapore. In the same period, only seven moved in the other direction.

As Mak sees it, the clearest benefit for most of the companies that moved downward was to avoid an SGX watchlist that could have led to their delisting; they either were on such a list or risked being put on one. He's warned that the Catalist is in danger of becoming a "graveyard for dying companies" rather than a nursery for growing ones. It's "almost a perverse situation," like sporting professionals suddenly slipping back into the ranks of amateurs, says Nirgunan Tiruchelvam, head of consumer equity research in Singapore for Tellimer, a research house. "Test cricketers are coming into the school cricket team."

The trend is intensifying this year. Aspen Group Holdings, a real estate group, climbed onto the Mainboard in January, but three companies traveled in the other direction between the beginning of February and March 2: Livingstone Health Holdings, a medical provider that went public through a reverse takeover; Sevak, which offers telecommunication services; and F J Benjamin Holdings, a fashion retailer whose 71-year-old chief executive officer, Nash Benjamin, says it's moving to have more flexibility and escape a watchlist.

Exchange experts and market participants come to different conclusions about this trend. Mak sees a flaw in market structure. SGX should consider prohibiting companies from dropping to the second board, he wrote in a 2019 paper.

SGX has already taken a major step that should help stem the flow of companies moving down to the junior venue. Last year its regulatory arm removed a minimum trading price rule for Mainboard companies, which means they'll no longer be placed on a watchlist if their six-month volume-weighted average share price falls below 20 Singapore cents and their six-month average daily market capitalization drops below S$40 million ($30 million). In turn, they'll no longer have an incentive to move to the junior board to escape such a list. An SGX spokesperson says 63% of the companies that transferred to the Catalist from 2011 to 2020 did so because of the minimum trading price rule.

At the same time, the exchange says it should offer different options to companies. That's especially true, it says, during the Covid-19 pandemic, which has hurt many businesses. "One should not disregard the multiple considerations and needs of a diverse

The Ups and Downs of SGX

Companies that moved between the junior and senior boards of the Singapore Exchange*

**Each arrow represents one company. †As of March 2.*

Source: Mak Yuen Teen, associate professor at the National University of Singapore

range of stakeholders," an SGX spokesperson says. "SGX's Mainboard and Catalist platforms support companies' fundraising needs at varying stages of growth. The Catalist platform tends to attract companies which seek faster time to market and more headroom for secondary fundraising, acquisitions, and disposals."

MANY MARKET PARTICIPANTS see an issue that has nothing to do with how the exchange's boards are set up. For them the concerning statistic is the small number of companies being promoted to the main venue. The reason for that, they say, is Singapore's size. Businesses don't have a big market—an economic hinterland—in which to grow, says Jarick Seet, head of small- and mid-cap research at RHB Bank in Singapore. As a consequence, few companies can get big enough to be promoted.

By contrast, Hong Kong's bourse can draw on the vast Chinese market, says Alan Richardson, a senior fund manager for Southeast Asian equities at Samsung Asset Management Ltd. in Hong Kong. Singapore has fewer than 6 million people, but China has a population of about 1.4 billion. "It's very difficult for a city-state to develop a rich ecosystem of stocks," he says.

As of Jan. 31, an SGX spokesperson points out, 11 Catalist companies had qualified to transfer to the Mainboard but chose to remain where they were. In a sense, market participants say, the shortage of companies being promoted to the Mainboard is another manifestation of an issue that's long affected Singapore's equity market: the challenge of attracting companies. Delistings have outnumbered listings on the exchange in each of the last seven years, according to data compiled by Bloomberg. That's prompted some observers to say the market is shrinking.

But does it matter if Singapore's stock market lacks vibrancy? Some say it's not a major drawback given the city-state's many other advantages. It's still one of Asia's main financial hubs, along with Hong Kong. It was ranked as Asia's most competitive wealth management center—second only to Switzerland globally—in a 2018 Deloitte report. And the World Bank ranks it second out of 190 countries for ease of doing business.

Singapore's low taxes, strong regulatory framework, and stable currency continue to attract a lot of money. And that won't be altered by some tiny companies dropping to the junior board. "The government wants to excel in many areas, like being a financial hub, a technology hub, in REITs, gaming, high-tech manufacturing, and trade," says Seet at RHB Bank. "Most of these goals are achievable without a great roaring stock market." ● —*With Jeffrey Hernandez*

Vishnoi covers equities for Bloomberg News in Singapore, where Redmond is an editor.

Find Under-the-Radar Companies That Are Making a Good Impression

By SHAUN WATERS and CONSTANTIN COSEREANU

THE COMPANY WAS already on a hot streak, and the news was getting even better.

Applied Materials Inc., a Santa Clara, Calif.-based supplier of components for semiconductor manufacturing, rallied with other chip equipment stocks during the week ended Feb. 26 as President Biden announced plans to order a government review of U.S. supply chains. The company had been on a steady climb already, rising more than 97% during the 12 months through the end of February, as it unveiled encouraging financial results.

With the pandemic and politics grabbing headlines, anyone could have missed the buzz generated by one manufacturer. Still, by using Bloomberg's news-sentiment indicators, even the busiest investor would have spotted what was happening at Applied Materials, and dozens of other less-known companies. Bloomberg's analytics rely on deep-learning techniques to sift through approximately 1.5 million stories a day from about 175,000 financial news and web sources. A universe of 150,000 companies are each tagged for negative or positive sentiment. The score values range from -1 (most negative) to 1 (most positive) and are calculated with an intraday (8-hour) and daily (24-hour) rolling window.

Most important, the analytics are fully integrated into Bloomberg terminal workflow and can help generate new ideas for your portfolio.

LET'S RUN THROUGH an example of how you can screen for positive news sentiment to find potential stock investments. To start, type "equity screening" in the command line and click on the EQS - Equity Screening match. The shortcut is **{EQS <GO>}**. In the amber field under Add Criteria, type "S&P 500" and choose S&P 500 INDEX - Index from the list of autocomplete matches. Next, type "news sentiment" and select News Sentiment – Daily Average - Screening/ Display Field from autocomplete. The default time frame, 1 Day Ago, will appear in the second amber field; keep that. In the drop-down menu below the field that says "No condition, display only," click on > Greater than to select it. Then, in the next field that appears below, type "0.5" and hit <GO>. When we ran this screen on Feb. 26, 19 companies from the S&P 500 had a news-sentiment score greater than 0.5. If you don't know a lot about these companies, you can add other metrics such as return on common equity. Type "return on common equity" in the amber field, select Latest Filing and No condition, display only, and press <GO> (**FIG. 1**).

Click on the Actions button on the red toolbar and choose Save As. Give the screen a name such as Bullish News and hit Update. Now click on the See Results | WATC button in the lower right corner of the screen. (You can also link a monitor in your Launchpad view to the saved EQS search so it will update as the search turns up new names.)

The Watchlist Analytics screen allows you to analyze your list of stocks in a variety of ways. For a template that will display all of the metrics you used in your EQS search, click on the Actions button on the red toolbar. Select EQS Report and tick the box next to Report Layout. An updated Results screen will appear. Let's say you now want to add profit margin data to your analysis. In the Add Column field, type "profit margin" and choose the first option from autocomplete. Select Latest Filing and hit <GO>. The price-earnings ratio, a metric often examined by investors, should already be displayed in a column labeled P/E.

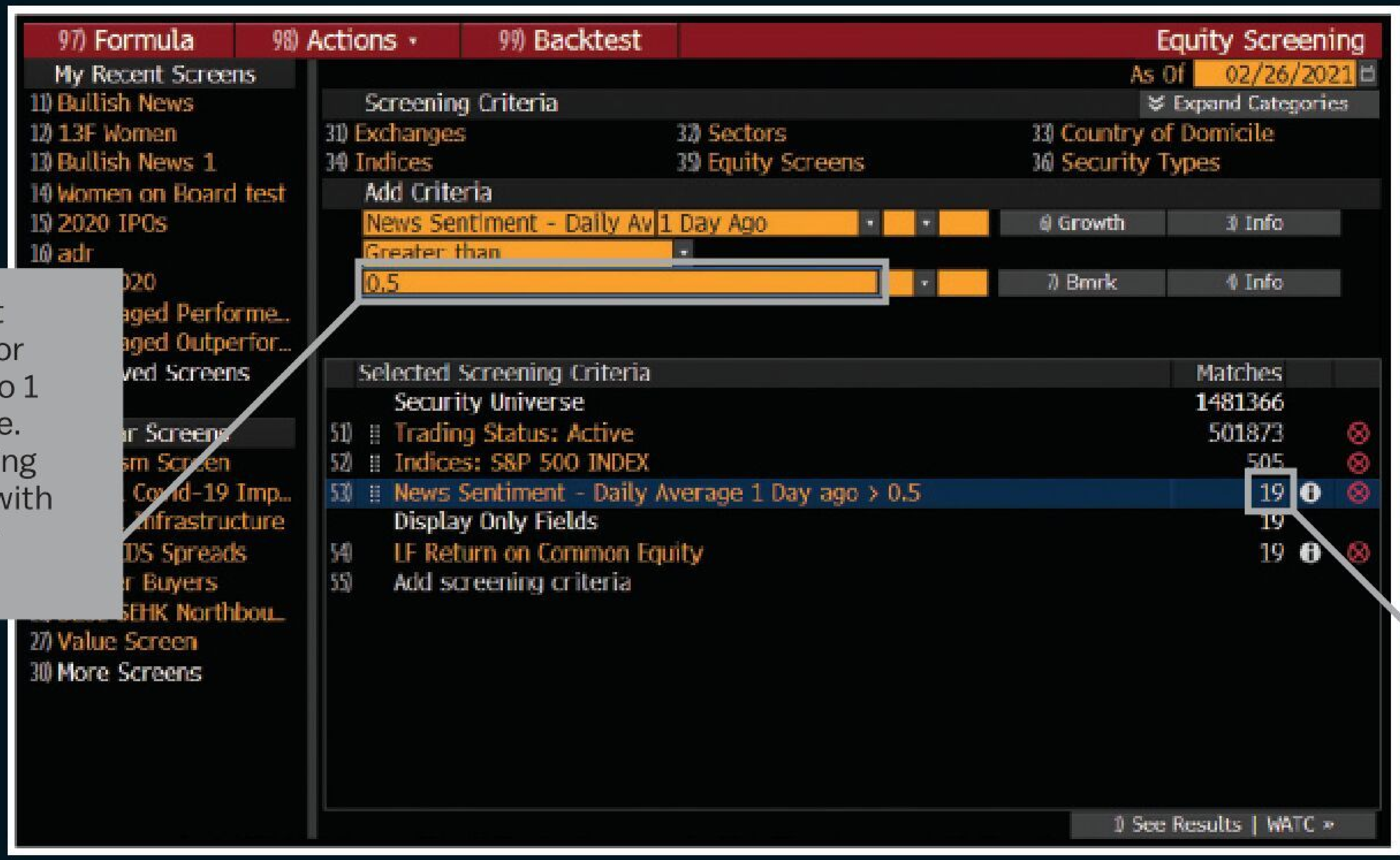
Once you have news sentiment, return on common equity, profit margin, and the price-earnings ratio, you can combine the four metrics into a single score. Right-click on the PM LF column heading and select Insert Combined Column. Choose Sum of Percentile under Step 1. In the Columns section under Step 2, tick the boxes next to PM LF, ROE LF, News Sent Daily Avg:D-1, and P/E. For P/E, you'll need to change the amber drop-down under Sort Order to Lower Value is Better. (A lower P/E, of course, means you are paying less for every dollar of earnings you receive.) We want all four factors to be equally weighted, so change the number in the amber field next to each of them to 0.25 (**FIG. 2**). Finally, add a Column Title. Let's call it News Score %. Then click on Insert.

Now you will see the News Score % column appear in your report. To convert those percentile numbers into a rank, right-click the column heading and select Insert Derived Column. Choose Rank. Then click Insert. Click the top of the new ranking column to toggle the results. In our example, Applied Materials ranked No. 1 overall (**FIG. 3**). However, you can see other companies performed better on individual factors such as profit margin, ROE, and price-earnings.

There's no guarantee that narrowing your stocks to just those with positive news sentiment will produce outperformers, but this analysis might help you find companies that weren't on your radar. The results may surprise you. ●

Waters is a news core product manager and Cosereanu is a portfolio and workflow specialist at Bloomberg in New York.

Fig. 1 To screen for companies with positive news sentiment, run **{EQS <GO>}**.



News sentiment ranges from -1 for most negative to 1 for most positive. Here we're looking for companies with a reading higher than 0.5.

The criteria winnowed the list of S&P 500 stocks to 19 names as of Feb. 26.

Fig. 2 From EQS, click the See Results | WATC button to analyze your list of stocks in the Watchlist Analytics function.

For a template that displays all the metrics from your EQS search, click here, select EQS Report, and tick the box next to Report Layout.

Here we're creating a composite score that equally weights the news sentiment reading, profit margin, ROE, and price-earnings at 25% each.

Fig. 3 In WATC, you can then add a column that ranks the stocks in your list according to their composite News Score %.

Right-click on the column heading, select Insert Derived Column, and then click Rank.

Applied Materials ranked No. 1 as of Feb. 26.

Evaluate Potential Portfolio Trades Quickly and Efficiently With PORT and FIW

By STEVEN GEE, ISABEL LINDER, and JACQUELINE GALVEZ RODRIGUEZ

Fig. 1 To create a portfolio from a list of bonds in Excel, run **{PRTU <GO>}** and click on Create. Give the portfolio a name, select FI as the Asset Class, and click on Create.

SINGLE BOND TRADES—transacted by traditional buyers and sellers using Bloomberg IB chats, MSGs, the telephone, and electronic trading platforms—have been the cornerstone of the corporate bond trading world. Broker-dealers provide market-making liquidity, relying on carefully crafted market color and axed pricing, to facilitate these trades. Each trade represents a valuable chit in building collaborative relationships.

For credit investors, though, the challenge of outperforming peers is harder in the current environment of low yields, narrow credit spreads, and benign credit risk that's been caused, in part, by the market perception that the Federal Reserve has "got your back." What's more, if your portfolio is supersized, shifting strategies in a short time frame—whether that's changing sectors, issuers, or duration buckets—is increasingly difficult to do without loudly telegraphing your intentions to the market.

What's resulted is a special sandbox venue of the market—portfolio trades—in which market participants with large holdings can horse-trade their bond positions with one another. It's reminiscent of before the financial crisis, when banks were still permitted to sling around large positions, using leverage and their huge balance sheets to make markets. These days, this sandbox is limited to market players who have the capital, risk appetite, and distribution to efficiently price portfolios of bonds, trade them at competitive prices, and generate some profit from the transaction. Easier said than done. To accomplish it, you first need to win the portfolio trade away from other eager behemoths.

To get a step ahead of the competition, use Bloomberg's Portfolio & Risk Analytics (PORT) to assess the risk on a portfolio

Fig. 2 Load the portfolio into PORT to analyze it.

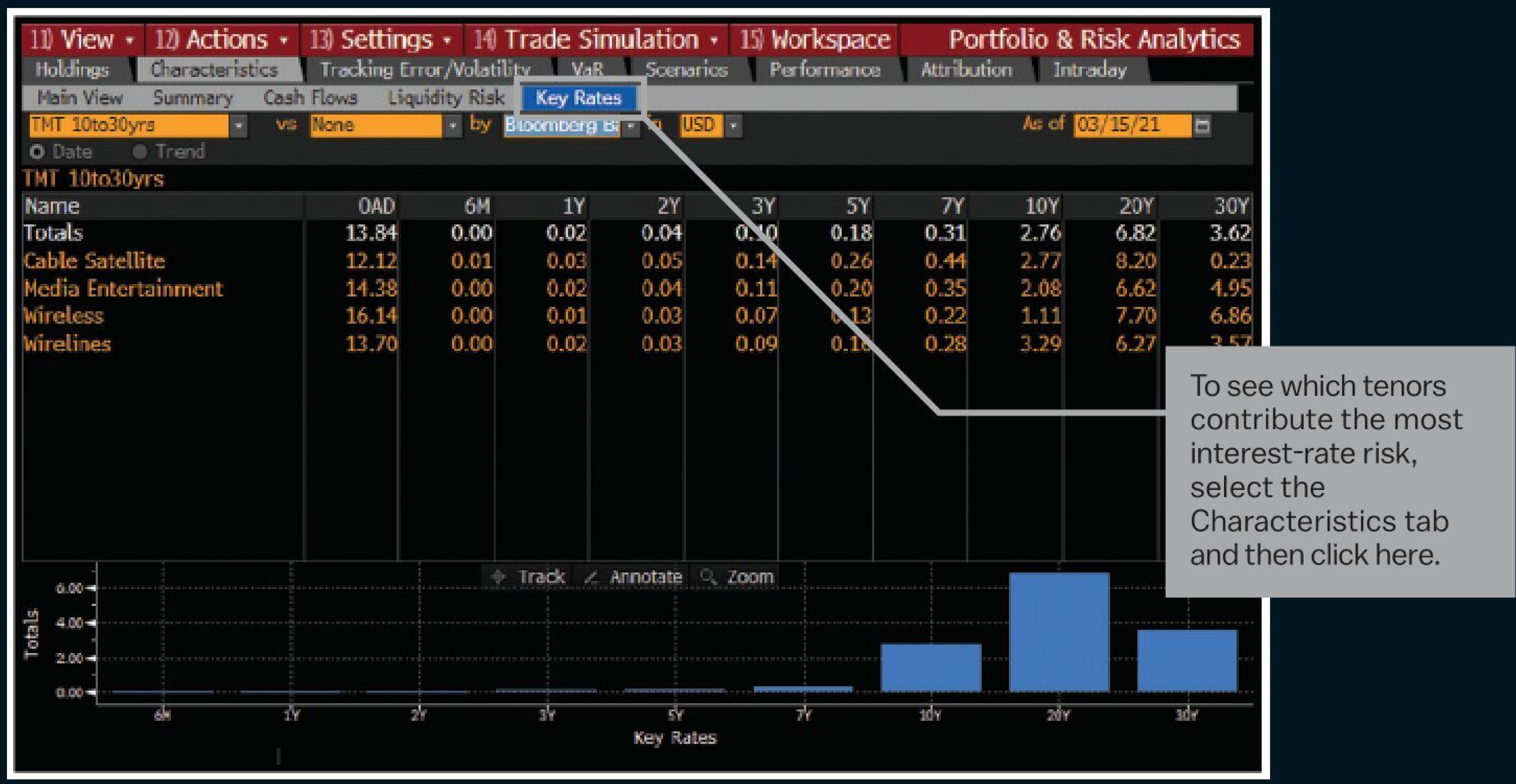


Fig. 3 Click on the Holdings tab and then on the Allocation subtab to dig into bond weights in the portfolio.

of corporate bonds, followed by Bloomberg's Fixed Income Worksheet (FIW) to analyze relative value of the portfolio constituents. (This article is the 12th in a continuing series highlighting different ways to use FIW for your analysis. For links to the others, run **{NSN QMZHUIT1UMOW <GO>}**.)

Load Your List

As soon as you receive the list of bonds, you can analyze them by dragging and dropping the Cusips and par amounts into a portfolio created in the Portfolio Administration (PRTU) function.

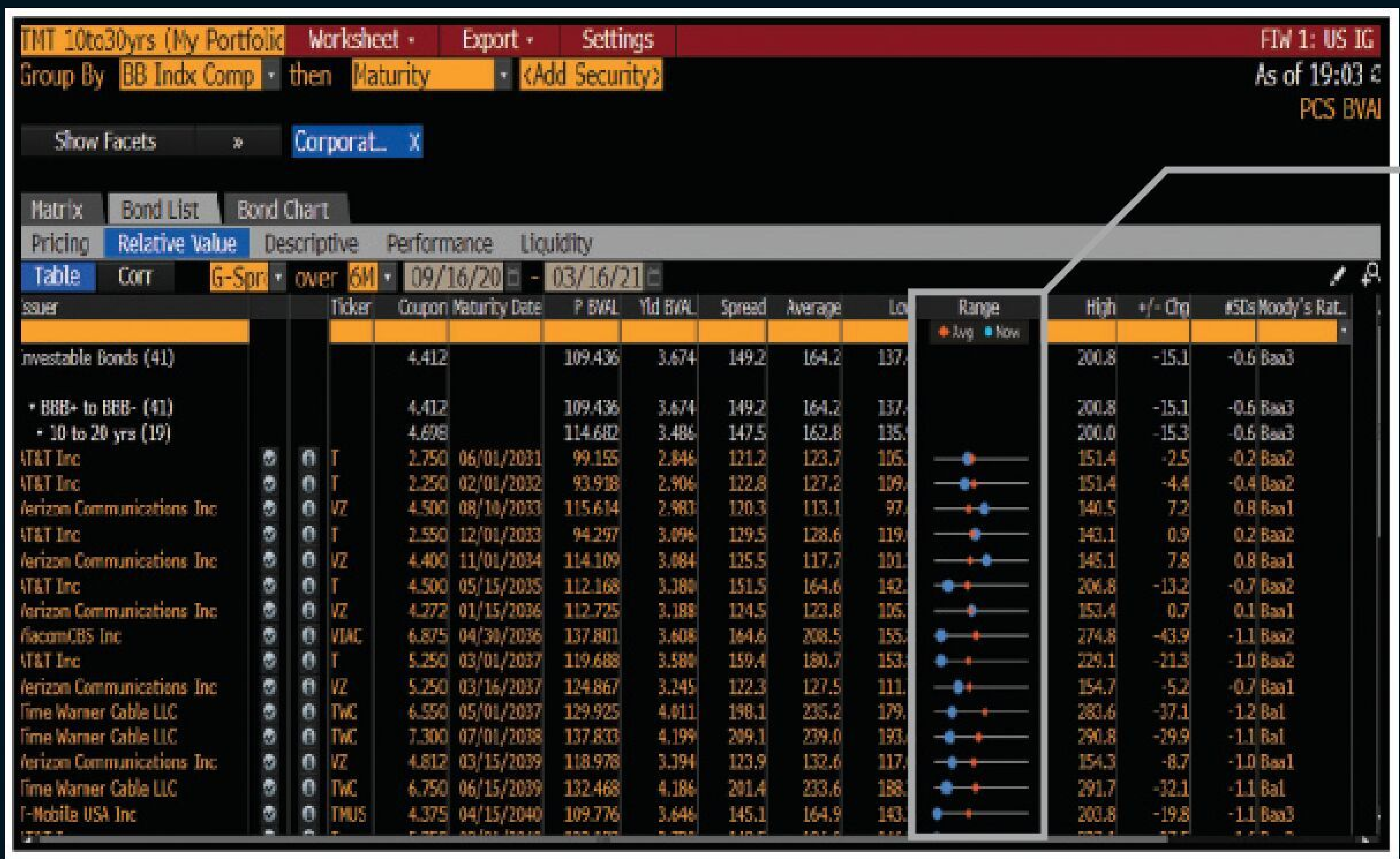
To start, type "portfolio administration" in the command line of a terminal screen and select PRTU - Portfolio Administration from autocomplete. The shortcut is **{PRTU <GO>}**. PRTU will display a list of any portfolios you've previously created. Click on the Create button on the red toolbar. In the Create Portfolio window that appears, give the portfolio a name. Set the Asset Class to FI. For benchmark, you can select None or choose another portfolio to benchmark against. Bloomberg Anywhere users can select from the Bloomberg Barclays indexes found in the Benchmark field. Click on the Create button. In the screen that appears, change the Date to 06/30/20, so you can perform historical analysis dating from the end of last year's second quarter.

Next, go back to your bond spreadsheet. For easier copying, make sure the par value column is just to the right of the Cusip column. Then select all the Cusips and par values and hover your cursor over the border of the selected area so the move pointer appears. Left-click to drag and drop into the amber field below Cash in PRTU. (If you get a notice saying "the picture is too large ►

Fig. 4 To load the portfolio into FIW, run {FIW <GO>}, click into the field in the upper left corner of the screen, select Browse…, and navigate to your saved portfolio.

Tick the box here to enter custom price or spread data.

Fig. 5 To perform your relative value analysis, click on the Bond List tab and then on the Relative Value subtab.



The Range chart lets you see each bond's current value in relation to its range and average over a specified period.

and will be truncated," click on OK, and the import should proceed.) Once the bonds have been loaded, click on Save (**FIG. 1**). Pro tip: After you save the portfolio, you'll have access to it in other Bloomberg workflows in addition to PORT and FIW.

You can input your own custom pricing in PRTU by entering the data in the Price column. By default, PORT uses BVAL to price fixed-income instruments. If you're a PORT Enterprise user, you can override BVAL. You can also enter a price if no BVAL pricing is available for a security. If you use custom pricing, the calculation profile in PORT needs to be adjusted to take that into account.

Analyze in PORT

Once you've made any adjustments to bond prices and position sizes, hit Save and click on the Analyze button on the red toolbar to load the portfolio into PORT. PORT enables you to perform analysis to better understand the portfolio's holdings. It can explain the drivers of performance, identify potential sources of risk, and compare your list with other portfolios or indexes.

Click the Characteristics tab and the Main View subtab to dig into underlying portfolio risks, issuer concentration, or individual bond impact on the portfolio. Customize the columns to analyze duration, credit quality, yield, and spread as of a specific date. Tick the radio button to the left of Trend to see a time series of a given field.

To quickly uncover the tenors that contribute the most interest-rate risk to the portfolio, click on the Key Rates subtab. You can display the option-adjusted duration (OAD) at the aggregate level or drill down to the security level (**FIG. 2**).

To better understand each bond's weight in the portfolio,

Fig. 6 To visualize the portfolio bonds based on criteria you specify, click on the Bond Chart tab.

Use this drop-down to specify your primary grouping, such as issuer.

To chart changes in the G-spread over the past six months, use this drop-down and select More … .

To add a regression curve for a particular issuer, click here.

click on the Holdings tab and then on Allocation. Use the drop-down to the right of By to select a classification, and you can analyze your portfolio's exposure to a given sector, country, or rating. The bar chart on the right-hand side displays the distribution of your holdings at the aggregate or security level (**FIG. 3**).

FIW and Relative Value

Next, let's load the same portfolio in FIW. Run **{FIW <GO>}**, click into the amber field in the upper left corner of the screen, and select Browse … . Under List Sources, click on Portfolio and select the one you saved earlier. Under the Matrix tab, you can organize the bonds in the portfolio by a primary and secondary grouping. Use the first drop-down next to Group By to choose the primary grouping. Select Issuer, for example, to group the bonds in the list by issuer. Use the second drop-down for your secondary grouping.

To see your entire bond universe broken down by your primary grouping, click on the Bond List tab and then on the Pricing subtab. Tick the box for Calc Mode, and the pricing, benchmark spread, and other spread and yield fields become interactive, like they are in the Yield and Spread Analysis (YAS) function (**FIG. 4**). To further filter, click on the >> to the left of Show Facets if the Facets panel isn't already open and select a facet, such as BCLASS Level 4: Wireless, to drill down to the securities in that sector.

Click on the Relative Value subtab to perform your relative value analysis. See whether particular bonds are rich or cheap based on a selected variable such as G-spread, option-adjusted spread, or yield over a particular time period. The range chart allows you to see a bond's present value in relation to its historical average and compare the performance of bonds across the portfolio (**FIG. 5**).

To visualize the bonds in the portfolio based on criteria you specify, click on the Bond Chart tab. To add a custom regression curve, click on the white curve icon to the right of All Bonds. You can then click on the curve icon for issuers you're interested in. When we charted a list of technology, media, and telecommunications bonds by G-spread and duration in mid-March, for example, you could easily identify Time Warner Cable, AT&T, and Verizon bonds by their issuer curves, so you can get a sense of their relative steepness. Alternatively, to search for the entire issuer curve of an entity to see how the selection of bonds in the portfolio from an issuer compares to its entire bond universe, type the name in the Add a Curve field and click on the match.

To see which securities have tightened in comparison to the others, use the Axes: Y drop-down to select More … . In the Customize Spread window, select G-Spread, Change, and over the past 6 months. Hit Close (**FIG. 6**). Visualizing the widening or tightening of bonds over recent months can help you provide market color and frame future spread movements if you win the portfolio trade.

Understanding recent spread movements allows you to effectively price the portfolio and ensure that you have sufficient profit opportunity to weather spread volatility if you hold the securities for longer than expected. Based on your observations here, you can revert to your PORT portfolio to adjust pricing for individual bonds.

After updating the pricing for these securities in PORT, choose to finalize your portfolio pricing so you can share your indicative pricing of the portfolio with your trading counterparty. You can export directly from PORT by clicking on the Actions button, selecting Generate Report, and choosing from Excel or PDF formats. ●

Gee is a credit market specialist at Bloomberg in New York. Linder is a fixed-income specialist and Galvez Rodriguez is a PORT advanced specialist in San Francisco.

In China, Broad Market ETFs Lose Share To Niche Products

By JEANNY YU

CHINESE INVESTORS are souring on exchange-traded funds that track broad indexes, but they're snapping up thematic—or sectoral—ETFs, such as those that invest in the nation's Science and Technology Innovation Board.

In one week through March 2, Chinese asset managers raised $1.7 billion for four funds that purely invest in ETFs that track the stocks listed on the two-year-old Nasdaq-style board in Shanghai, known as the STAR Market. And last year, four STAR Market ETFs received 100 billion yuan ($15.4 billion) in subscriptions from retail investors in a 24-hour period, the fastest takeup in the 16-year history of Chinese ETFs.

Niche ETFs that capitalize on sectors such as alternative energy or technology have also been hot in the U.S. as investors chase broad investment themes during the pandemic. The difference is that in the U.S., the whole ETF sector is booming. Net inflows into the funds rose 23%, according to data compiled by Bloomberg. In China, by contrast, inflows rose just 9%—the slowest pace in three years.

"The chase for 'alpha'—index-beating return—became particularly popular in China last year," says Lu Yayun, vice president at China Asset Management Co., which sells China's oldest ETF and, according to broker China International Capital Corp., makes up a quarter of the country's total equity ETF market by value. "Broad ETFs only represent benchmark returns, which are far less than returns from active mutual funds or ETFs tracking well-performing sectors."

Last year there were more thematic ETFs than index ETFs for the first time since the launch of the China AMC SSE 50 ETF in December 2004, the country's first. China AMC SSE 50, the country's largest equity ETF by assets under management, tracks the 50 largest stocks on the Shanghai Stock Exchange. So far in 2021, dragged lower by redemptions from the $8.7 billion China AMC SSE 50 ETF, China's 282 equity ETFs recorded a net outflow of $1 billion as of March 16.

One reason is added cost. Chinese ETFs typically charge management fees of about 0.5% of total assets, while U.S. ETF fees can be as low as 0.05%, according to Ray Chou, Shanghai-based partner at Oliver Wyman.

So instead of looking for savings, investors are seeking ETFs that give them an edge. For example, the STAR Market ETFs provide a way to own STAR Market stocks that are normally available only to buyers with at least 500,000 yuan in a brokerage account.

China's heavy retail investor base, which generates as much as 80% of the stock market's volume (compared with about 20% from retail in the U.S.), has also shown an increasing preference for stockpicking or star mutual fund managers, as the overall market climbed 65% from last March's low to a 13-year high in February.

"Chinese investors invest passively when they are less confident about stocks, but they are bullish now, so they would rather pick themes or follow star mutual fund managers," says Dai Ming, fund manager at Hengsheng Asset Management Co.

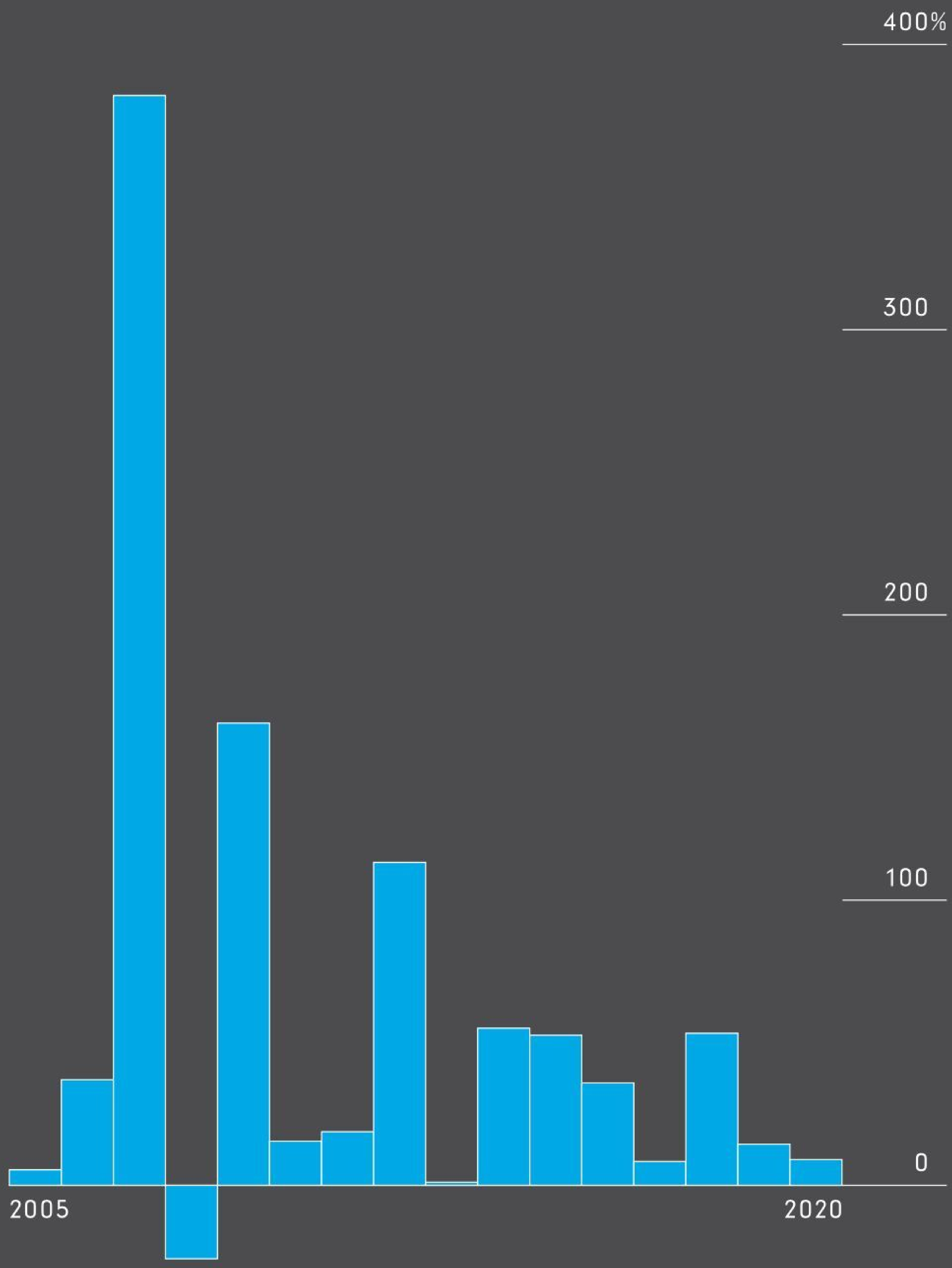
The $11 billion E Fund Blue Chip Selected Mixed Fund, for instance, helmed by star manager Zhang Kun, saw its asset size more than double in the fourth quarter of 2020—though it lost value in a recent market rout. Zhang made his name as an early investor in the country's most valuable domestic stock, Kweichow Moutai Co., the $393 billion distiller of the fiery liquor baijiu. He now has a fan page on China's social media platform Weibo with 15,000 followers and 37 million hits.

One of China's most popular ETFs this year, the HuaAn CES Hong Kong Stock Connect Selected 100 ETF, focuses on Hong Kong-listed tech stocks and has garnered inflows of $98 million as of March 16. And two of China's thematic ETFs are among the world's biggest: The Guotai CSI All Share Communication Devices ETF, set up in 2019, was the world's ninth-largest telecommunications ETF, and the China Universal CSI Consumer Staples Index ETF, launched in 2013, ranked as the 10th-largest consumer-staples ETF globally, according to a January report by Chinese broker CICC.

"Last year, when China's benchmark Shanghai Composite

Industry Slowdown

China's ETF assets under management, year-over-year growth*



*ETFs listed on the Shenzhen or Shanghai stock exchanges.
Source: Bloomberg

Index rose, actually half of stocks listed on the index fell—which shows how difficult it is to pick stocks," says China AMC's Lu. "Thematic or sector ETFs give people a clear exposure to hot stocks."

As with any popular product, investors need to beware of a sudden change in market sentiment. For instance, this year the Guotai CES Semi-conductor Industry ETF has seen a reversal of the big inflows it received in 2020.

China's biggest ETF managers—China AMC, Guotai, and E Fund, which together account for 40% of market share—have the advantage so far in an extremely competitive market, says Oliver Wyman's Chou. But they soon may face a bigger challenge from giants including Vanguard, State Street, and BlackRock, which account for about 80% of the U.S. ETF market.

Vanguard Group Inc., the index fund pioneer, withdrew from Hong Kong and Japan late last year to prioritize growth in China, where it plans to focus on developing through its partnership with Alibaba Group Holding Ltd. affiliate Ant Group Co. Meanwhile, New York-based BlackRock Inc., which manages $8.68 trillion in assets, received China's approval to set up a fund management company on the mainland in August 2020. (Previously fund managers needed to have local partners.) It's waiting for authorization to sell products.

China's ETF market grew to a record $177 billion at the end of last year, according to Bloomberg data, but it's still just a fraction of the country's $11 trillion stock market. In the U.S., ETFs make up about 10% of the $46 trillion market.

"We are encouraged by the rapid growth of China's ETF market," Susan Chan, BlackRock's head of Asia, said in a statement. "As China continues to open its capital market, we believe raising investors' awareness on the benefits of using ETFs on offshore exposures in their investment portfolio will foster the development of the China ETF market." ●

Yu is a China markets reporter for Bloomberg News in Hong Kong.

See How Covid Vaccine Revenue Will Flow to Drugmakers' Results

By TARUSHI RAVINDRA and BENJAMIN BUSBY

ASTRAZENECA, MODERNA, AND PFIZER are expected to report a total of about $29 billion in revenue from the coronavirus vaccines in their full-year 2021 results, according to analyst consensus estimates compiled by Bloomberg. Pfizer Inc. is forecast to book the most—$17 billion—from the jab it developed with Germany's BioNTech SE.

Use Bloomberg to track revenue from the Covid-19 shots and other drugs and to see analysts' consensus forecasts.

With their partners, AstraZeneca, Moderna, and Pfizer developed high-profile Covid vaccines that won fast approvals, though AstraZeneca's rollout has been rocky. To see the latest news and data on the biggest vaccination campaign in history, type "Covid vaccine" in the command line and choose NI CVACTRAC – News: Topic COVID-19 Vaccine Tracker. Click the most recent Covid-19 Vaccine Tracker story (**FIG. 1**). As of March 24 more than 468 million shots had been administered worldwide.

To see how the vaccines could boost the developers' bottom lines, you can use the Company Model function. Type "Pfizer" in the command line and choose PFE US Equity – Pfizer Inc. (U.S.) from autocomplete. Then type "model" and choose MODL – Company Financials. The shortcut is **{PFE US <Equity> MODL <GO>}**. Click the Multiple Periods tab and set Periodicity to Annuals.

Scroll down to see COVID-19 Vaccine under Segment Revenue. Actual reported data, such as 2020 numbers, are shown in yellow, while estimates are in white. To see estimates further into the future, click the gray > or >> buttons at the bottom of the screen (**FIG. 2**). Note that the light-gray number to the right of each estimate is the number of analysts who contributed to that data point. Pfizer's Covid vaccine revenue of $154 million in 2020 is dwarfed by the $17 billion consensus estimate for 2021. Revenue is predicted to drop to $5.3 billion in 2022, then decline further in subsequent years.

Type "AstraZeneca" in the amber box at top left and select the company from autocomplete to see a similar pattern. The U.K.-based group is forecast to book $2.3 billion in 2021 revenue from the vaccine.

Moderna Inc. is a slightly different story. Run the same analysis for it, but this time click the small chart icon to the left of that row: Analysts expect Moderna's revenue from the vaccine to reach $9.5 billion in 2021, dip to $6.6 billion in 2022, and then rise to $6.7 billion the next year. The group's diluted earnings per share are expected to increase to $22.07 in 2021 from a loss of $1.96 in 2020. The company reported a loss on a diluted-earnings-per-share basis in 2018 and 2019 as well as in 2020.

EACH COMPANY'S VACCINE has potential benefits and shortfalls. Moderna's shot, like Pfizer's, is based on messenger RNA technology that hadn't ever been used in immunizations. Moderna's vaccine is easier to transport and use, because it can be kept for as long as a month in a regular refrigerator, in contrast to the ultracold storage required for the Pfizer product. AstraZeneca Plc's shot has a lower efficacy, but it can also be kept in a fridge for a longer period.

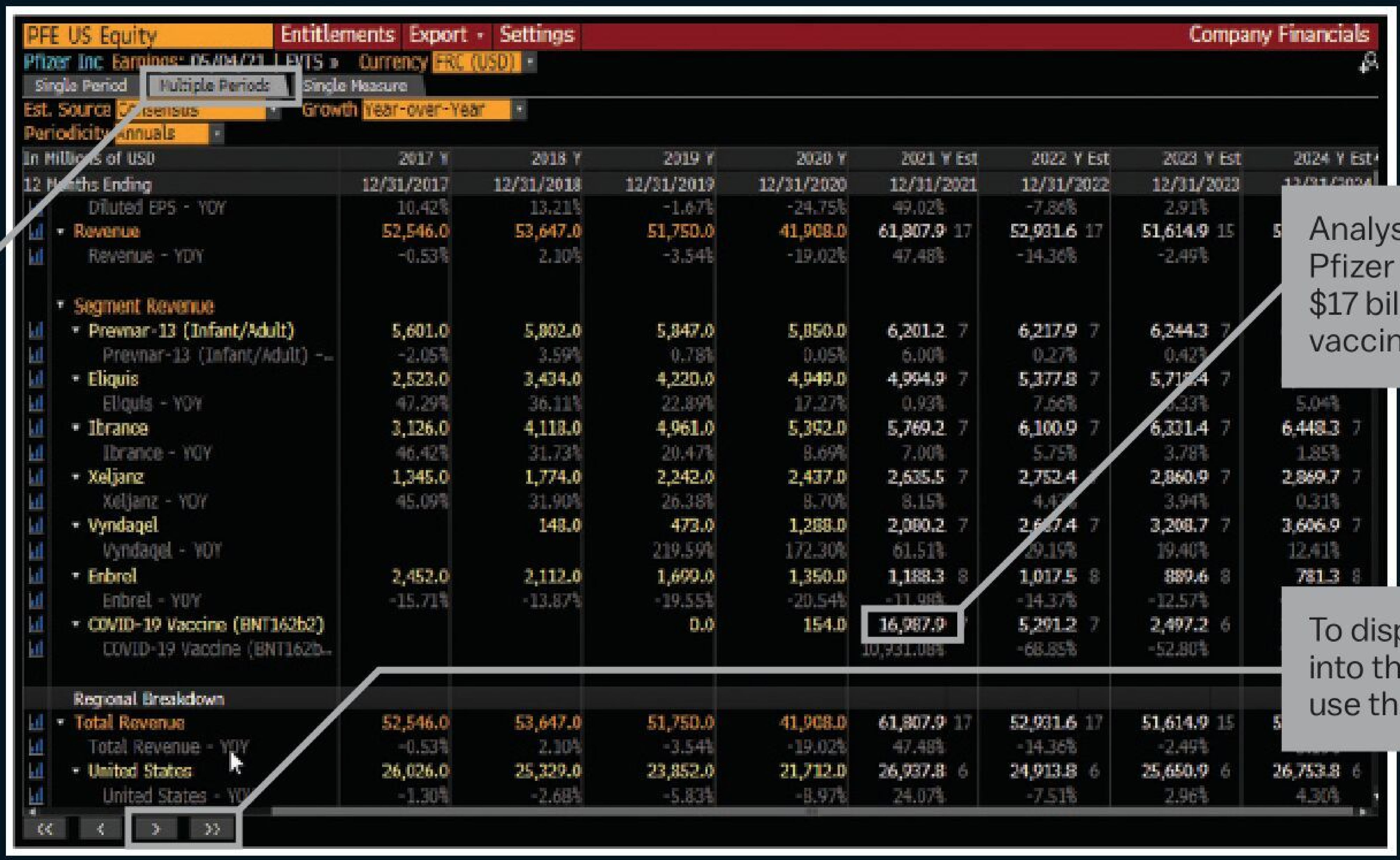
To see Bloomberg Intelligence's latest research on the vaccine rollout, type "pharma" in the command line and choose BI PHRM – Bloomberg Intelligence: Large Pharma from autocomplete. The shortcut is **{BI PHRM <GO>}**. In the Featured Research section at the center of the screen, click Covid-19 Vaccine Race (**FIG. 3**). For data and analysis on vaccination rates in various countries, scroll down to Key Topics and click the link that says "When Will We Be Out of This Hell?" ●

Ravindra and Busby are on the staff of the global data department at Bloomberg in London.

Fig. 1 For the latest news and data on the biggest vaccination campaign in history, run **{NI CVACTRAC <GO>}** and click on the most recent Covid-19 Tracker story.

Fig. 2 To see consensus estimates for Pfizer's revenue from its vaccine, run **{PFE US <Equity> MODL <GO>}** for the Company Financials function.

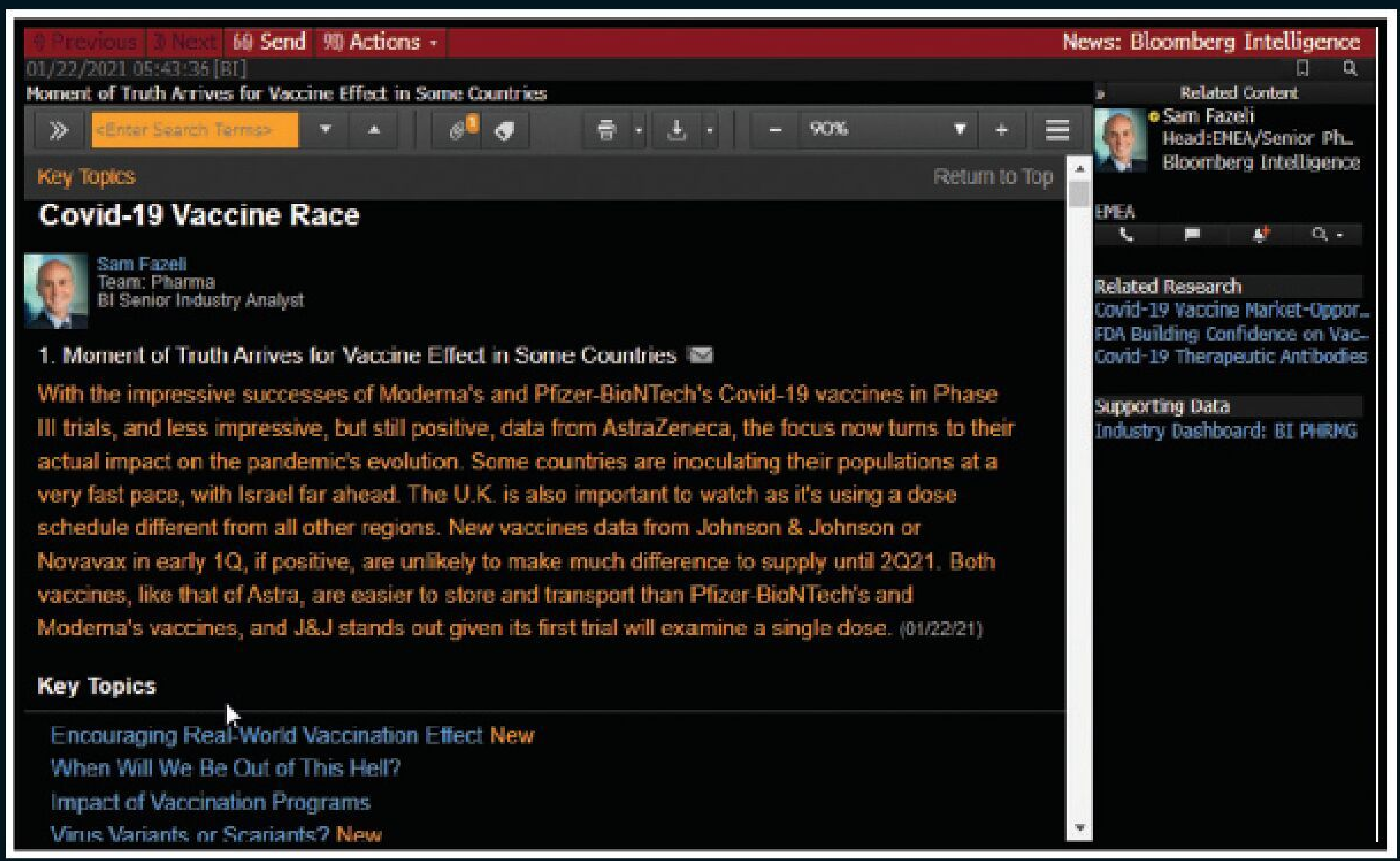
Click here to compare the trend of actual results with estimates.



Analysts expected Pfizer to take in about $17 billion from Covid vaccines this year.

To display data further into the future, use these buttons.

Fig. 3 To see Bloomberg Intelligence's latest research on the vaccine rollout, go to **{BI PHRM <GO>}** and click Covid-19 Vaccine Race under Featured Research.



Across India, Millennials Are Getting Into Stocks

By SHIKHAR BALWANI, RONOJOY MAZUMDAR, and NUPUR ACHARYA

WHEN HIS PARENTS first learned that Vishal Baveja, a 27-year-old doctor of forensic medicine, had invested some of his savings in Indian equity mutual funds, they were worried about the risk. Those fears abated when they saw the income those investments produced. Then, as the coronavirus pandemic took hold last year, they supported his decision to start buying individual blue-chip stocks.

"The tables have turned," says Baveja, a native of Bhopal who works in neighboring Indore. "The stock market now always comes up in my daily phone conversations with my mother."

Millions of young Indians such as Baveja have taken to stock trading during the pandemic, raising hopes that the appetite for equities in the world's second-most-populated nation is finally growing. Active investor accounts rose by a record 10.4 million in 2020, according to data from the country's two main depositories. Retail ownership in more than 1,500 companies listed on the National Stock Exchange of India Ltd. jumped to 9% in the third quarter of 2020, the highest since March 2018.

Angel Broking Ltd., a securities firm established in 1987, says 72% of the 510,000 customers it added from October to December had never traded stocks before. Of India's 1.36 billion people, only about 3.7% invest in equities, compared with about 12.7% in China, according to stock depository data on the number of investment accounts (and assuming one account per person). In the U.S., by contrast, a poll found about 55% of the population owns stocks either individually or through a mutual fund.

"In terms of retail investor participation, China is probably a model of what you can expect will happen in India," says Mark Mobius, the veteran emerging-market investor. "India could easily equal China's market cap in the next 5 to 10 years because going forward, growth in India's market will probably be faster. China, because of its size, will probably grow more slowly."

As in other parts of the world, India's retail trading boom has been fueled by pandemic-driven restrictions and job losses that left millions of people at home with little to do. The relentless stock market rally since March 2020 has drawn in more investors. And technology, including the rise of cheap trading apps and social media—YouTube influencers, Twitter, and Telegram stock-tipping chat groups—has attracted hordes of day traders into discount brokers such as Zerodha Broking Ltd.

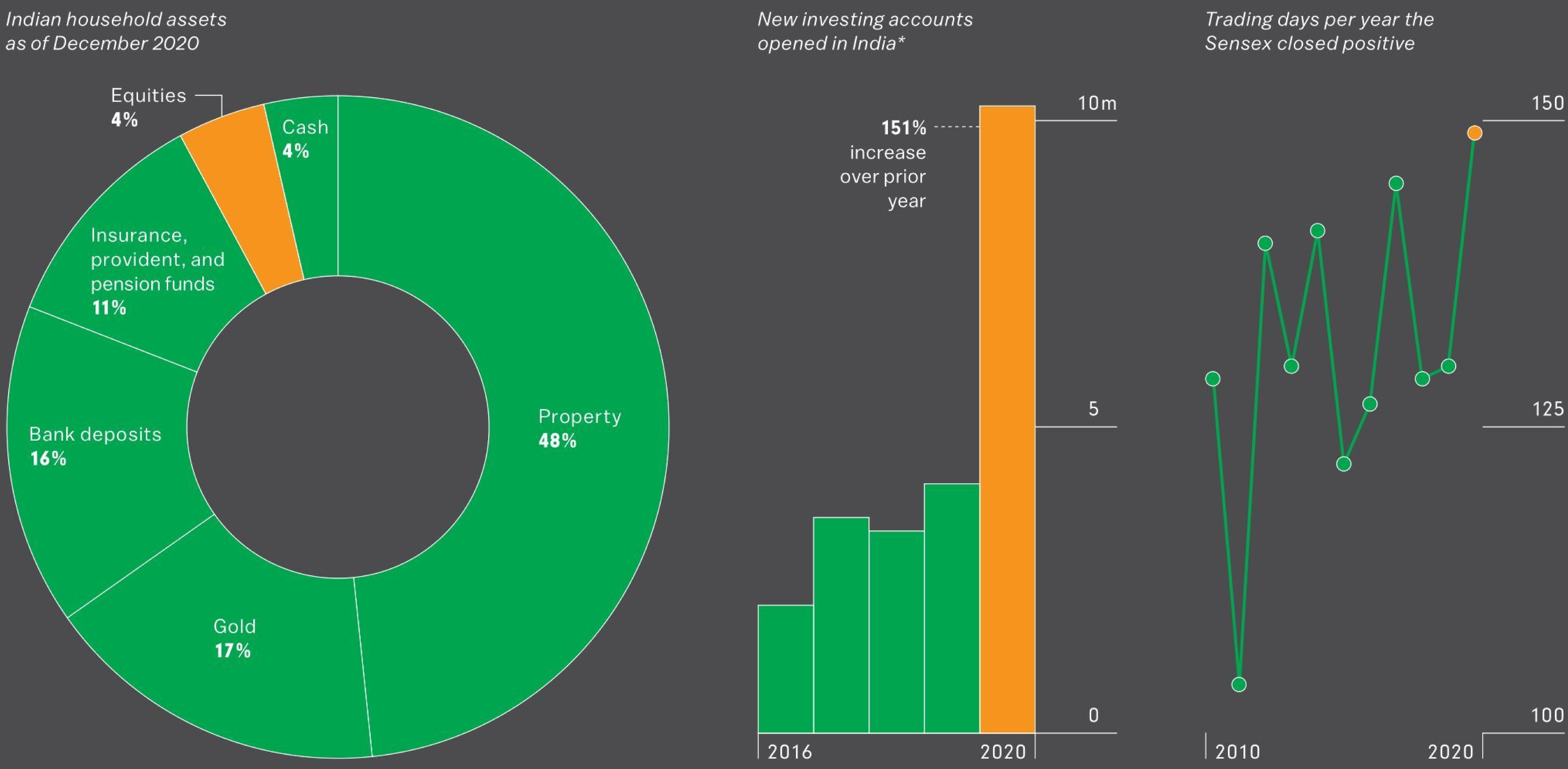
But unlike during previous retail investing booms, many of the new entrants live outside of Mumbai and New Delhi, the biggest cities. More than half of Angel Broking's new customers in the quarter that ended in December were from smaller cities and towns, the firm says.

"The adoption of internet and online access is going deeper into the country," says Peeyush Mittal, a co-manager of the Matthews India Fund in San Francisco. "What we hear from companies in the brokerage space is Tier 2 and Tier 3 city investors are more long term in their view of the market. Whenever the markets are down, they tend to put in more money compared to people in the biggest cities."

Baveja, the doctor from Indore, says he started with about 10,000 rupees ($138) in February 2020, then piled further into Indian stocks after the market plunged in March. "My investments rose to a healthy six-figure mark by April," he says, adding that he plans to be a long-term investor.

New Investors Welcome

Stocks make up a relatively small share of Indian household wealth, but a record number of new investing accounts were opened last year as the benchmark Indian stock index rebounded and soared.



*Dematerialized (virtual) accounts that hold stocks, bonds, and mutual funds.

Sources: Reserve Bank of India; Jefferies estimates; Central Depository Services Ltd.; National Securities Depository Ltd.; Bloomberg

Even as many of the pandemic restrictions that India imposed in March were lifted, the retail investing fervor continued. Central Depository Services (India) Ltd. opened a record 1.47 million accounts in January, up more than threefold from the same month in 2020, and 1.36 million in February.

India's mutual fund industry has targeted small towns through television, social media, and billboard advertising. Investments by individuals in equity funds jumped 16% in February from the same month a year earlier, according to data from the Association of Mutual Funds in India.

The moves are part of a broader shift away from traditional physical assets such as real estate and gold, as well as bank deposits. Rural farmers and the urban working class have traditionally relied on gold as both an insurance policy and a retirement plan in a country that lacks robust social welfare systems or widespread access to formal credit. But Indian millennials are more inclined to take risks in the market.

Apoorv, a 30-year-old director at a nongovernmental organization who declined to provide his last name for privacy reasons, is among them. He says he took to trading stocks after realizing how easy it was to do on Zerodha and other platforms.

"I never thought active day traders would be trading out of a mobile [phone], but they do sometimes, like 100 trades a day," says Nithin Kamath, chief executive officer at Zerodha, which started in 2010 and is now India's largest broker, with more than 4 million customers. "In 2015, 95% of our business was from the desktop-trading platform. Now 75% is from mobile."

The influx of amateurs has put a spotlight on market regulation. The Securities and Exchange Board of India was created in the aftermath of India's first billion-dollar financial scandal, which erupted during the heady days of economic liberalization in the early 1990s. SEBI has focused on safeguarding the interests of retail investors with measures such as raising financial literacy, improving transparency, and increasing regulatory requirements for brokers, which have helped to boost confidence in the markets.

"Until a few years back, people looked down on equity markets and would tell their kids who are millennials [and are] investing to be safe, because the stock market is a sham and people will cheat you," Kamath says. "There was a need to change that image, and I think the regulator has done a great job."

In 2017, SEBI created a warning system called the graded surveillance measure (GSM) to prevent unwarranted price swings and manipulation of stocks with a market capitalization below 250 million rupees. The aim is to avert the kind of frenzy surrounding shares of GameStop Corp. in the U.S. this year.

Apoorv, the NGO director, says he's the first person in his family to trade stocks. He expects to stay at it for at least a decade, he says.

"I am looking to keep doing this till I am 40 to 45 years of age," says Apoorv, who comes from Ahmedabad. "I am building a corpus of stocks, hoping that I will invest in things that will give me greater returns over a longer period of time, rather than on a daily, monthly, or even yearly basis."

Balwani is an Asia stocks editor for Bloomberg News in Tokyo, and Mazumdar and Acharya report on equities in Mumbai.

By LARRY TABB,
BLOOMBERG
INTELLIGENCE

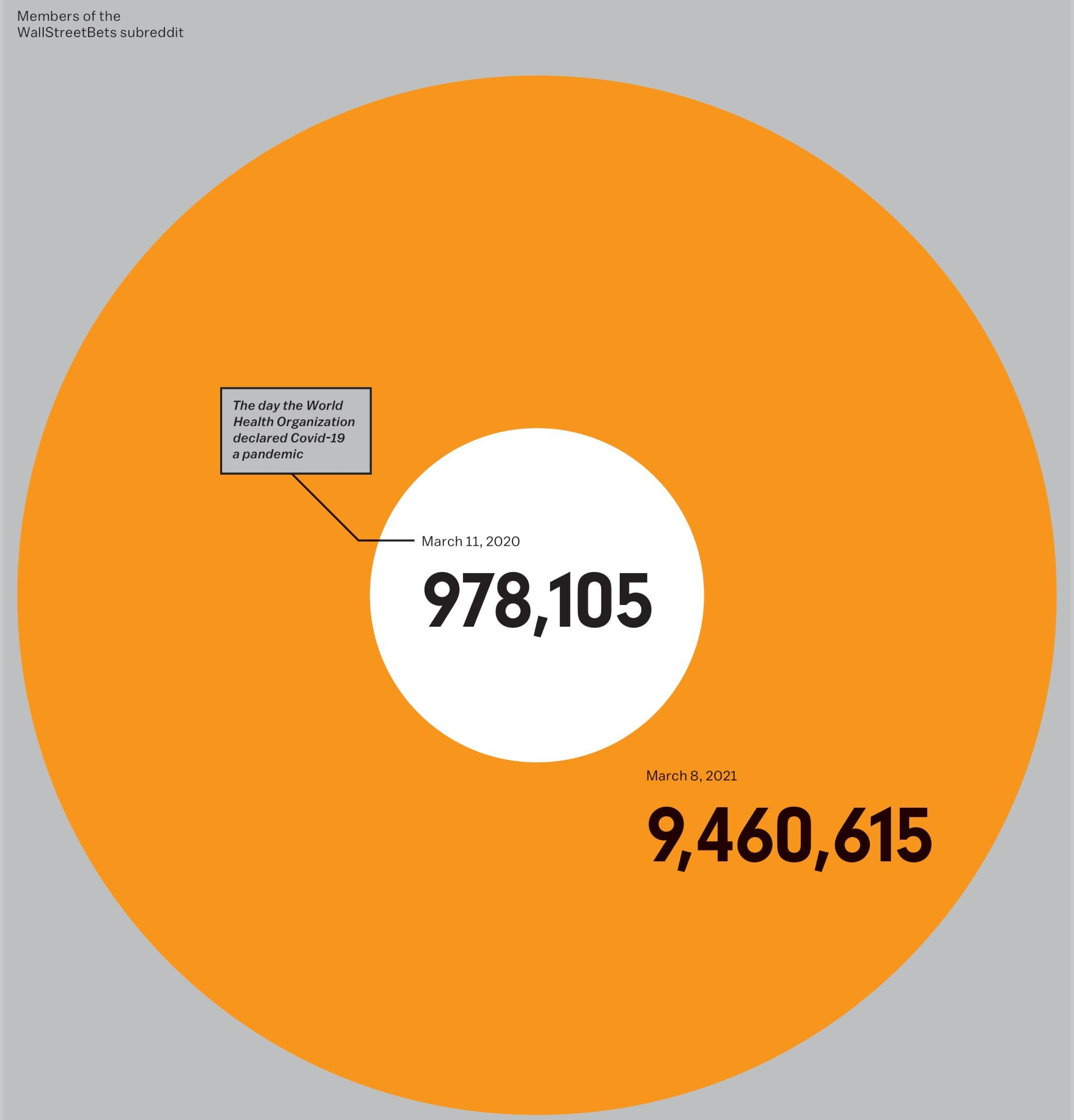
With
SIOBHAN WAGNER
and BRIAN CHAPPATTA

The Measure Of a Market

Markets have gone through a radical shift over the past year. The pandemic and lockdowns turned everyone's kitchen table into a trading desk. The biggest surge in activity is happening off exchanges. Welcome to the new marketplace. For more on the topic, visit {BI MKTS <GO>}.

Taking It to the Street

Reddit's WallStreetBets forum attracted millions of new subscribers in January. Online traders communicating there pushed up shares of GameStop Corp. in a bid to turn the tables on the hedge funds that were short-selling the video game retailer.



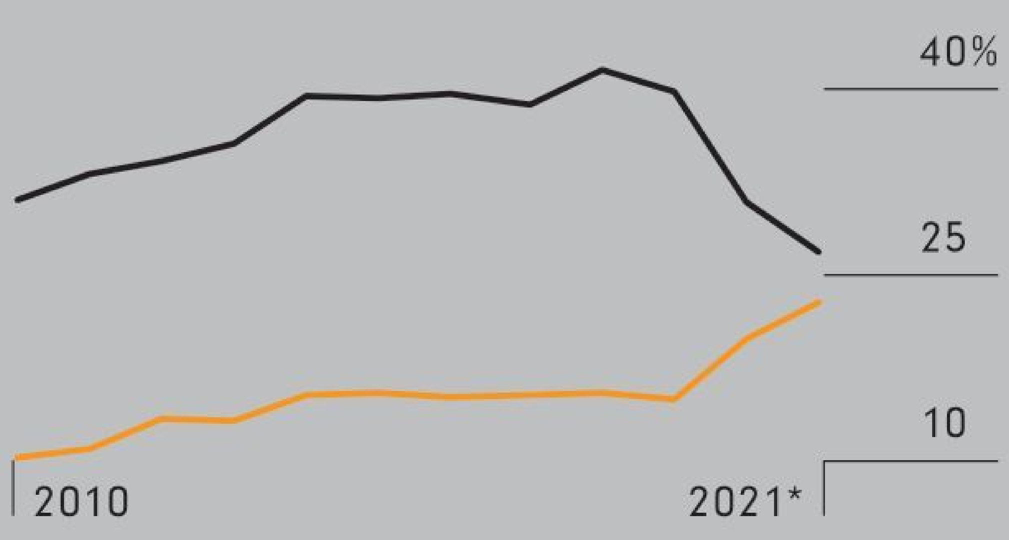
Source: Breakout Point

Pros vs. Amateurs

■ Newbies' forays into meme stocks added to retail's portion of equity volume.

U.S. Equity Trading Volume Estimate

Institutional buy side / Retail



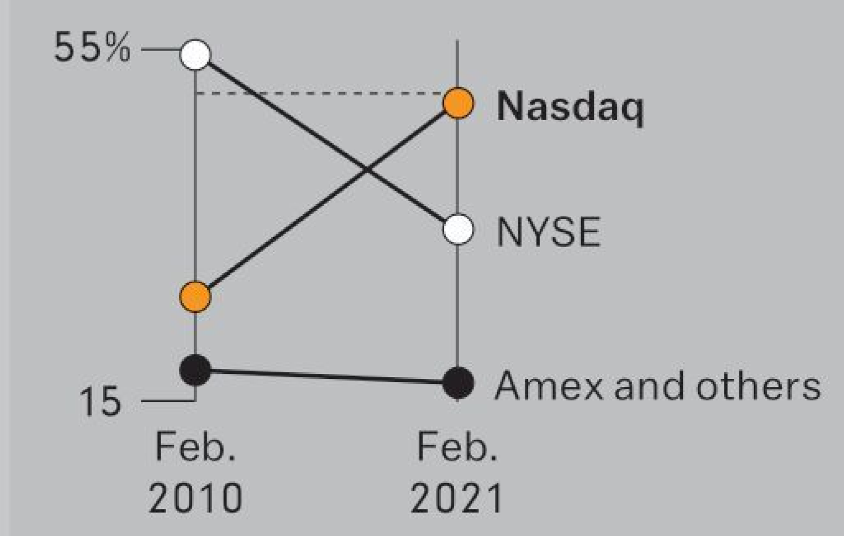
*As of end of February

Source: Bloomberg Intelligence

Trading Places

■ Trading of lower-priced stocks has shifted activity from the NYSE to Nasdaq.

Listed Equity Trading Volume



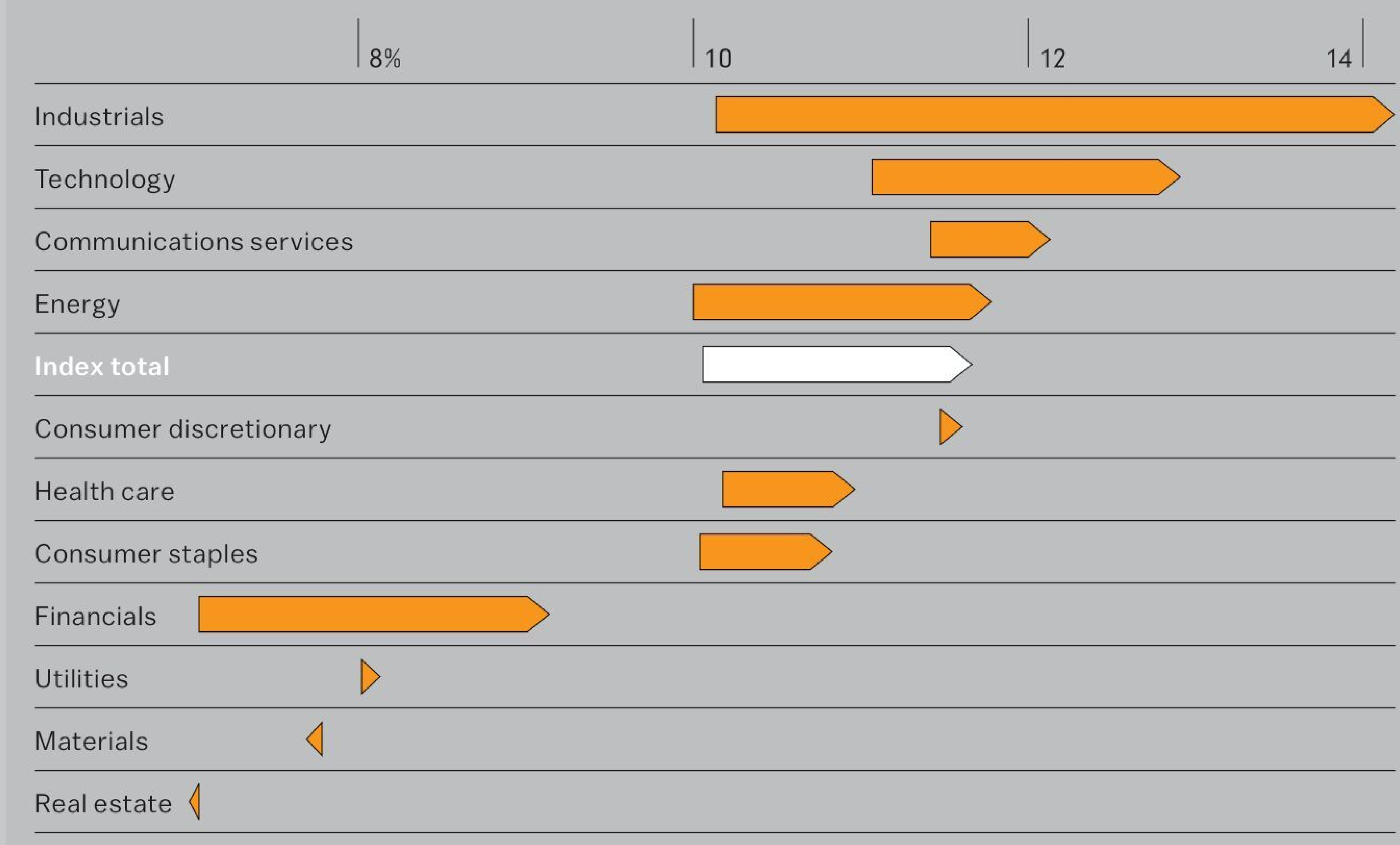
Source: {BI MKTS <GO>}

What Retail Traders Bought and Sold

■ Amateur market participants were relatively active in industrial companies in 2020, according to Vanda Research, which looked at their trading in Russell 3000 sectors.

Retail Activity in Sectors and Stocks

Share of Russell 3000 sector volume traded by retail investors in 2014 and 2020



Most-traded stocks on selected retail platforms in January 2021*

Company	Shares	Company	Shares	Company	Shares
Sundial Growers	2.22b	Bionano Genomics	1.05b	Palantir Technologies	0.54b
Naked Brand	1.46	Apple	0.75	BlackBerry	0.54
AMC Entertainment	1.22	Castor Maritime	0.74	FuelCell Energy	0.49
Zomedica	1.20	Jaguar Health	0.64	Marathon Digital	0.49
NIO	1.17	Nokia	0.60	Ideanomics	0.48

*Combined retail trading executed by Citadel Securities, Virtu, G1 Execution/Susquehanna, and Two Sigma Securities

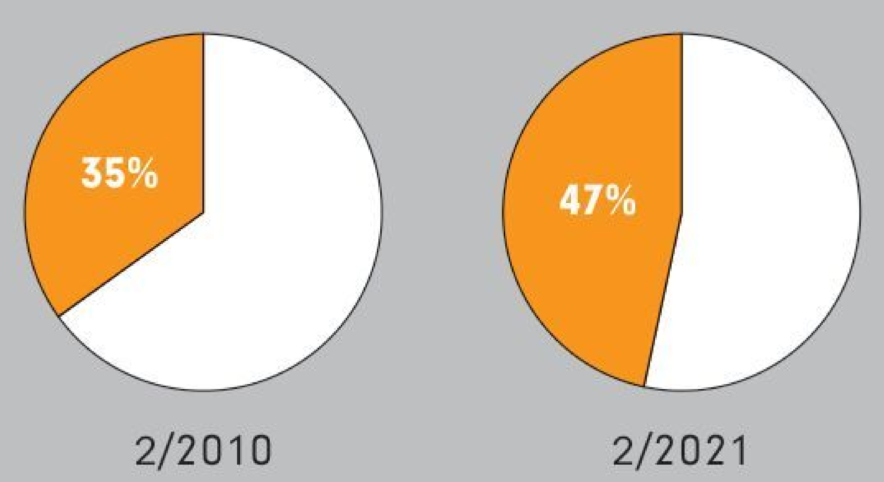
Sources: VandaTrack, Bloomberg Intelligence

Off-Exchange Soars

■ Over-the-counter trading took off in 2021, rising to well above historical norms.

Monthly Trading Volume

On-exchange / Off-exchange



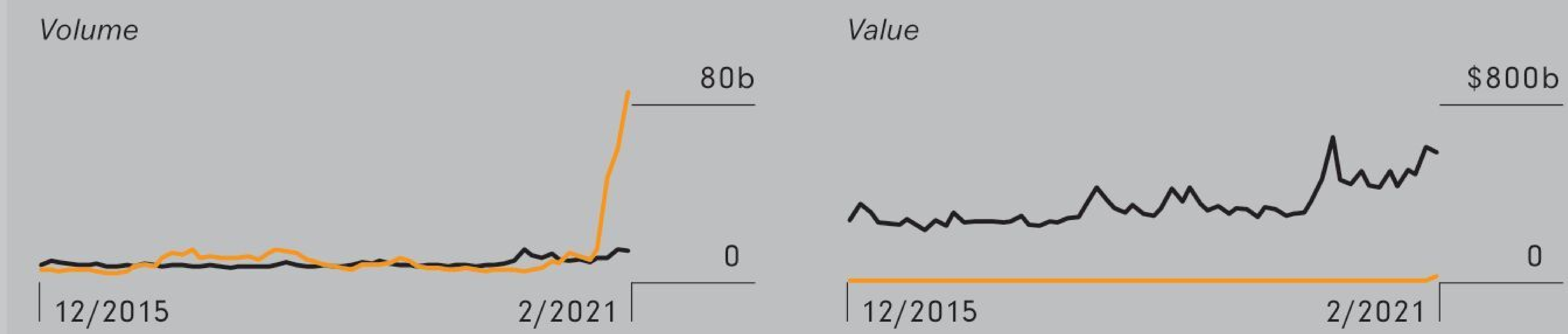
Source: {BI MKTS <GO>}

Where Furious Trading Amounted to Little

■ More shares of nonlisted than listed companies were traded in February, but the value of shares traded on exchanges remained far greater.

Average Daily Trading in the U.S.

Listed stocks / Nonlisted stocks



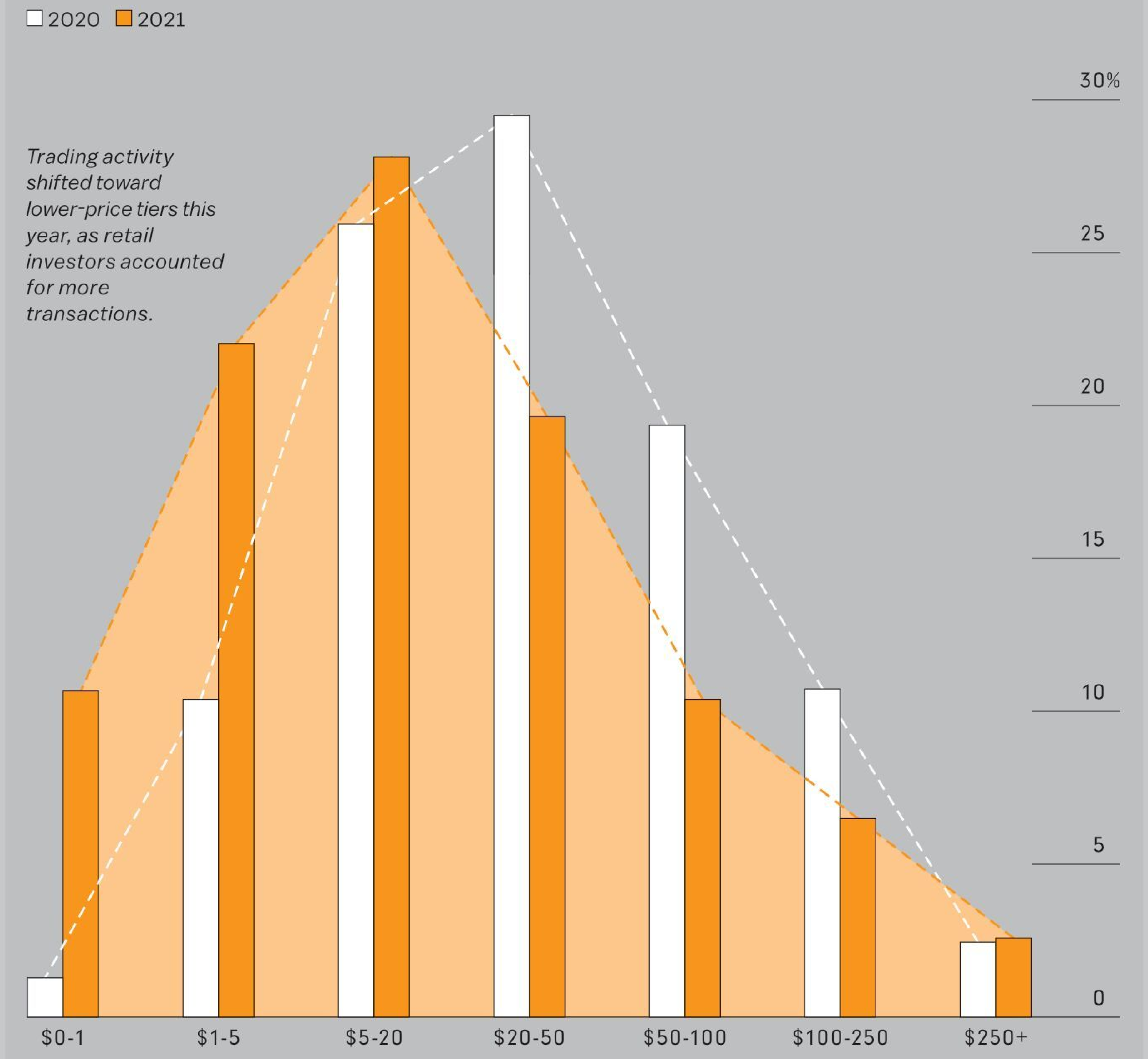
Source: {BI MKTS <GO>}

The New Thrift Market

■ In the last week of January, low-priced stocks accounted for more volume than they did at the same point last year.

Distribution of Trades by Share Prices

Percentage of trades executed in the last week of January by share price range

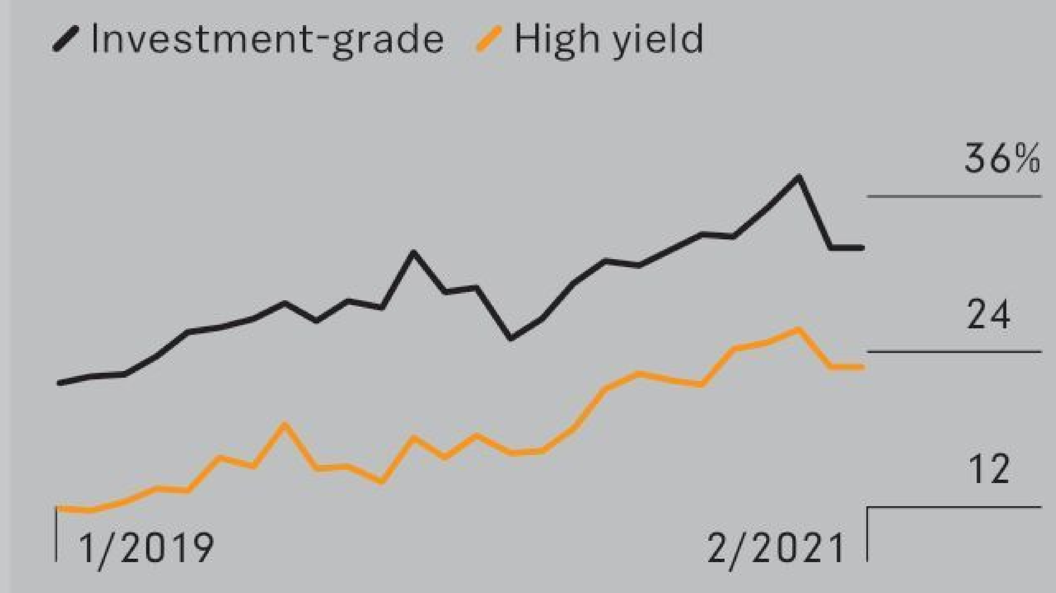


Source: Bloomberg Intelligence

Credit Goes Electronic

■ It's not just equities that are changing. Electronic bond trading soared in 2020.

U.S. Corporate Bond Trading On Electronic Platforms



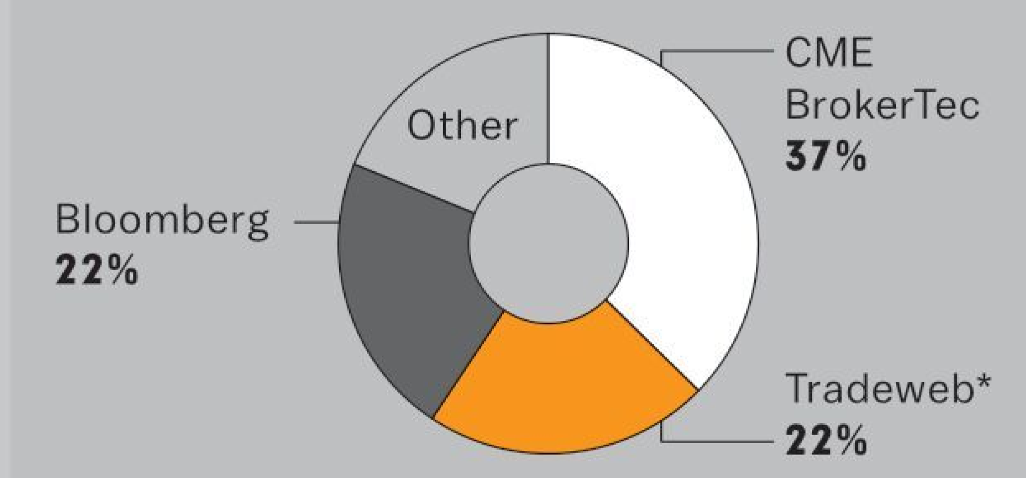
Source: Greenwich MarketView

Treasuries' Big Three

■ Established players control the majority of electronic Treasuries trading.

Electronic Trading of Treasuries

Platform's share of volume in 2020



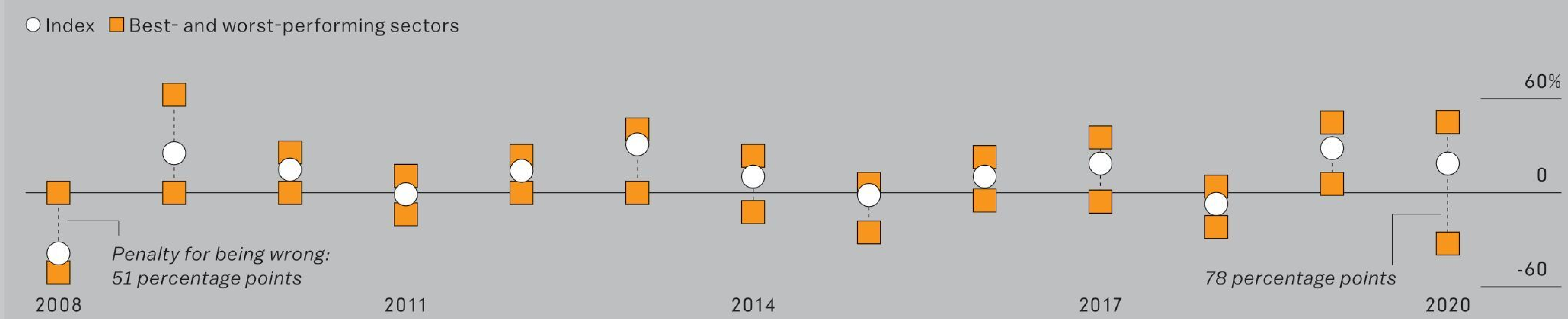
*Announced plan to buy Nasdaq's fixed-income platform

Source: Greenwich MarketView

For Active-Fund Managers, a Respite or Time for a Comeback?

■ The gap between the best- and worst-performing sectors has widened since the onset of the pandemic. This should give active managers the opportunity to outperform their benchmark as they skew portfolios toward winning sectors and away from losing ones.

Russell 3000 Return



Source: {RAY Index GRR <GO>}

Big Oil's Secret World Of Trading

With the future of fossil fuels in doubt, some energy companies are counting on a hidden army of commodity traders to ride to the rescue

By JAVIER BLAS and JACK FARCHY

It was a bleak moment for the oil industry. U.S. shale companies were failing by the dozen. Petro-states were on the brink of bankruptcy. Texas roughnecks and Kuwaiti princes alike had watched helplessly for months as the commodity that was their lifeblood tumbled to prices that had until recently seemed unthinkable. Below $50 a barrel, then below $40, then below $30.

But inside the central London headquarters of one of the world's largest oil companies, there was an air of calm. It was January 2016. Bob Dudley had been at the helm of BP Plc for six years. He ought to have had as much reason to panic as anyone in the rest of his industry. The unflashy American had been predicting lower prices for months. He was being proved right, though that was hardly a reason to celebrate.

Unlike most of his peers, Dudley was no passive observer. At the heart of BP, far removed from the sprawling network of oil fields, refineries, and service stations that the company is known for, sits a vast trading unit, combining the logistical prowess of an air traffic control center with the master-of-the-universe swagger of a macro hedge fund. And, unknown to all but a few company insiders, BP's traders had spotted, in the teeth of the oil price collapse, an opportunity.

Over the course of 2015, Dudley had acquired a reputation as the oil industry's Cassandra. Oil prices had been under pressure ever since Saudi Arabia launched a price war against U.S. shale producers a year earlier. When crude prices started falling, he confidently predicted they would remain "lower for longer." A few months later, he went further. Oil prices, he said, were due to stay "lower for even longer."

On Jan. 20, 2016, the price of Brent crude oil plunged to $27.10 a barrel, the lowest in more than a decade. It was a nadir that would be reached again only in March 2020, when the Saudis launched another price war, this time targeting Russia, just as the coronavirus pandemic sapped global demand.

When Dudley arrived in the Swiss ski resort of Davos for the World Economic Forum on Jan. 21, 2016, the industry was braced for more doom and gloom. Wearing a dark suit and blue tie, the BP chief executive officer made his way through the snowy streets. After one meeting, he was asked—as usual—for his oil forecast by a gaggle of journalists. "Prices will remain low for longer," he said. This time, though, his by-then-well-known mantra came with a kicker: "But not forever."

Few understood the special significance of his comment. After months of slumping oil prices, BP's traders had turned bullish. And, in complete secrecy, the company was putting money behind its conviction.

Shortly before flying to Davos, Dudley had authorized a daring trade: BP would place a large bet on a rebound in oil prices. Although its stock is in the FTSE 100 index and owned by almost every British pension fund, this wager, worth hundreds of millions of dollars, has remained a closely guarded secret until now.

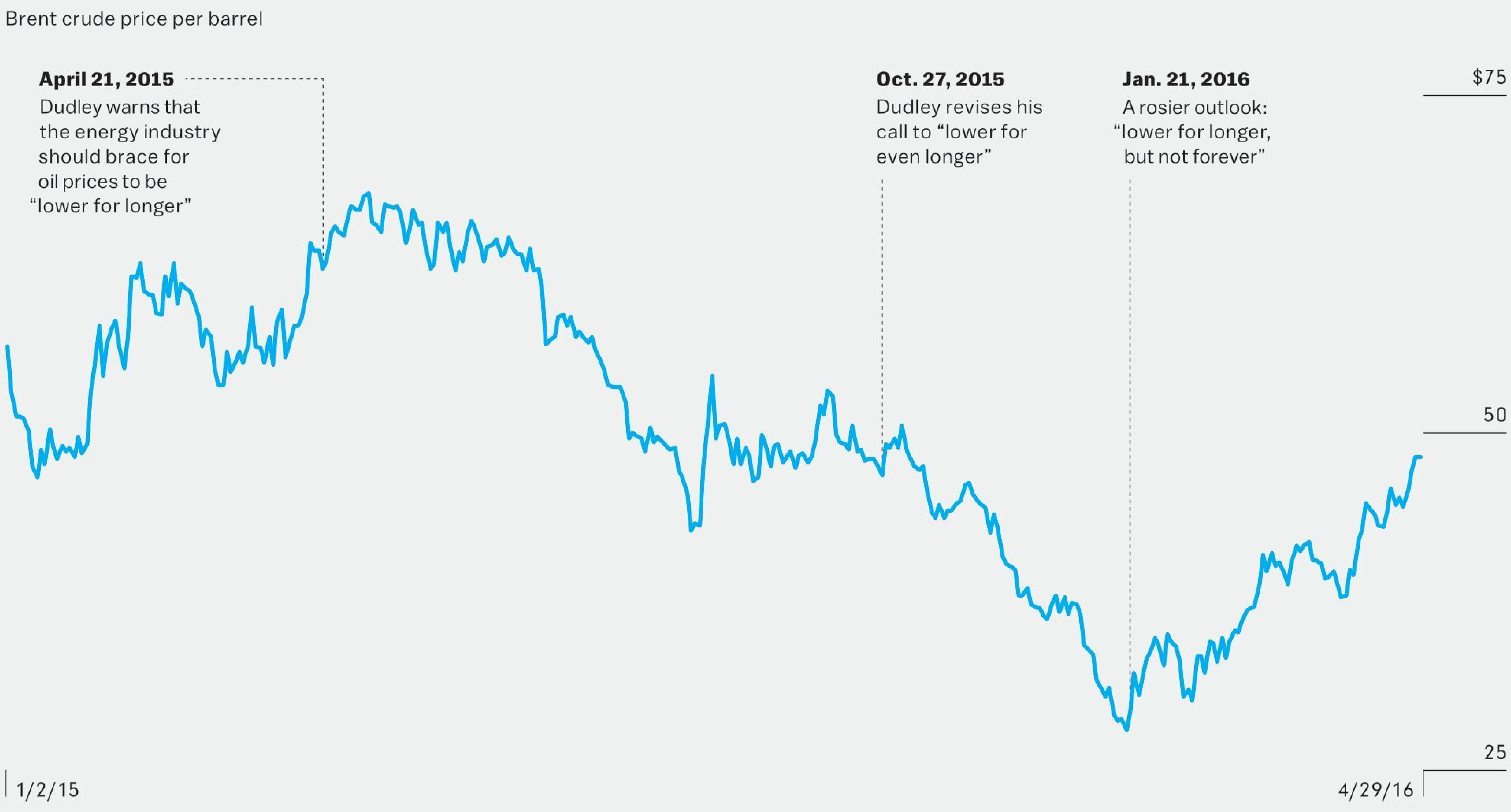
BP was already heavily exposed to the price of oil. What the traders wanted to do was double down, to increase the exposure by buying futures contracts much as a hedge fund would. BP's trading arm—staffed by about 3,000 people on its main trading floors in London, Chicago, Houston, and

"It is impossible to show exactly what we are doing, unless we want to completely open up our entire trading book, which is something we simply cannot do"

PREVIOUS SPREAD: GETTY IMAGES; SPUTNIK/REUTERS

Timing the Market

BP CEO Bob Dudley's comments about oil prices during crude's fall in 2015 and 2016 were in line with a savvy trade that would generate a windfall for the company.



Source: {CO1 Comdty GP <GO>}

Singapore—argued that the price had fallen so far that it could only go up. And Dudley agreed.

Quietly, BP bought Brent crude futures traded in London. It was a "management position"—a trade so large it couldn't be the responsibility of any one trader and had to be overseen by the company's most senior executives.

The optimistic coda Dudley attached to his catchphrase in Davos proved prescient. By early February, oil was up by a third, trading above $35 a barrel. By the end of May, it was more than $50 a barrel.

That's when the company started to count the profits. The trade "made a lot of money," says a former BP executive with direct knowledge of it. Another executive, who also was involved, put the payout at about $150 million to $200 million, declining to provide an exact figure. Publicly, however, BP —whose vast size means it's not obligated to disclose even a windfall of that scale—said almost nothing.

BP'S TRADES in the midst of the 2016 slump are a demonstration of one of Big Oil's best-kept secrets. The company and its rivals Royal Dutch Shell Plc and Total SE aren't just major oil producers; they're also some of the world's largest commodity traders. Shell, the most active of the three, is the world's largest oil trader—ahead of independent houses such as Vitol Group and Glencore Plc.

Massive trading floors that mirror those of Wall Street's biggest banks are becoming increasingly important to the oil companies, which are driven by fears that global oil demand could start to drop in the next few years as climate change concerns reshape society's—and investors'—attitudes toward fossil fuel producers. No longer looked down upon as handmaids to the engineers who built Big Oil, the traders are now seen as their companies' saviors. The brightest stars can make more than $10 million a year, outstripping their bosses.

Like BP's 2016 trade, much about the oil majors' trading exploits has never been reported. *Bloomberg Markets* pieced together the story of these lucrative but secretive operations through interviews with more than two dozen current and former traders and executives, some of which were conducted for *The World for Sale*, our new book on the history of commodity trading.

The oil majors trade in physical energy markets, buying tankers of crude, gasoline, and diesel. And they do the same in natural gas and power markets via pipelines and electricity grids. But they do more than that: They also speculate in financial markets, buying and selling futures, options, and other financial derivatives in energy markets and beyond—from corn to metals—and closing deals with hedge funds, private equity firms, and investment banks.

As little known as their trading is to the outside world, BP, Shell, and Total see it as the heart of their business. In a conference call with industry analysts last year, Ben van Beurden, CEO of Shell, described the company's trading in almost mystical terms: "It actually makes the magic."

And the wizardry pays off: In an average year, Shell makes as much as $4 billion in pretax profit from trading oil and gas; BP typically records from $2 billion to $3 billion ►

annually; the French major Total not much less, according to people familiar with the three companies. In the case of BP, for instance, profits can equal roughly half of what the company's upstream business of producing oil and gas makes in a normal year, such as 2019. In years of low prices, like 2016 or 2020, trading profits can far exceed those of the production business. Last year, both BP and Shell made about $1 billion above their typical profit target in oil and gas trading.

One reason profits are so high is because the three companies can reduce their trading tax bill by routing their business through low-tax jurisdictions—a strategy not available to their oil pumping and refining businesses, which are rooted in physical infrastructure in particular countries. Shell, for example, concentrates all its trading of West African and Latin American crude via a subsidiary in the Bahamas. With just 36 traders in Nassau, Shell reported profits in the Bahamas of $847.5 million in 2019. Yet it didn't pay a single dollar in taxes on those gains.

Even better for the trio, trading profits tend to soar when markets are oversupplied, as was the case in 2015-16 and again in 2020, helping to cushion the blow of low prices on the traditional business of pumping and refining oil. Trading also gives them an edge over their U.S. rivals, Exxon Mobil Corp. and Chevron Corp., which for historical and cultural reasons have eschewed trading.

For most shareholders, however, the trading business is a black box. "It is impossible to show exactly what we are doing, unless we want to completely open up our entire trading book, which is something we simply cannot do," Shell's van Beurden said last year when asked how much money the trading unit made. Total CEO Patrick Pouyanné, asked a similar question, replied more bluntly: "The oil trading is a secret."

What isn't a secret is the size of the trades. Together the three companies trade almost 30 million barrels a day of oil and other petroleum products, equal to the daily production of the entire OPEC cartel. Shell alone trades about 12 million barrels a day. That's physical trading. The paper volumes are much larger. Total, for example, trades 6.9 million barrels of physical oil a day, but the equivalent of 31 million barrels of oil derivatives such as futures and options.

With trading comes risk. The business "suits people who have a real commercial bent, a real desire to make money for the company," Andrew Smith, head of trading at Shell, says in a recruiting video. They must be fearless, too: "They also have to be comfortable with taking risk. There are very few risk-free trades. Some days you make money; some days you'd lose money," he says.

BP, Shell, and Total declined to comment for this article.

THE HISTORY OF BIG OIL and trading goes back to the industry's origins. Shell started life in London in the 19th century as an oil trader—"Shell" Transport & Trading Co.—and only later got into oil production. Then, in the first half of the 20th century, oil trading simply ceased to exist as the biggest producers squeezed others out of the picture.

A few large companies came to dominate the industry, underpinned by their agreements to divvy up the oil resources of the Middle East. These companies, BP and Shell among them, were known as the Seven Sisters. Outside their oligopoly, there was very little left to buy or sell.

BP was emblematic of the era. The British group had grown out of the Anglo-Persian Oil Co., established after oil was first struck in Iran in 1908, and by the early 1970s it could rely on a gusher of oil from its Iranian assets that provided much of the total 5 million barrels a day that it was pumping around the world. BP didn't need to trade. Instead the nerve center of its business was the dull-sounding "scheduling department," charged with arranging for BP barrels to be transported in BP tankers into BP refineries and sold into BP fuel stations.

Already early traders such as Marc Rich, who founded the company that is today Glencore, were finding ways to trade oil outside the control of the Seven Sisters on the nascent spot market. The big oil companies regarded trading as beneath them and looked down on the upstarts, but they would soon be forced to think differently.

The Iranian revolution of 1979 at a stroke dispossessed BP of much of its oil production. The company was forced to turn to the spot market that it had long disdained to buy the oil its refineries needed.

Soon BP was doing much more than just buying oil for its own refineries. Andy Hall, then a young graduate working in its scheduling department in New York, would go on to be one of the most successful oil traders in history after leaving BP. He recalls that he started buying any oil that looked cheap, whether BP needed it or not, figuring to resell it at a profit. "We basically started trading oil like crazy," he says.

The oil price slump of the late 1990s set the stage for what the three large trading businesses would become as a wave of consolidation swept through the oil industry.

When Exxon merged with Mobil, which had had a successful trading business, the nontrading culture of Exxon

"They also have to be comfortable with taking risk. There are very few risk-free trades. Some days you make money; some days you'd lose money"

prevailed. The same happened when Chevron took over Texaco. The Americans were pretty much out of the trading business.

Meanwhile, BP bought Amoco, which had a large trading unit, expanding its reach. The merger of French companies Total and Elf—both large traders—further consolidated Total's trading business. Shell, too, reorganized and centralized its trading unit.

By the time the wave of consolidation was over in 2000, the European trio emerged as the kings of oil trading. Their timing was exquisite: Commodity trading was about to enjoy an enormous boom as skyrocketing Chinese demand spurred a decade-long supercycle in prices.

BIG OIL'S TRADING FLOORS would be at home at JPMorgan Chase & Co. or UBS Group AG. Rows of desks sprouting vast arrays of flashing multicolored screens stretch out almost as far as the eye can see. The traders are arranged according to their market or region of focus, each desk representing a trading "book," a little empire of supply contracts and derivatives deals.

The floors don't just look like Wall Street's—they're often located alongside them. BP's London trading base isn't at the company's head office near Buckingham Palace, but in the banking hub of Canary Wharf. In Chicago its traders occupy the historic floor of the former Chicago Mercantile Exchange building.

All in all, BP, Shell, and Total employ about 8,000 people in their trading divisions, a small fraction of their overall workforce of 250,000. The traders have more in common with the investment bankers across the road than they do with their colleagues sweating on oil rigs in Nigeria or mapping fields off the coast of Brazil. "Trading is a very uber-competitive environment," Christine Sullivan, a 30-year veteran of Shell trading, says in one of the company's recruiting videos. "Every day I can see the impact I've made to the bottom line. You see that moving up, hopefully, on a daily basis, and it just makes you want to do more."

Big Oil's bosses like to say that speculation isn't part of the business model of their trading units. That's not really true. Within BP's trading division, for example, there was for a number of years a pot of money traded, effectively, by a computer. The so-called Q Book was devised in the 1990s by two of BP's in-house math whizzes—Chris Allen and Gordon Izatt—long before algorithmic trading became a dominant force in financial markets.

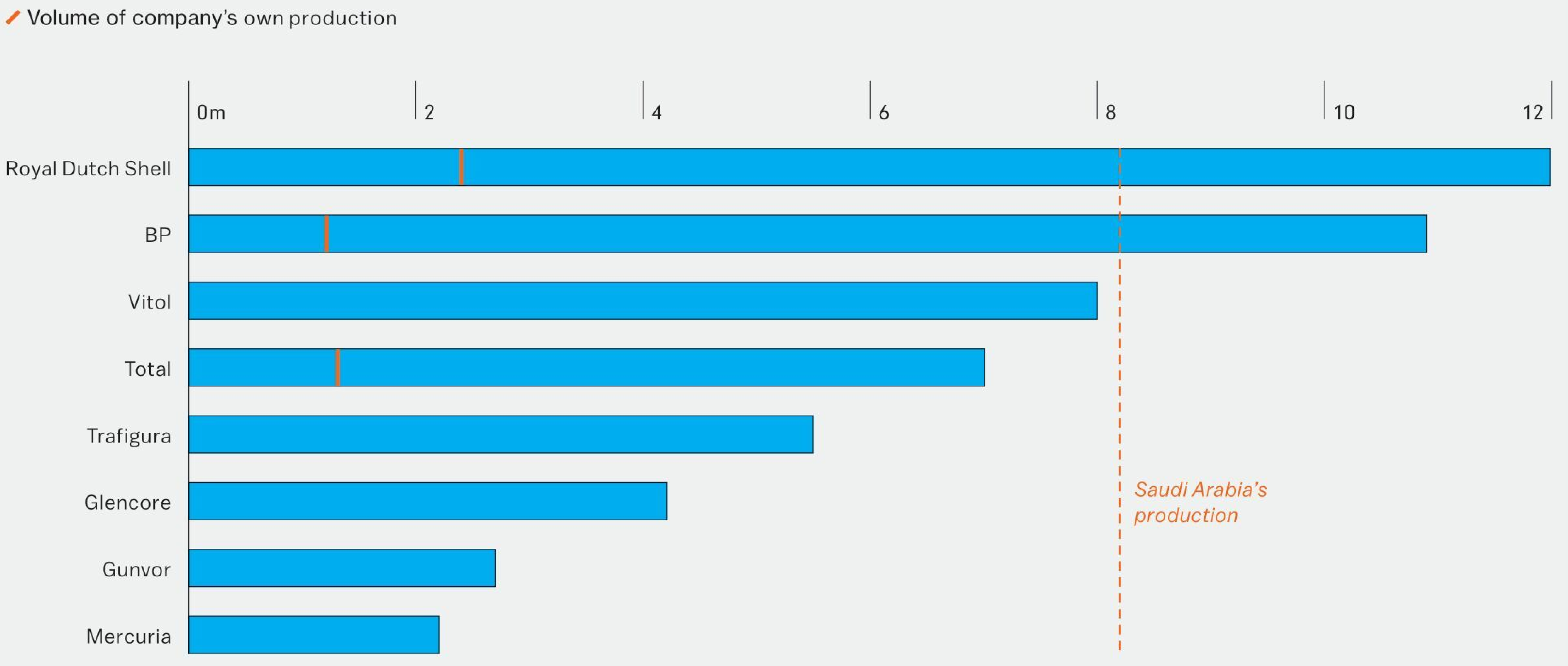
The Q Book algorithm traded dozens of commodity futures including gold and corn, according to people with knowledge of it. And while BP shut down the Q Book a few years ago, it still has a unit that resembles an in-house hedge fund: The so-called Alpha One Book, run by Tim Hayes, aims to make money betting on financial commodity markets. At Shell and Total, there are similar groups.

Even so, big speculative wagers on the direction of the price of oil, like the one BP took in 2016, are rare. The day-to-day job of the traders is a little like the role of the scheduling department of bygone eras, but with a healthy dose of entrepreneurial spirit thrown in.

Their role gives them a huge position in the markets and opens up all kinds of opportunities to maximize profits. Last year, for example, Shell's traders realized that the spreading coronavirus pandemic would have a catastrophic impact on international travel. They decided to bet that demand for jet fuel would collapse. It was a wager almost no other trader in the market could make on the scale that Shell did: Jet fuel is a niche market, dominated by refineries and airlines, and the market for jet fuel derivatives ►

Trading Giants

Oil trading volume, barrels per day



Source: Company reports

isn't liquid enough for most traders to bet on easily.

But Shell was well poised. It owns the Pernis refinery in Rotterdam—the largest in Europe, each day pumping out enough gasoline, diesel, and jet fuel to keep half of the cars, trucks, and planes in the Netherlands moving. It supplies jet fuel to Amsterdam's Schiphol Airport.

In early 2020, before air travel shrank, Shell's traders tweaked Pernis's production, cutting out jet fuel entirely while increasing output of other refined products. Shell still had contracts to supply jet fuel, however, so the company was left with a big short position: It would have to buy jet fuel in the market to deliver to its customers, whatever the price, if the company's traders were wrong about the pandemic. If the price went up, Shell stood to lose millions.

Of course, the traders weren't wrong. Jet fuel demand soon plunged 90% in northwestern Europe. Across Europe, prices fell from $666 per metric ton at the beginning of the year to $125 by late April. "We could buy jet fuel, make money on that particular trade, and then again reconstitute the products coming out of the refinery to make money elsewhere," Shell's van Beurden explained in an earnings call with investors in July. "That's no ordinary trading. That is actually optimizing market positions that we know better than anybody how to take advantage of."

Shell didn't disclose how much money it made on that single trade, but people familiar with the company said that in just the second quarter of 2020, the jet fuel traders made as much as they usually do in a whole year.

"INSIDE SHELL and BP, the traders are their Navy SEALs," says former Shell oil analyst Florian Thaler, now head of OilX,

> **"We love complexity like this. It is why we have elevated our trading function to the leadership table"**

an industry data analytics company. For their skills, traders are highly paid.

For years their remuneration packages were a closely guarded secret. Then in 2006 a BP trader sued the company in the U.S. in a pay dispute. The legal fight that followed exposed the riches of Big Oil trading. The trader, Alison Myers, revealed that, on top of her regular annual salary of $150,000 for 2006, she was due a $5.5 million performance bonus—three times what BP's then-CEO John Browne took home the same year.

The legal battle revealed that others at BP did even better. The company said other traders took higher bonuses not only because their desks made more money, but also because speculative traders were generally better paid. "The market value of paper traders was higher than the value of physical traders," BP said in a court filing.

Since then, bonuses have only gone up. Nowadays many traders take home from $1 million to $10 million a year, and a handful even more. Every year at BP a list goes to the board for approval. It contains the names of the dozen or so traders whose bonuses are higher than that of the CEO, according to two people familiar with the process.

At the top of the list typically sits the lead trader of the Cushing Book—the one responsible for buying and selling oil at the Oklahoma town that serves as the delivery point for the West Texas Intermediate benchmark. In a good year, this trader can make as much as $30 million, an amount that would outstrip the $23 million that David Solomon, the boss of Goldman Sachs Group Inc., took home in 2019.

THE IMMENSE SCALE of the oil companies' trading units gives them outsize clout. Shell, as Bloomberg News has reported, has in the past made bold trades that, while not illegal, have violated the unspoken rules governing this lightly regulated market. On one occasion in 2016, for example, Shell bought roughly 70% of the cargoes of North Sea crude available for a particular month, triggering wild price gyrations while squeezing out other traders who privately complained to Shell.

At times, Big Oil traders have broken the rules outright. In 2007, BP paid more than $300 million to settle charges that it manipulated U.S. propane markets, for example. At the time the fine was one of the largest ever for alleged market manipulation in commodities. Earlier, U.S. regulators fined Shell $300,000 for manipulating U.S. oil futures markets in 2003 and 2004 and $30 million for manipulating natural gas markets in 2000 and 2002.

Still, constrained by the sheer size and high public profiles of the companies they work for, BP, Shell, and Total traders are nowhere near as swashbuckling as their counterparts at independent houses, who, history has shown, have been more willing to make a foray into countries where corruption is rife and where buying oil sometimes involves suitcases full of cash.

That means the oil giants have left many of the juiciest deals to the independents. Brian Gilvary, a former BP head of finance, puts it this way: "Is there value available to us that could be captured over and above what we capture today?

A Boon From a Nosedive

Royal Dutch Shell's decision to effectively short jet fuel in early 2020 paid off handsomely after the world went into lockdown.

Source: {JET1NECC Index GP <GO>}

Absolutely. Are we prepared to take the risk associated with that? Definitely not. I can give you a list of countries, but you know where they are."

IN THE LAST FEW YEARS, Big Oil has muscled more and more into the realm previously dominated by big banks. When, after the 2008-09 financial crisis, the U.S. Congress attempted to tighten regulations around the vast and opaque market for swaps—a form of bespoke derivatives traded bilaterally—the process revealed for the first time the scale of the oil companies' role in the financial markets.

The 2010 Dodd-Frank Act on financial reforms required all major players in the swaps market to register themselves. There were the usual suspects: Bank of America, Goldman Sachs, JPMorgan, and other financial behemoths. And then there were three names that seemed out of place: Cargill, the world's largest trader of agricultural commodities, BP, and Shell.

As Wall Street banks scaled back their presence in commodities in the post-crisis world, Big Oil stepped in. Shell, for example, in 2016 became the first nonbank to move in on what commodity traders at Wall Street banks see as their largest annual deal: helping the Mexican government hedge its exposure to the price of oil.

For its part, BP, in a brochure for its trading unit, says, "Our customers also include banks, hedge funds and private equity firms." The document lists a range of financial strategies it can help customers implement—from "options (vanilla & tailored)" to "tiered volume restructure."

With investors of all kinds increasingly unimpressed by the traditional oil-pumping business, trading is becoming an ever more important part of the oil companies' sales pitch. In a virtual meeting with investors in October 2020, Shell's van Beurden described the company's trading unit as "absolutely core to the success of our company." Even Exxon, which long sneered at trading as an unnecessary distraction, has changed its stance, hiring experienced oil traders to start making bets with the company's money.

As BP shifts its investments from fossil fuels to renewable energy, its traders will help it juice the relatively low returns on those investments, Bernard Looney, who last year succeeded Dudley as CEO, said in a presentation to investors in 2020. Renewable energy projects typically generate returns of 5% to 6%, he said, claiming that the company's expert traders can add about 2 percentage points to that.

As steeped as BP may seem to be in the rigs and offshore platforms and snaking pipelines of yesteryear, Looney painted an energy future that encompasses electric cars, hydrogen, and biofuels. "We love complexity like this," he said. "It is why we have elevated our trading function to the leadership table." ●

Blas and Farchy cover energy out of London. Their book, *The World for Sale: Money, Power, and the Traders Who Barter the Earth's Resources*, was published in the U.K. in February by Random House Business and in the U.S. in March by Oxford University Press.

BINANCE'S CHANGPENG ZHAO:

"I'm not using crypto to buy fiat,

I'm not using crypto to buy houses.

I just want to keep crypto"

By OLGA KHARIF PHOTOGRAPH BY CHARMAINE POH

Changpeng Zhao, 44, has spent his life trying to overcome borders. As a child growing up in China, he waited for years until his family could win permission to see his father in Canada, then pursued a career (including a few years at Bloomberg LP) that took him around the world. Now, as chief executive officer of Binance, the world's biggest cryptocurrency exchange, he's trying to get more people to use a global form of money and says his company—which booked more than $800 million in revenue last year—doesn't need a headquarters. Zhao spoke to *Bloomberg Markets* in early March from Shanghai about his career and the growth prospects of crypto and his company. He also responded to critics who question Binance's regulatory compliance. His comments were edited for length and clarity.

(After the interview, Bloomberg News, citing people familiar with the matter, reported that the U.S. Commodity Futures Trading Commission is investigating whether Binance violated the CFTC's rules by allowing U.S. residents to place wagers on derivatives. Binance hasn't been accused of misconduct, and the investigation may not lead to an enforcement action. Zhao wouldn't comment beyond saying that Binance works with regulators and takes its compliance obligations "very seriously.")

OLGA KHARIF: Can you talk a little bit about your early years, starting in China?

CHANGPENG ZHAO: My family has been always a little bit nomadic. My mom is an elementary and high school teacher, and my dad was in a master's student-plus-teacher type of role. He eventually became a professor [with a Ph.D.]. And so, as I can remember, I always lived on campus, in either high school or in a university. I did move around a lot. Even in China, my parents were moving between different cities.

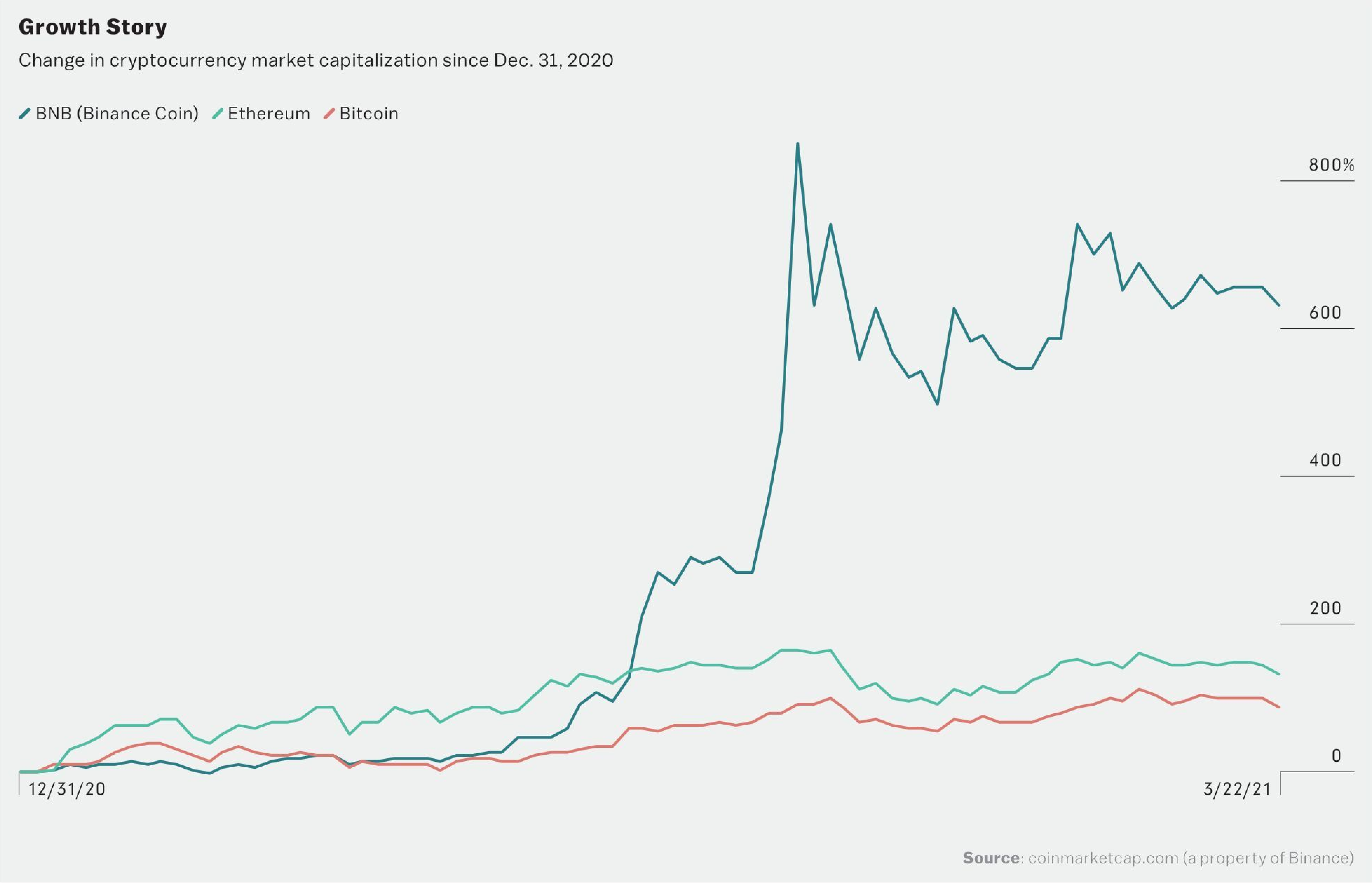
OK: Why did your family move to Canada?

CZ: My father went through the Cultural Revolution in China. They canceled all the university classes. They sent all of them back to the countryside to learn the real ways of life. He didn't take a single class. And then finally the Cultural Revolution was over, and everyone was applying to go overseas to study. So my father applied and got accepted by the University of British Columbia. That was in 1984. So between 6 and 12, I didn't get to see my father that much. In 1989 we finally got a family visa to visit my dad. My mum took me and my older sister to Vancouver, and we just stayed.

OK: How did you end up studying computer science when you got to college?

CZ: My dad bought a 286 computer, probably when I was 12 or 13. He paid C$7,000 [$5,570] for that 286 computer. Back then it was a huge, huge portion of our household savings. My dad always says that's the most expensive computer, or thing, he has ever bought. So I was playing really basic games on my computer, and I really liked it. My dad is a programmer, so he can write code. He's a geophysicist. He understands math very well. He programs in Fortran, Pascal, C, etc. So I got exposed to that relatively early. I wasn't doing anything serious. When I was 16 to 17ish, I took a couple of programming courses in high school and really liked them.

"I sold my apartment to buy Bitcoin, and I also quit my job"



At [McGill] university, I applied for an internship at a software company in Montreal doing virtual-reality markup language like HTML. In the early days they were using CGI computer stations. In year three I got an internship in Japan, and that was the first programming job related to trading. The firm in Japan was doing outsourced work for the Tokyo Stock Exchange and some of their members. So they were doing trading systems.

I didn't know what fintech or financial trading systems were. What attracted me was that the job was in Tokyo. I very soon learned, wait a second, there's a lot of money flowing through these systems, just a huge amount of money. So I never left that industry afterwards.

OK: How did you go from there to working on crypto trading systems?

CZ: In 2013, Bobby Lee, who was the CEO of BTC China, and his investor [Ron Cao, then at Lightspeed China Partners] brought this concept up at a friendly poker game. They said, 'CZ, you should convert 10% of your net worth into Bitcoin, because there's a very small chance it will go to zero and you will lose that 10%. There's a high chance it will go 10x, and then you would double your net worth.' And I was like, well, that's a pretty serious proposition.

So I downloaded the Bitcoin white paper. Back then, there wasn't a whole lot of educational content online. There was bitcointalk.org, which is a forum. I read the white paper. I understood it pretty quickly, coming from a technology background. I also had my personal private key way before, in 1998. So I understand public keys, private keys. And what I really liked about Bitcoin back then, and even now, is it's borderless. It's maintained by the network. You can transfer money from any country to any other country, not limited by any person or intermediaries. Having lived in a lot of different countries, every time I had to convert money, I would lose a lot.

OK: Did you actually invest 10% of your net worth into Bitcoin right then?

CZ: It took me a while. Back then most of my net worth was in the apartment I bought in 2006 in Shanghai. I bought a little bit of Bitcoin and then just used it, played with it. I liked it immediately. And then I was in a big hurry to sell my apartment, but selling the apartment took a really long time. I sold my apartment to buy Bitcoin, and I also quit my job. I joined Blockchain.info first. When I joined, it was the founder, Ben Reeves, and CEO Nic Cary. So I was the third guy in. After working at Blockchain.info just under a year or so, I figured OK, my strength is still in the exchange-trading business.

OK: You ran a startup that provided crypto-exchange technologies to others before pivoting to start Binance. What was it about your exchange that helped it take off and become very big, very fast?

CZ: So what was different in 2017 is, at the time, if you used crypto exchanges back then, most of the interfaces were very clunky. And the systems were very slow. In 2017, when Bitcoin's price was rising, all of the websites were crashing. And, worst of all, none of them had customer support. I looked at what we had. We have a fast matching-engine trading system pretty much ready. We can make the user interface much better. I thought, well, we can improve exchange speed, we can improve the UI, we can improve the customer service, we can cut the fees to be much lower. And we can also go pure ►

crypto-to-crypto and then service the global audience. And we offer mobile support. So back then, even though there were hundreds of new exchanges each day, they were just copying each other. No one really made significant improvements. I thought we had a chance to make a pretty nice exchange.

OK: Binance is huge now. Coinbase's filing for a direct listing on the public market came out on Feb. 25. They called out Binance by name, as one of the exchanges with "varying degrees of regulatory adherence." Could you possibly talk about that?

CZ: I would heavily dispute the statement. Binance is very regulated, even in more jurisdictions than Coinbase. There is a binance.us, which services U.S. users. They operate [with] 100% compliance, fully regulated. They only started in 2019, September-ish. So they're still in the process of getting some additional licenses in some states. They are only able to service 42 states right now, but they are in the application process for more states. There's Binance Singapore, which is a joint venture entity with a government-related fund, Vertex Inc. Vertex is a VC investor in Binance Singapore. There are a number of other entities around the world which are fully regulated entities using the Binance brand. I think Binance is probably holding the most exchange licenses or what you could relate to as exchange licenses globally. And there aren't that many specific exchange licenses. But Binance probably holds the most number of crypto exchange-related licenses globally.

OK: What about know-your-customer compliance, KYC? Some people say that you guys have some KYC holes, especially where small amounts of trading happen.

CZ: That's also not true. Binance actually offers the strongest KYC, AML [anti-money laundering] programs. We use 8 or 10 different vendors for KYC alone around different parts of the world. The confusion on KYC comes from one of our KYC tiers. You can get away with not doing KYC with $300 equivalent of lifetime transactions on binance.com. That's the tier that gets people confused. But today we are probably the most compliant exchange worldwide.

OK: Coinbase is going public, and there are rumblings about other crypto companies doing the same. Are you also considering it?

CZ: The short answer is no. Right now we're not looking at going public, and we're not looking at an IPO. We are cash-sufficient, so we're able to grow ourselves. We don't need a huge amount of money, we are profitable, and we are growing.

OK: Got it. Any financial metrics you might be able to share in terms of growth: revenue, income, anything like that?

CZ: We don't have a lot of specific numbers. The numbers change pretty quickly based on the Bitcoin price. This year, based on the first two months of this year, the volumes have grown quite a bit. We are also lowering our fees across many different places, so it's too early in the year to estimate the revenue for this year. We're also making a number of fairly large expansions in different areas, like the Binance Card. But that business is actually losing money for us, which is OK because we want to get that product out. So we're doing a number of new businesses that are burning money. It's still too early to say what our profits or revenues will be this year.

OK: How big is Binance in terms of employees? And you say the company is not based anywhere. Could you talk a little bit about that?

CZ: So we're about 1,600, 1,700 people now. It changes every day because of the new joiners and guys who committed but haven't joined yet. Everyone gets a little bit confused or curious about the structure, given that we have no offices and we have people all around the world. But that's exactly the sort of mentality that I think crypto companies should take, because with crypto there really are no borders. And especially with Covid now, everyone's used to working from home. Everyone understands that you can actually use videoconferencing to get a lot of things done, and you can use chats to coordinate. You don't need to necessarily sit in an office at the same time. It was just a more efficient way of working for our business because we have users from almost every part of the world.

OK: But usually a company is headquartered somewhere and regulated by some jurisdiction.

CZ: Headquarters are also just a concept, right? And interestingly, now Coinbase recently claimed that they no longer have a headquarters. This is a company that's going public that also has no headquarters. You can point to any office and say that's a headquarters—it doesn't really mean that much. We do have a large number of regulated entities in multiple jurisdictions that we operate. So anywhere that requires regulatory compliance, where we operate, we have licensed entities. And those licensed entities have what you may call a headquarters or an office and an address. The regulators require that. And then in those regions, there are specific entities that have it. So we have both styles.

OK: A while ago you were talking about Binance eventually becoming a DAO, or decentralized autonomous organization—essentially a company run by software. Do you think it's still feasible?

CZ: I still totally think it's possible, but it's going to take a number of years. Conceptually the "company" is probably the most virtual concept humans have invented. It can be created out of thin air.

Fundamentally, you want to have a structure where a group of people is working on a common goal and how they're incentivized is clearly defined. That structure can be programmed either on the blockchain or, if a number of guys trust each other enough, they can just have a piece of paper and they can continue to work on the project.

OK: Who were the initial investors in Binance, and are they still invested in it?

CZ: Binance was mostly funded by the ICO [initial coin offering] in July 2017 that raised $15 million, mostly from [investors in] China and other parts of Asia. We had some earlier investors, but most of them actually have cashed out. The ICO not only offered us money, it also offered us a lot of users, which was very, very beneficial.

OK: You mentioned your card efforts. Where else might you go this year?

CZ: We're experimenting in a number of new areas. Basically, in addition to our current exchange core business and wallet and CMC [coinmarketcap.com, which Binance acquired] access-to-information type of business, we are pushing Binance Card very heavily. Binance Card is actually the first product that we envision as the Binance Pay suite of products. We are developing and pushing a Binance Pay product where we allow merchants to accept crypto or stablecoins directly. And we also want to allow peer-to-peer payments directly within the Binance app. So payments is a big one that we're pushing.

We put our DeFi [decentralized finance] project out there as well, but that's not a product for business, it's an open public blockchain. We did contribute to it in the early days, and we're still contributing to it now, but we are just a contributor in the ecosystem. NFTs [non-fungible tokens, unique, irreplaceable identifiers for a digital piece of art or collectible] are pretty hot—we may look at doing something there. And also just more fiat channels [new ways for people to buy crypto with traditional fiat currencies]. We added about 50 different channels around the different parts of the world last year. I think we can probably add another 30 or 50 more this year. So I think those are sort of the bigger strokes. I'm probably missing something. There's so many new small experiments in the Binance team that I may or may not know about.

OK: Could we see major acquisitions?

CZ: Yes. We are actively doing acquisition deals, especially in a lot of these new areas. My view is I'm not an expert in these areas, and it's better for us to find strong teams that are already doing this well. We plan to do somewhere between 20 and 30 acquisitions a year. Most are smaller acquisitions—we don't announce them. Some will be bigger ones like CMC, but we do plan to do about 30 acquisitions each year, which probably means about three deals every month now.

“I'm one of those guys who value liquidity much more than owning something. I actually prefer not to own anything”

OK: You've made Binance into a huge company. What is the most luxurious thing you bought for yourself because of your success?

CZ: I bought like five or six laptops. I actually destroy laptops pretty quickly—they break. As soon as new ones come out, I buy one. So I buy a lot of gadgets. But those are not really that expensive in the grand scheme of things. I don't have a car. I don't have a house. The problem with cars, houses, is that I just don't think they're liquid. As soon as you buy them, you can't trade out of them that easily. You can rent an apartment or stay in a hotel—that gives you much higher liquidity. So I'm one of those guys who value liquidity much more than owning something. I actually prefer not to own anything.

OK: At this point, how much of your net worth would you say is invested in crypto coins?

CZ: I would say probably close to 100%. I don't own any fiat, the physical stuff that I own is probably negligible in terms of my net worth. So this is a concept shift. I'm not using crypto to buy fiat, I'm not using crypto to buy houses. I just want to keep crypto. And I don't plan to convert my crypto into cash in the future.

OK: I read that you got the Binance logo tattooed on your arm. Is that your only crypto tattoo?

CZ: That's my only tattoo. I'm not a tattoo guy, but I do think the Binance logo was meaningful enough for me to put it on my body for the rest of my life. ●

Kharif covers cryptocurrencies in Portland, Ore.

The securities firm that grew out of billionaire Ken Griffin's hedge fund has become a dominant force in U.S. equities trading, a villain to the Reddit crowd, and a serious rival to established firms such as Goldman Sachs. Can it keep the regulators and politicians at bay?

By TOM MALONEY

Citadel Feels the Heat

Griffin testified in February at a congressional hearing by videoconference

For the world of finance, it was must-watch TV. A U.S. congressional committee summoned an odd assortment of Wall Street characters to testify about a saga that captured so much public attention it was discussed on *Good Morning America*. How did amateur traders, billionaire hedge fund managers, social media posts, and an opaque market structure fuel a dizzying surge, and sudden crash, in the shares of video game retailer GameStop Corp.?

But for Wall Street's savviest, one person in particular mattered most of all. It wasn't social media star Keith Gill, also known as Roaring Kitty or DeepF---ingValue, despite his viral memes and legions of Reddit fans. It wasn't Gabe Plotkin, the hedge fund manager whose company lost billions after its short-selling positions were crushed. It wasn't even Vlad Tenev, co-founder of retail brokerage Robinhood Markets Inc., who'd incensed customers by abruptly suspending trading in GameStop.

Instead, Wall Street insiders tuned in to see how Ken Griffin, the gray-haired 52-year-old hedge fund billionaire, would handle the glare. Over the past 19 years, with little public attention, Griffin has built his startup, Citadel Securities, into one of the world's dominant trading enterprises. The closely held firm has become a key part of the plumbing underlying the U.S. stock market and is rapidly expanding into others. As recently as January, Goldman Sachs Group Inc. executives told colleagues at an internal trading division town hall that they viewed Griffin's firm as a bigger competitive threat than long-established European rivals, according to people who heard the remarks but weren't authorized to speak about them publicly.

Griffin is probably best known to the public for his $34 billion hedge fund business, his political clout, and his expensive taste in art and property. Meanwhile, Citadel Securities rode a 2020 retail trading surge to a record $6.6 billion in revenue, almost double its previous high, according to a person familiar with the results who wasn't authorized to reveal them publicly. And if the meme stock frenzy is any indication, 2021 revenue may be a lot higher. Citadel Securities has grown from a small group built alongside Griffin's hedge fund to a global trading behemoth dominating not only U.S.-listed markets but also international ones, and pushing into investment banks' favored products.

Helped by regulations that curtailed banks after the 2008 financial crisis, propelled by its state-of-the-art technology, and pushed forward by the ultra-ambitious Griffin, Citadel Securities isn't in the shadows anymore. But as the congressional hearing revealed, the spotlight brings its own peril. As politicians and regulators examine how one company came to control so much of the market, and what risks exactly that poses, Griffin and his firm will try to maintain the relative independence that has fueled Citadel's growth.

CITADEL SECURITIES started operating as a registered broker-dealer in 2002, but a key turning point was the financial crisis. The turmoil in the markets came close to destroying Griffin's hedge fund, a multistrategy giant he'd been running for almost two decades that was separate from Citadel Securities. The hedge fund was losing hundreds of millions of dollars a week, and TV news vans sat parked outside its Chicago headquarters expecting its imminent collapse.

The firm pulled through, and Griffin saw an opportunity. Politicians, alarmed by the bailouts required to save Wall Street's biggest banks, passed the Dodd-Frank Act to ensure they'd never need such assistance again, and regulators set about imposing new rules. So Griffin started a full-service investment bank that was largely outside the scope of that new regulation. Citadel Securities, which already made markets in equities and options, expanded into research, underwriting, and mergers-and-acquisitions advice.

But the firm soon learned that its edge in technology and trading wasn't all that relevant to those businesses and that the banks' entrenched relationships with corporate customers were hard to displace. Griffin abandoned the effort after about two years to refocus the firm on electronic trading.

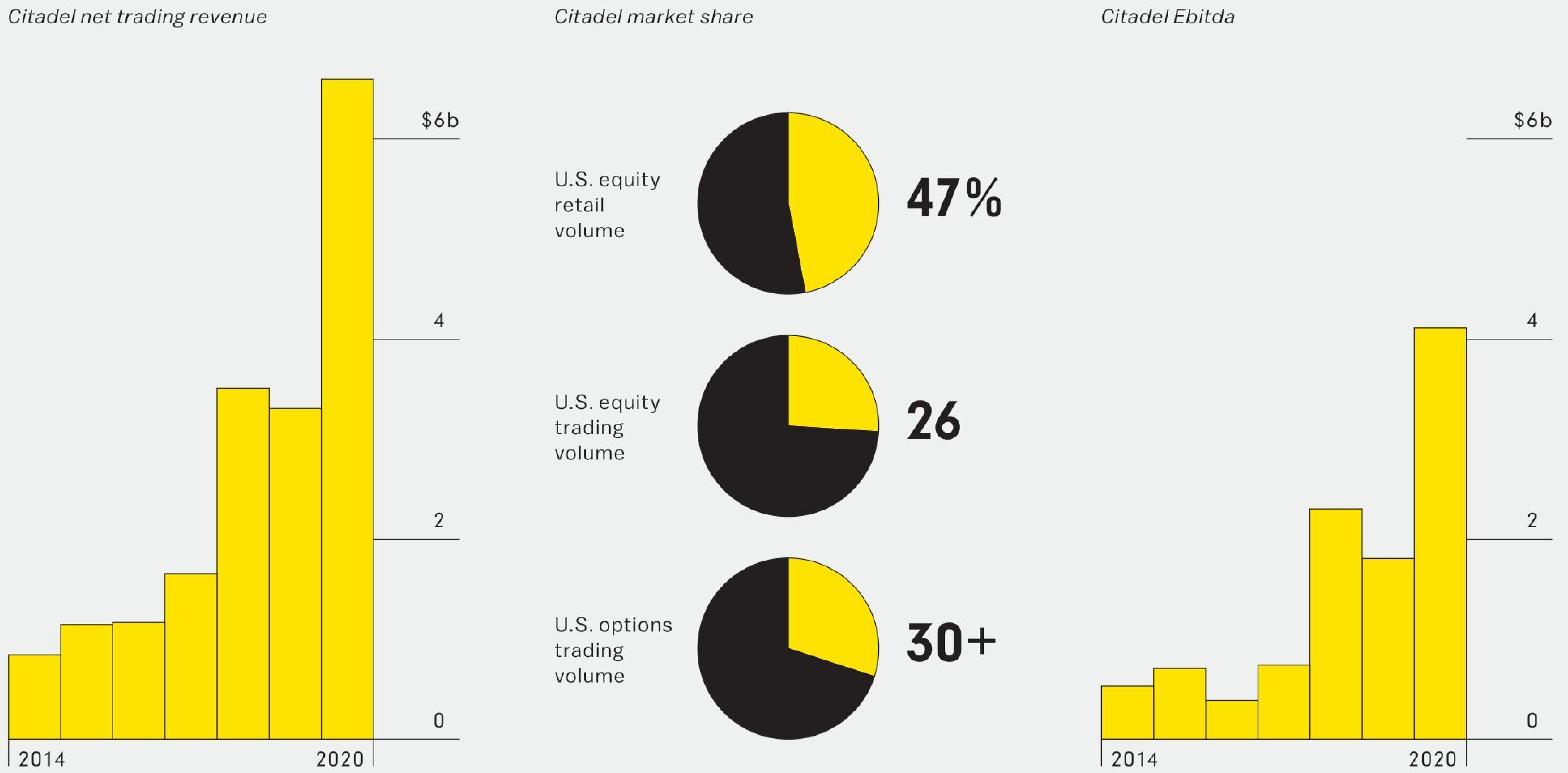
This plan proved more fruitful. The post-crisis Dodd-Frank rules required banks' trading desks to set aside more capital to cushion against potential losses, prohibited them from taking certain kinds of risk, and generally subjected them to more oversight. Even paying annual bonuses to employees drew scrutiny from regulators, giving nonbanks including Citadel Securities a hiring advantage. And rules that moved most interest-rate swap trades to clearinghouses helped to standardize that business and make data more transparent. That made it easier for new companies to compete, and Citadel Securities moved in aggressively, seizing market share.

"Due to the great work of the House and Senate on the back of Dodd-Frank, we permitted competition to exist in the interest-rate swap market," Griffin said at a congressional hearing on Feb. 18. "I'd like to express my gratitude for Dodd-Frank's derivatives reform."

"It's like the Amazonization of listed markets"

A Quick Rise

Meteoric growth in retail trading during the pandemic helped propel revenue and earnings at Citadel Securities in 2020 and secure its place as a market leader.



Sources: Citadel Securities investor documents; person familiar with 2020 results; Citadel website

Citadel wasn't the only nonbank to try to muscle in on the banks' territory after the Dodd-Frank rules came into effect, but it was by far the most successful. A few months after Jon Corzine, the former head of Goldman Sachs and New Jersey governor, took charge of futures and options broker MF Global in 2010, he declared that "we're a broker on our way to being a broker-dealer on our way to being a full-line investment bank." But the company imploded in late 2011 after bets on European government debt went sour.

Although Citadel's growth has benefited from the Dodd-Frank rules, they simply "leveled the playing field," says Joe Corcoran, the firm's head of markets. Some additional regulation of banks is reasonable, he says, because "as lenders and holders of deposits, banks are responsible for their own capital and their systemic role in the economy, which poses a unique set of risks to the financial system."

Peng Zhao, previously Citadel Securities' chief scientist, has led the overall business since 2017. It's been one of the most stable leadership periods in its history: Each of his three predecessors lasted no more than a year. Zhao and Griffin both declined to be interviewed for this story.

From its original focus on equities and options, Citadel Securities has expanded into foreign exchange, interest-rate swaps, institutional options, and a wider variety of Treasuries—with plans to become a primary dealer. It employs 1,100 people and operates in markets in at least 35 countries. The company's 2020 net trading revenue was about a third the size of Morgan Stanley's or Goldman Sachs's.

But it's in U.S. equities markets, where Citadel Securities has replaced traditional stock exchanges in executing orders for many retail brokers, that its influence is greatest. The firm says it handles about 47% of all stock trading by retail investors on a typical day.

Those GameStop shares and options that Gill and other Reddit traders were buying on Robinhood? Citadel was handling almost half of those transactions. On Jan. 27, Citadel "executed 7.4 billion shares on behalf of retail investors," Griffin said at the GameStop hearing, or "more than the entire average daily volume of the entire U.S. equities market in 2019."

THAT DEGREE OF MARKET dominance is drawing the attention of lawmakers and regulators. As technology becomes more important, only the biggest companies will be able to afford the huge investments needed, shrinking the competitive landscape. "The industrialized deployment of technology ultimately brings out a winner-take-all dynamic," says Paul Rowady, director of research for Alphacution Research Conservatory LLC, a market structure research and advisory company in New York. "It's like the Amazonization of listed markets."

In the past the Securities and Exchange Commission didn't show much concern about market dominance, Rowady says. "That seems to me to be very dangerous, not because there are no other players, but because over time it weakens the other players that could be competitive. It's the essence of concentration risk."

The attitude of regulators may be changing. Gary Gensler, the Biden administration's nominee to lead the SEC, raised the issue at a hearing in March to consider his nomination. If "one firm now has 40% to 50% of the retail ►

order flow, what does that do to pricing of capital in this country?" he asked. "What does it mean to be best execution in this context?"

In the wake of the financial crisis, many of the institutions that Citadel Securities competes with, including Goldman Sachs and Morgan Stanley, were designated "systemically important" under Dodd-Frank. That designation imposes additional capital requirements and Federal Reserve oversight because of the risk that a problem at any one of those companies could jeopardize the entire financial system.

But in 2019 the council changed how it analyzes financial companies that aren't banks. Now each of those entities is designated systemically important only as a last resort, after regulators have worked with the company to address potential risks. "The process would probably take years and, in my view, probably go beyond a Biden first-term administration," says Nathan Dean, an analyst at Bloomberg Intelligence.

Some politicians say that revision could leave systemically important nonfinancial companies without needed oversight. Representative Jesús García, a Democrat from Illinois and a member of the House Financial Services Committee, says the rule change was driven by a deregulatory impulse within the Trump administration, enabling "their friends in finance to make as much money as they can with the least amount of accountability, disclosure, and regulation."

But others say that Citadel's focus on trading liquid, centrally cleared products is likely to limit the systemic risk the company poses. "There are a decent number of nonbank financial firms like Citadel Securities where, if one of them had an issue, you could see some short-term disruption to liquidity," says Kevin McPartland, head of research in Greenwich Associates' market structure and technology group. "But that's very different to the idea of a bank failure, which would see a huge amount of capital wiped out overnight."

Politicians have raised two other regulatory issues that could affect Citadel Securities. Democrats such as Senator Elizabeth Warren from Massachusetts and Representative Alexandria Ocasio-Cortez from New York say the rebates that market makers such as Citadel pay to retail brokers including Robinhood for routing orders to them—known as "payment for order flow"—obscure the true cost of trading and give the brokers an incentive to push their customers to trade more often.

"When big sharks like Citadel and Robinhood come out ahead no matter what happens, and when the information they gather isn't disclosed, and when it's secret how that information is used, it's easier for these giants to skim off the top at the expense of small investors," Warren said at a Senate banking committee hearing in March.

Griffin said at the House hearing in February that "with respect to order flow we simply play by the rules of the road. Payment for order flow has been approved by the SEC. It is a customary practice within the industry. If they choose to change the rules of the road and we need to drive on the left side instead of the right side, that is fine with us."

A tax on financial transactions has won some support from Democrats in Congress as well as in state legislatures. In a testy exchange with Griffin at the House hearing in February, Representative Rashida Tlaib from Michigan said taxing trades would "ensure that this enormous wealth generated on Wall Street actually reaches the real economy." Such a move would probably reduce the overall volume of trading, hurting Citadel's profits and potentially imperiling its high-frequency trading strategies. Griffin said it would "injure Americans hoping to save for retirement."

Questions about these regulatory issues were also raised at confirmation hearings for Biden administration nominees including Gensler and Treasury Secretary Janet Yellen, signaling that a Democratic administration could bring the relatively positive regulatory environment for Citadel Securities to an end.

IT DOESN'T HELP that Griffin, who owns at least 75% of Citadel Securities, is something of a poster child for inequality. With wealth of about $22.3 billion, according to the Bloomberg Billionaires Index, he's spent a fortune on trophy residential properties and artworks, as well as philanthropy.

His successful campaign to fight a proposed tax increase on the wealthy in Illinois last year angered proponents such as García. "Our state is hurting. Revenues are down because of Covid—that hurts working-class communities, and yet we saw Ken spending $54 million to defeat a graduated tax increase on the very rich," García says.

But, as the Illinois tax campaign showed, Griffin knows how to use his money to influence policymakers. Citadel Securities' government and regulatory affairs staff has grown to four people from one person a decade ago. Griffin's political donations grew, too, from $2.6 million in the 2012 election cycle to $66 million last year, making him the second-biggest conservative donor after Sheldon and Miriam Adelson, according to the Center for Responsive Politics.

A Citadel spokesperson says Griffin's donations are personal and not connected to the company's lobbying activities.

In the past, Griffin's donations helped him gain extraordinary access to political leaders. After giving more than $1 million to elect Rahm Emanuel, a Democrat, as Chicago's mayor, Griffin wrote to the mayor's personal email account about topics such as gunshots near a school and hard-to-see speed bumps that damaged his car, according to correspondence made public by Illinois's Better Government Association. (After the emails were revealed, Chicago banned municipal officials from using their personal email accounts for business related to the city.)

Griffin is very connected in D.C. Republican circles. Early in the pandemic he spoke with then-President Donald Trump and Vice President Mike Pence about accelerating Covid treatments, and he helped Secretary of State Mike Pompeo facilitate the evacuation of more than 800 people from Wuhan, China. But Griffin says political affiliation isn't important: "What matters is the receptivity to resolving the problem."

At the congressional hearing in February, Griffin received gentler treatment from Republicans compared

“It’s really difficult to see how the sausage is made behind the scenes”

with the charged exchanges he had with some Democrats. “I just wanted to make sure, Mr. Griffin, you had that opportunity to feel comfortable with the explanation of that best execution,” Representative Bill Huizenga, a Republican from Michigan, said at one point.

And Representative Trey Hollingsworth, a Republican from Indiana, seemed keen to help Griffin promote his company’s contribution to the markets and society. “Certainly there’s been a significant amount of evidence supporting the advantages market makers offer retail investors,” he said. “Through sophisticated infrastructure and high-speed technology, bid-ask spreads have decreased from 33¢ to less than a penny over the last five decades and, according to some research, saved retail investors $1.6 billion just in the first six months of last year alone.”

Citadel, like many other financial companies, has also cultivated high-level ties with its regulators. Former Federal Reserve Chairman Ben Bernanke is employed as a senior adviser to the hedge fund. Yellen, who was Bernanke’s successor at the Fed, collected more than $800,000 in speaking fees from Citadel between her position as Fed chair and becoming Treasury secretary. Citadel Securities also employed Steve Luparello, previously the SEC’s director of trading and markets, as general counsel, and recently hired Heath Tarbert, former chairman of the Commodity and Futures Trading Commission, as its chief legal officer.

Citadel’s and Griffin’s extraordinary role in the GameStop trading saga attracted the ire of amateur investors on Reddit and other sites. They thought they saw something suspicious: one billionaire who controlled both the company paying for so many of their orders and the hedge fund investing in one of the GameStop short sellers. They questioned whether Robinhood shut down GameStop trading on Citadel’s orders. Citadel has strongly denied having any role in Robinhood’s decision, and Robinhood said it halted trading in GameStop because of collateral requirements.

Citadel Securities’ position executing orders instead of directly facing retail customers could work to its advantage. At the February hearing and on social media, politicians focused their attention on Robinhood—a consumer brand name that gained prominence with the surge in day trading—instead of Citadel. Citadel’s role remains something of a black box to outsiders. For policymakers, “it’s really difficult to see how the sausage is made behind the scenes,” says Representative Cindy Axne, an Iowa Democrat and a member of the House Financial Services Committee.

So far the GameStop episode has shed a little light into the poorly understood part of the financial world that Citadel Securities has come to dominate. But even the most well-connected firms can’t avoid regulatory scrutiny when the public outcry grows too great–just ask Goldman Sachs and Wells Fargo & Co. The question remains whether Citadel, after benefiting from changes that policymakers and regulators have made in recent years, will find itself in their sights. ●
—With Sridhar Natarajan, Amanda L. Gordon, Annie Massa, and Nick Wadhams

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Maloney is a reporter covering wealth in New York.

Getting Back to Basics

By FRANCINE LACQUA

Lauren Dillard
Executive vice president for investment intelligence, Nasdaq Inc.

What's your morning routine?
Peloton, coffee, and a minute of time with my husband is the ideal morning.

What did you get to do during the pandemic that you wouldn't have done otherwise?
I met more kids, spouses, and pets of my team and our clients. Our global investment community became more human and more empathetic.

Where are you most eager to travel for nonwork reasons?
The beach! The sun and surf are good for the soul.

When the pandemic is over, how will your life be different than it was before?
Less travel for all of us as we embrace a hybrid work model and focus on really quality interactions.

What's the best book you've read recently, or what's the best thing you've streamed?
I am a voracious reader, so picking one is hard! I am in the midst of finally reading *The Splendid and the Vile* by Erik Larson, and it is wonderful.

Stacey Cunningham
President, NYSE Group

What's your morning routine?
I check the overnight news and emails, then making my coffee is a treasured morning ritual.

What did you get to do during the pandemic that you wouldn't have done otherwise?
While I missed seeing so many friends and family, my pandemic bubble contained a few of my family members. I was fortunate to have the opportunity to spend so much time with them, especially my young niece and nephew.

Where are you most eager to travel for nonwork reasons?
Europe.

When the pandemic is over, how will your life be different than it was before?
I will not take my freedom of mobility for granted in a post-pandemic world.

What's the best book you've read recently, or what's the best thing you've streamed?
I was surprised by how much I enjoyed *Ted Lasso*.

Leila Fourie
Group CEO, JSE Ltd.

What's your morning routine?
I wake up at 5:30 a.m., virtual cycle while reading or listening to news, and thereafter have a cup of coffee.

What did you get to do during the pandemic that you wouldn't have done otherwise?
There are new additions to the family—Bengal kittens.

Where are you most eager to travel for nonwork reasons?
To see my children in Australia. Locally, to the mountains in Cape Town to rock climb.

When the pandemic is over, how will your life be different than it was before?
I've reverted to basic values. Small things matter more than they did before.

What's the best book you've read recently, or what's the best thing you've streamed?
Nonfiction: *The Future of Capitalism* by Paul Collier and *A Life on Our Planet* by David Attenborough. Fiction: *On Earth We're Briefly Gorgeous* by Ocean Vuong.

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

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GP	The Line Graph function's natural language processing capabilities have been updated, so you can create a chart by simply typing "GP" in the command line followed by your keywords and pressing <GO>. To chart Tesla Inc.'s revenue, type "GP TSLA revenue" and press <GO>. GP has also been enhanced to make it easier to find peers and data. To compare Tesla with another automaker, click on the Compare button and select a name from the list of suggested peers.	
EA	Earnings Analysis has been updated so you can download the data underlying growth calculations. Run {EA <GO>}. Select the list of securities you want to analyze. Then click on the Growth tab. Click on All Securities or an industry to display the underlying securities and hit the Export button to download a spreadsheet with the data.	
MODL	The Company Financials function has been enhanced to display reported results alongside estimates, broken down by segments and geographies. To view data on subscribers to Walt Disney Co.'s streaming services, for example, go to {DIS US <Equity> MODL <GO>} and click on the Multiple Periods tab.	50, 51
IB	Instant Bloomberg now lets you set up alerts for when a security on one of your lists is mentioned in a chat. You can now also open a one-on-one conversation from a group chat. For more info, run {IB <GO>}, click on Options, select Help, and click on See What's New in IB.	
NH	Bloomberg has added news sources. For Saudi Arabian financial news from Riyadh-based *Argaam*, go to {NH ARP <GO>}. Stories from *Sourcing Journal*, a news source for the consumer discretionary and consumer goods sector, are available at {NH SJO <GO>}.	

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Test Your Market Structure Smarts

By WENDY TAN and JAMIE DOUGLAS COUTTS

WHICH INVESTMENT BANK is the top adviser for initial public offerings by special purpose acquisition companies in 2021? How many GameStop Corp. options traded on its busiest day in January? What currency accounts for the most green bond issuance this year? 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 track the latest market structure upheavals in the process).

1. IPOs by SPACs raised more than $100 billion globally last year. Who's the top adviser so far this year?

- Credit Suisse Group AG
- Citigroup Inc.
- Goldman Sachs Group Inc.

Type "league SPAC" in the command line and select LEAG @GLBIPOSPAC - League Tables: Global Equity IPO – SPAC in the list of autocomplete matches. The shortcut is {LEAG @GLBIPOSPAC <GO>}.

2. Goldman Sachs's Marcus consumer-banking product includes a digital platform that automatically balances customers' portfolios based on their goals. What do analysts predict Goldman's consumer and wealth management revenue will be in 2022?

- About $3 billion
- About $5 billion
- About $7 billion

Type "Goldman" in the command line and select GS US Equity – Goldman Sachs Group Inc/The Common Stock (U.S.). Next, type "company financials" in the command line and select MODL SOURCE - Company Financials: Multiple Models. The shortcut is {GS US <Equity> MODL SOURCE <GO>}.

Use the Periodicity drop-down to select Annuals. Scroll down to Consumer & Wealth Management in the Business Breakdown section and see the Revenue number.

3. Keith Gill, known by his YouTube name Roaring Kitty, is credited with inspiring the GameStop rally. How many options in the video game retailer traded on its busiest day?

- 2.1 million
- 3.9 million
- 8.6 million

Type "GameStop" in the command line and select GME US Equity - GameStop Corp (U.S.). Type "active options" in the command line and select MOSO S - Most Active Options: Single Security. The shortcut is {GME US <Equity> MOSO S <GO>}.

Click Historical above the chart at top right and hover over the top of the Jan. 22 peak for Total Option Volume.

4. Global green bond issuance reached a record $234 billion in 2020. What is the most popular currency for selling this debt?

- Dollar
- Euro
- Yuan

Type "league green bonds" and select LEAG @GLBGRNBD - League Table: Global Green Bonds - Corporate & Government. The shortcut is {LEAG @GLBGRNBD <GO>}.

Change Table View to Credit. Click on the Analysis tab. Use the drop-downs to the right of Period to select Year and 2021. Select Group By Currency.