THE WALL STREET JOURNAL.

DOW JONES | News Corp * * * * * * THURSDAY, OCTOBER 12, 2023 ~ VOL. CCLXXXII NO. 87 WSJ.com ★★★★ $5.00

DJIA 33804.87 ▲ 65.57 0.19% **NASDAQ** 13659.68 ▲ 0.7% **STOXX 600** 453.16 ▲ 0.2% **10-YR. TREAS.** ▲ 14/32, yield 4.596% **OIL** $83.49 ▼ $2.48 **GOLD** $1,872.80 ▲ $11.80 **EURO** $1.0619 **YEN** 149.17

What's News

Business & Finance

◆ **Exxon Mobil struck a** nearly $60 billion agreement to buy Pioneer Natural Resources in the largest oil-and-gas deal in two decades, tying the energy giant's future to fossil fuels. **A1**

◆ **Fed officials were split** over whether they would need to raise interest rates again this year when they decided last month to hold their benchmark policy rate steady, minutes show. **A2**

◆ **Goldman Sachs agreed** to sell specialty lender GreenSky to a group of investors, a major step in what has become a costly retreat from the bank's ambitions to serve a broader consumer market. **B1**

◆ **Major U.S. stock indexes** rose, with the S&P 500, Nasdaq and Dow industrials advancing 0.4%, 0.7% and 0.2%, respectively. **B11**

◆ **Birkenstock shares** declined in their stock-market debut, closing 13% below the $46 offering price in a potentially brutal blow to an IPO market that was showing signs of recovery. **B1**

◆ **Samsung reported** sequential improvements in third-quarter sales and operating profit, sending shares higher on hopes the worst of a severe chip industry downturn may be over. **B4**

◆ **Disney is raising prices** at its theme parks as it looks to make more money from its parks division amid softness in its linear TV business and challenges in its shift to streaming. **B1**

◆ **Amazon tested a** new feature on its app meant to coax users into more repeat purchases, as the company takes steps to squeeze more revenue from existing customers. **B3**

World-Wide

◆ **Prime Minister** Benjamin Netanyahu of Israel agreed to form a national unity government that includes members of the opposition and former military leaders, a move aimed at reassuring a country reeling from the deadly attack by Hamas militants that killed 1,200 Israelis, and bracing for a possible ground assault into Gaza. **A1, A6-8**

◆ **Saturday's attack** upended fundamental assumptions about the Middle East and the new, untested rules risk turning the bloody confrontation between Israel and Hamas into a much wider war. **A1**

◆ **House Republicans** narrowly picked Rep. Steve Scalise as their nominee for speaker, but a new band of GOP holdouts emerged, putting the party's deep divisions back on display. **A1**

◆ **Voting-rights advocates** faced a skeptical Supreme Court in arguing that South Carolina's Republican-controlled Legislature unconstitutionally gerrymandered Black voters out of a Charleston-area congressional district. **A5**

◆ **The Pentagon announced** a new batch of weaponry and other materiel for Ukraine's effort to fight off Russia's invasion, amid rising obstacles in Washington to future military and financial support. **A9**

◆ **The average score** on the ACT dropped to a 30-year low, indicating fewer high-school seniors are ready for college, the organization behind the college admissions test said. **A3**

◆ **China released** an Australian journalist detained for more than three years on suspicion of disclosing state secrets. **A10**

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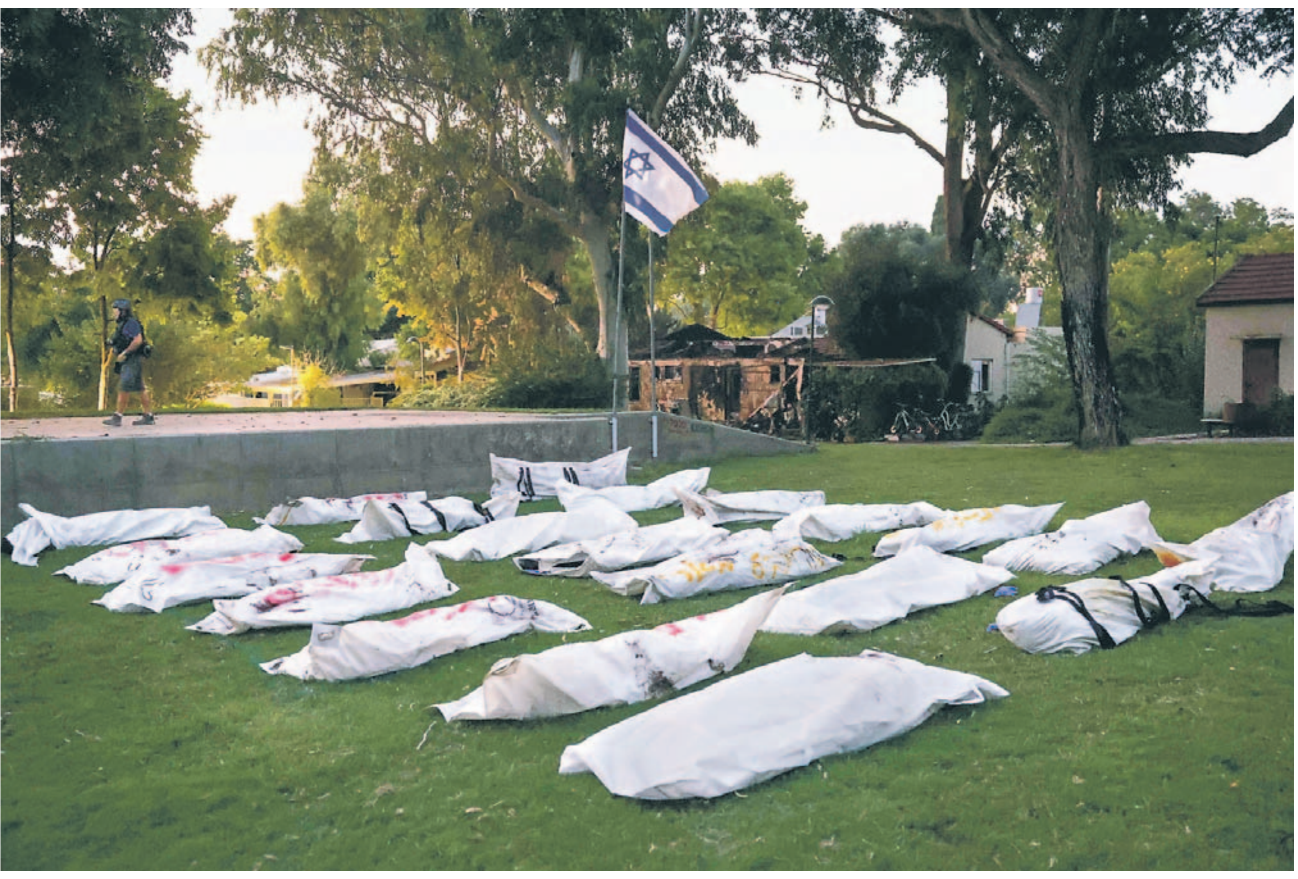
Israel Forms Unity Cabinet to Wage War



JACK GUEZ/AGENCE FRANCE-PRESSE/GETTY IMAGES

Bodies lie Wednesday at the kibbutz of Be'eri, the site of one of the Hamas attacks on Israel that left more than 1,200 dead. A6.

Opposition figures join Netanyahu as Gaza strikes intensify, offensive is awaited

TEL AVIV—Prime Minister Benjamin Netanyahu of Israel agreed Wednesday to form a national unity government that includes members of the opposition and former military leaders, a move aimed at reassuring a country reeling from the deadly attack by Hamas militants and bracing for a possible ground assault into Gaza.

By *Jared Malsin*, *Anas Baba* and *Dov Lieber*

Netanyahu's accord to serve in a cabinet with rival Benny Gantz, head of the National Unity party and a former defense minister, came as Israeli bombardments in Gaza raised concerns about an escalating humanitarian crisis there, while skirmishes along Israel's northern border threatened a regional expansion of the conflict.

Netanyahu has promised a response to the Hamas operation that he said would be remembered by Israel's enemies for decades to come. The country appears increasingly likely to launch a ground offensive into Gaza following the attacks that killed more than 1,200 Israelis.

Israeli strikes in Gaza have killed at least 1,200 Palestinians since Saturday, according to the enclave's Health Ministry. Most of the strip's more than two million residents have no way of fleeing the enclave, which is about twice the size of Washington, D.C., and has been all but sealed off from the world by Israel and Egypt for years.

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◆ **Israeli troops gather at site of massacre A6**
◆ **Families press Washington about the missing A6**
◆ **U.S. says Iran knew of planning A7**

Assault by Hamas Rewrites The Rules in the Middle East

BY YAROSLAV TROFIMOV

DUBAI—Saturday's attack on Israel by Hamas militants, who killed more than 1,200 people and kidnapped others to the Gaza Strip, has upended fundamental assumptions about the Middle East.

Now, as Israel, its enemies and its main partner, the U.S., respond to the shocking events, the new—and untested—rules of the game risk turning the bloody confrontation between Israel and Hamas into a much wider war.

Israel's expected land operation against Hamas in Gaza, and the reaction to it by Iran and its group of allied Islamist militias around the region, could determine the new balance of power in the Middle East and the new understandings about the region's future.

"Hamas inflicted this surprise, devastating attack because it wanted to change the equation, not just between Hamas and Israel, but also between Israel and the axis of Iranian supporters and Iranian proxies," said reserve Brig. Gen. Yossi Kuperwasser, a former head of research for Israeli military intelligence. "Israel now wants to change the equation, too, but in the other direction—if we kick Hamas out of Gaza."

Should Israel manage to eliminate Hamas as Gaza's dominant force, it would reverse one critical aspect of the fallout from Saturday's events: the crumbling of the perception of Israel's superior military and intelligence prowess. After swiftly breaching Israeli border fortifications and overrunning military bases, Hamas gunmen went on a killing spree—causing the worst loss of Jewish lives since the Holocaust.

The attack destroyed a long-cultivated assumption by Hamas backers such as Turkey and Qatar that was accepted by many in the West and even inside parts of the Israeli establishment: The Islamist group somehow moderated its original ideology, which seeks the elimination of any Jewish presence between the Jordan River and the Mediterranean Sea.

Aiming to put a new gloss on its goals, Hamas in 2017 issued a policy statement that said its conflict is with "the Zi-

Please turn to page A8

Exxon to Buy Pioneer In $60 Billion Deal

BY COLLIN EATON AND BENOÎT MORENNE

Exxon Mobil struck a nearly $60 billion agreement Wednesday to buy Pioneer Natural Resources in the largest oil-and-gas deal in two decades, tying the energy giant's future to fossil fuels.

The deal, at $253 a share, values Pioneer at an almost 7% premium to its closing market value of about $55.4 billion Tuesday. It cements Exxon's status as the dominant player in the U.S. fracking industry, now centered in West Texas, where Pioneer has more places to drill than almost all of its rivals.

Shares in Pioneer rose more than 1% on Wednesday. Exxon's stock dropped less than 4%.

The deal is Exxon's largest since its $75 billion merger with Mobil in the late 1990s and is the biggest corporate transaction so far this year. The Wall Street Journal reported last week that Exxon and Pioneer were closing in on the tie-up.

The deal represents a premium of nearly 18% to Pioneer's share price on the day of the Journal article. The Journal had also reported in April that Exxon and Pioneer had held preliminary talks about a potential takeover.

Exxon is making a huge bet on U.S. oil production, the demand for which it believes will linger for decades. In years past, Exxon scoured the globe for untapped reserves of oil before frackers unleashed vast

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THE FUTURE OF EVERYTHING

THE ARTIFICIAL INTELLIGENCE ISSUE

R1-10

GOP Selects Scalise As Speaker Nominee But Holdouts Dig In

WASHINGTON—House Republicans narrowly picked Rep. Steve Scalise as their nominee for speaker only to have a new band of GOP holdouts emerge, putting the party's divisions back on display as it moved toward another unpredictable leadership fight.

By *Kristina Peterson*, *Siobhan Hughes* and *Lindsay Wise*

In a secret ballot Wednesday, Republicans voted 113-99 to select Scalise of Louisiana, currently majority leader, over Rep. Jim Jordan, a fiery Ohio conservative backed by former President Donald Trump who is now chairman of the Judiciary Committee.

To now win the speakership, Scalise will need support from a majority of the House, or 217 members, if all current lawmakers cast votes for a candidate. The House is split 221-212, giving Republicans little room to maneuver, since all Democrats are expected to oppose him. More than a half dozen Jordan supporters said Wednesday they wouldn't back Scalise, likely enough to block him from claiming the

Please turn to page A4

◆ **Politics hampers response to world events A4**

If Under $5 It's Free: the Logic Of 'Girl Math' and 'Boy Math'

* * *

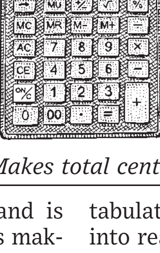
More consumers are sharing the crafty ways they justify discretionary spending

BY CHAVIE LIEBER

The rules are simple: Using cash doesn't really count as spending. Prices should always be rounded down. Savings are earnings. And anything under $5 is free.

"A refund is free money," explains Nniffer Guldner, a 39-year-old social worker in Royersford, Pa. She's returning a bunch of Halloween purchases and is excited to feel like she's making money—so she can spend that dough all over again.

Guldner is one of many Americans embracing the latest personal-finance pastime: justifying discretionary purchases with artful arithmetic and then sharing that handiwork with friends, family, co-workers and even strangers.



Makes total cents

Millions of consumers are gleefully touting their twisty spending logic on social media, often under tongue-in-cheek hashtags—and the tabulations are now jumping into real-life. A few days ago, for instance, Sparrows Tattoo Company, of Mansfield, Texas,

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Californization Hits Texas Housing Market

Migration lifts prices too high for locals

BY ADOLFO FLORES

Texas has long had a reputation as an affordable place to live, in large part because homeownership stayed within reach for the middle class.

Now the state is being walloped by the same forces that have made homes a lot less affordable in many cities previously known for reasonable prices: pandemic-era migration from California and other more expensive areas.

California to Texas was the most popular interstate relocation route in the country in 2021, according to an analysis by storage-space search site StorageCafe using Census Bureau data. During that year, about 111,000 people—about 300 a day—moved from California to Texas.

Soaring prices have left many longtime residents grumbling about the Californization of Texas.

The Federal Reserve Bank of Dallas recently analyzed data on housing affordability in Texan cities, defined as the percentage of the housing stock affordable to families earning the median income in those places. At the beginning of 2014, nearly

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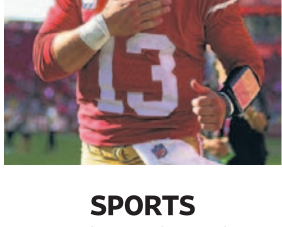
INSIDE



SERGIO ESTRADA/USA TODAY SPORTS

SPORTS

Brock Purdy is the NFL's most valuable player—and makes less than $1 million. **A14**

BUSINESS & FINANCE

Goldman is selling specialty lender GreenSky at a steep loss. **B1**

U.S. NEWS

CAPITAL ACCOUNT | By Greg Ip

A Bigger World Bank Takes on China

For the past year, Treasury Secretary Janet Yellen has been circling the world seeking to breathe new life into a 79-year-old pillar of the U.S.-led international order: the World Bank.

Those efforts stem from a genuine desire to help developing countries end poverty, recover from Covid and adapt to climate change. But there's another motive: persuading those countries that this global order is still superior to one led by China.

That many members of the "Global South" might not necessarily see it that way became painfully clear last year when they refused to condemn Russia's invasion of Ukraine or join Western sanctions against Russia.

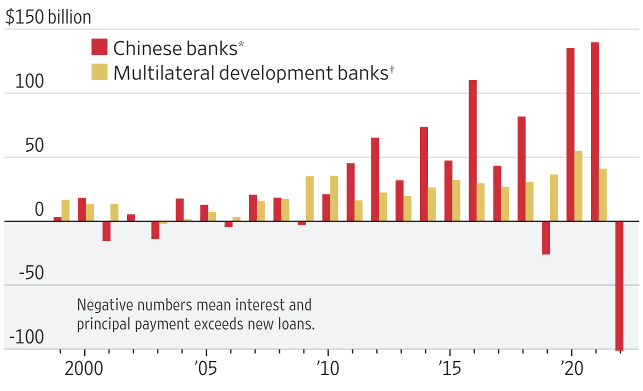
"The biggest success of the response to the invasion of Ukraine has been the unity shown by advanced democracies," Jeremy Hunt, Britain's chancellor of the exchequer, told me in April. "What has been the biggest disappointment has been the lack of support from the Global South."

That lack of support in some cases reflected historical ties to Russia. But in other cases, it stemmed from frustration with the West for, developing nations thought, treating their problems with less urgency and generosity than Ukraine's. Some resented the U.S. for imposing its national security agenda on the world via its control of the dollar while insisting everyone else play by international rules.

Finally, money talks, and in the past decade, China was offering more of it than the World Bank. Addressing that imbalance is one of Yellen's goals. "These countries certainly have the attention of the advanced countries," Yellen said in an interview last month. "We hear them loud and clear."

The bank's shareholders, of which the U.S. is the largest, have endorsed steps to boost the bank's lending capacity by $50 billion over the next decade. At the bank's annual meeting in Morocco this week, they are discussing measures to add roughly another $100 billion. (In June, the bank and its affiliates had $460 billion in loans outstanding.)

International lending



*Some Chinese loans are to advanced economies or Chinese bank affiliates. †Loans to low and middle-income countries by World Bank, International Development Association and regional development banks. No data for 2022

Source: Brad Setser, Council on Foreign Relations

The bank and the International Monetary Fund were conceived in 1944 in Bretton Woods, N.H. The IMF would make short-term loans to alleviate temporary financial difficulties; the bank would make long-term loans to accelerate economic development.

In the 1970s and 1980s, many developing nations became heavily indebted to Western lenders. Their debts ended up being restructured. In 1996, the two institutions launched an initiative to wipe out the poorest countries' debts altogether.

The idea thereafter was that most aid would come in the form of grants and concessionary loans—that is, with relatively easy repayment terms.

"The World Bank didn't have the balance sheet [to lend more] and no longer saw its policy mission as financing infrastructure across the poorest parts of the world," said Brad Setser, an expert in international finance at the Council on Foreign Relations. "It wanted to fund health-sector strengthening and strategies for inclusive development, more than good old-fashioned highways."

China stepped into the vacuum. Setser calculates that from 2011 to 2019, the World Bank and other multilateral banks lent low- and middle-income countries $241 billion. In the same period, Chinese banks lent other countries $473 billion.

Unlike the World Bank and its regional counterparts, Chinese banks mostly lend on commercial terms, usually to benefit Chinese companies. They are also less likely to ask awkward questions about corruption, human rights or environmental impacts.

"Somebody from a developing country said to me, 'What we get from China is an airport. What we get from the United States is a lecture,' " former Treasury Secretary Larry Summers tweeted this year.

Things have begun to change. The multilateral lenders stepped up lending during the pandemic. Setser's data shows Chinese banks, meanwhile, have pulled back as many past loans went bad. Some poor countries' efforts to restructure debts are being held up by Chinese banks' reluctance to take a haircut.

Meanwhile, for the past year, the Biden administration and Ajay Banga, the India-born U.S. financial executive installed as World Bank president in June, have pushed to expand the bank's capacity by increasing its leverage, issuing hybrid capital or enabling shareholder nations to guarantee more loans.

While China is a member of the World Bank, it has been working to build up competing platforms such as the BRICS, a forum for Brazil, Russia, India, China and South Africa, intended as a counterweight to the G-20.

It was thus with some satisfaction that Biden administration officials point to a photo from last month's G-20 summit in New Delhi of Biden and Banga with the leaders of India, Brazil and South Africa. Notable for their absence: China and Russia.

Fed Split on Rate Path Last Month

BY NICK TIMIRAOS

Federal Reserve officials were split over whether they would need to raise interest rates again this year when they decided last month to hold their benchmark policy rate steady.

"A majority of participants judged that one more increase in the target federal-funds rate at a future meeting would likely be appropriate, while some judged it likely that no further increases would be warranted," said the minutes from the Fed's Sept. 19-20 policy meeting released Wednesday.

Officials most recently raised their benchmark federal-funds rate in July to a range between 5.25% and 5.5%, a 22-year high. They began lifting rates from near zero in March 2022.

A run-up in long-term Treasury yields that began in August accelerated after last month's meeting. If sustained, the rise in yields could moot the need for Fed officials to raise rates again this year.

Economic projections released last month showed most officials had penciled in one more rate rise this year. But they made those projections before a further jump in long-term yields, which is raising rates on mortgages, auto loans and business debt.

"Financial markets are tightening up, and they are going to do some of the work for us," said Fed governor Christopher Waller at a conference in Park City, Utah, on Wednesday. "We're in this position where we kind of watch and see what happens on rates."

Investors have been digesting stronger economic data that suggest the Fed might have less reason to cut interest rates as soon as many market participants previously anticipated, which could lift yields. Rates could also be rising because of concerns over how the U.S. will finance yawning budget deficits.

> The run-up in Treasury yields could moot the need to lift rates again this year.

The Fed raises rates to combat inflation by slowing economic activity, and the main transmission mechanism is through financial markets. Higher borrowing costs lead to weaker investment and spending, a dynamic that is reinforced when higher rates also weigh on stocks and other asset prices.

The 10-year Treasury yield closed at 4.596% on Wednesday, down from 4.783% on Friday, as investors continued to seek the safety of bonds following Hamas's Saturday attack on Israel. Still, yields are up from 4.346% on Sept. 20, the day of the Fed's last meeting, and 3.850% on July 26, the day of the last Fed rate increase.

The minutes revealed the rise in yields as of the September meeting didn't factor heavily into policy makers' deliberations.

Other top officials have indicated in the past few days that, if the recent increase in borrowing costs is sustained, those increases could substitute for additional rises in the fed-funds rate.

The comments suggest Fed officials are on course to hold rates steady at their Oct. 31-Nov. 1 meeting. They could wait to see how economic and financial developments unfold next month before deciding whether to raise rates in December.

The minutes suggested officials thought the risks around raising rates too much or too little were more balanced than they had been since the Fed began lifting borrowing costs last year.

While officials expect inflation to continue slowing over the coming months, many of them believe that, if they are wrong, it will be because inflation is higher than anticipated, which could call for tighter policy. At the same time, officials also saw elevated risks of weaker-than-anticipated economic growth even though growth has defied economists' expectations that it would sag this year.

The minutes said Fed officials saw the risks to achieving the Fed's goals of low inflation with strong employment as "more two sided"

The minutes showed officials began deliberating how long they would need to hold rates at or near their current levels before cutting them. Some of them said the focus of rate decisions and public communications "should shift from how high to raise the policy rate to how long to hold the policy rate at restrictive levels," the minutes said.

All officials agreed that interest rates would need to restrict the economy "for some time" until they were confident inflation would return to their 2% goal, the minutes said.

CORRECTIONS & AMPLIFICATIONS

House Minority Leader Hakeem Jeffries is a Democrat from New York. In some editions Wednesday, a U.S. News article about candidates vying to serve as House speaker incorrectly called Jeffries a Republican.

Don Roth is the chief executive of AmpliVox Portable Sound Systems. In some editions Tuesday, a U.S. News article about Arkansas Gov. Sarah Huckabee Sanders incorrectly gave his name as Dan and incorrectly said he is the company's founder.

The S&P 500's earnings yield, based on profits expected over the next 12 months, on Monday was slightly higher than the yield on the 10-year Treasury note. A Business & Finance article on Wednesday about bond yields' effect on the stock market ran with a chart that incorrectly reversed the labels on the lines representing the S&P 500 earnings yield and 10-year Treasury yield.

Readers can alert The Wall Street Journal to any errors in news articles by emailing **wsjcontact@wsj.com** or by calling 888-410-2667.

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Warmer Fall Temperatures Leave Leaf Peepers Stumped

By Aylin Woodward

LANDON SPEERS FOR THE WALL STREET JOURNAL

Some early signs of color were seen near Sheffield, Mass., in late September.

Millions of tourists travel to U.S. parks and parkways each year to glimpse the bright colors of autumn—but ecologists say the familiar reds, oranges and yellows of fall foliage are coming later in the season because of rising temperatures.

"In New England, generally the peak foliage tends to be in the middle of October," said Richard Primack, a professor of plant ecology at Boston University. "But we've been experiencing, because of a generally warming climate, that the peak of fall foliage is tending to move from kind of early to middle October to kind of middle to late October."

Leaf senescence—the process that involves a tree's leaves changing color before eventually dropping off—has been pushed back about a week on average since the 1950s in New England, according to Colby College ecologist Amanda Gallinat.

"We see that through on-the-ground observations of individual plants and through remote sensing observations where we're looking at the tree community as a whole," she said.

Predicting precisely when the leaves of birches, aspens and other deciduous trees will turn from green to red, orange and yellow in autumn depends in part on the geographic area, the species in question and precipitation.

Some species, such as red maples, produce an additional pigment during senescence known as anthocyanin, which is responsible for the deep crimson and purple colors that leaf peepers covet.

Climate change can disrupt these autumnal signals. Warmer fall nights can retard the cooling cue, delaying color changes. Extreme conditions associated with higher temperatures, such as drought or dry soil, stress tree health and trigger earlier, and duller, color change and leaf drop, ecologists say.

Other environmental stressors can also have an impact.

Maintaining a leafy canopy is energetically costly. Trees beleaguered by pests and plant pathogens—some of which are spreading to wider geographic areas because of climate change—will drop their leaves sooner, according to Christy Rollinson, a forest ecologist with the Morton Arboretum near Chicago.

"Bright colors are associated with a healthy tree, because some of those pigments, particularly like all the red that comes out, take energy for the tree to produce," Rollinson said. "If a tree is stressed, it doesn't have that energy to spare."

Predicting how long fall colors will last is almost harder to predict than when the leaves will start to change color, said Mukund Rao, an eco-climatologist affiliated with Columbia University's Lamont-Doherty Earth Observatory and the Center for Ecological Research and Forestry Applications in Barcelona.

Peak color used to last for about two weeks, according to Rao. For certain species, that period might be becoming more condensed as higher temperatures persist later into the fall.

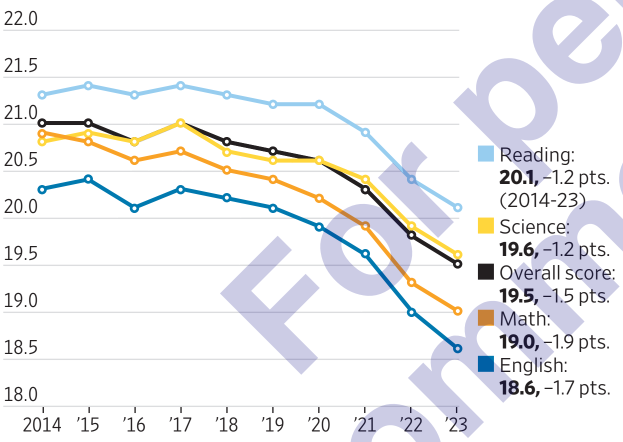
Such changes could affect the booming tourism industry surrounding leaf peeping, according to Sarah Blount, program director for research and evaluation at the National Environmental Education Foundation, a U.S.-based nonprofit.

"There's so much money attached to it," she said. "People want to buy a plane ticket to go somewhere and not have it turn out that it's too late and all the leaves are gone or it's too early, so there is a lot of focus on trying to improve the information that we have about that."

ACT Scores Fall Again, Hit 30-Year Low

By Joseph Pisani

Average ACT scores



Source: ACT

The average score on the ACT dropped to a 30-year low, indicating fewer high-school seniors are ready for college, the organization behind the college admissions test said.

Test takers had an average score of 19.5 out of 36 in 2023, down 0.3 point from 2022, according to ACT. It is the sixth consecutive year of declines, ACT said, and the second straight year the average score dropped below 20 since 1991.

The test, along with the SAT, has long been used by colleges and universities to help decide whether to accept applicants. Students submit the scores with their applications.

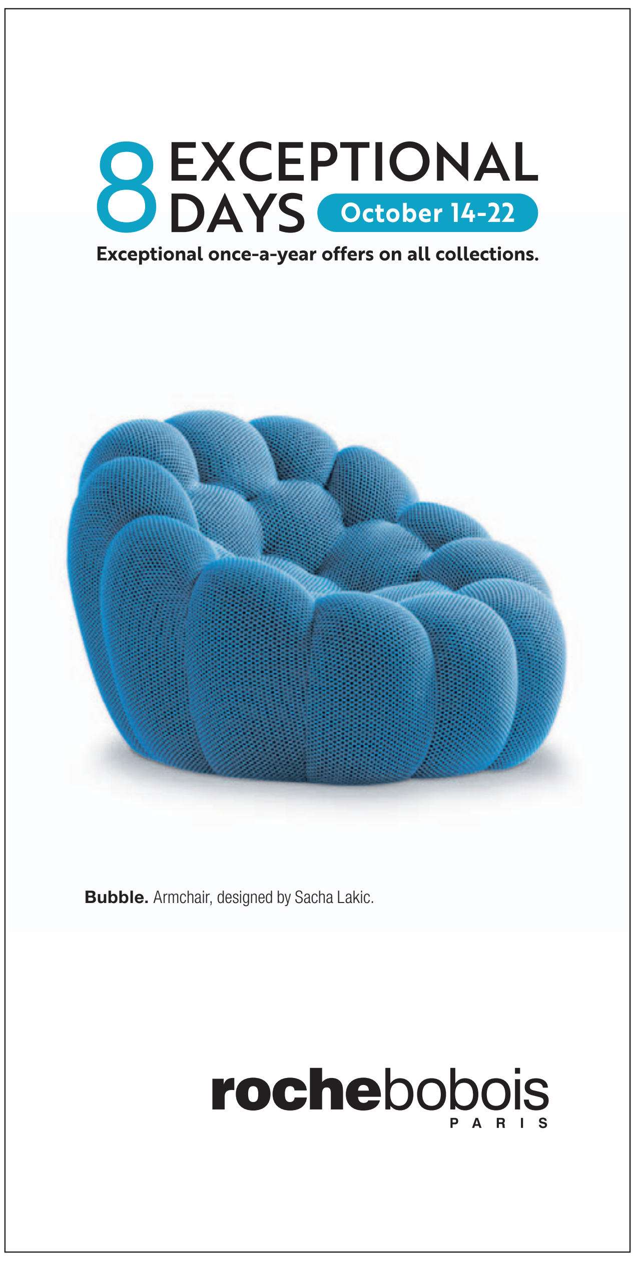
"The hard truth is that we are not doing enough to ensure that graduates are truly ready for postsecondary success in college and career," said Janet Godwin, chief executive of ACT.

ACT says the Covid-19 pandemic has exacerbated unpreparedness for college. Students in the class of 2023 were in their first year of high school during the start of the pandemic, when schools nationwide switched to online learning.

Schools and education advocates have raised concerns about the use of standardized testing, saying the income of a student's family could influence their test scores. Some colleges, including Ivy League schools, stopped taking standardized tests during the pandemic and have continued to make them optional. Harvard University, for example, said applicants don't have to submit ACT or SAT scores through 2026.

About 1.4 million high-school seniors took the ACT in 2023, up slightly from the year before, but still down from the more than two million who took it in 2017, according to ACT.

Scores for the class of 2023 were down across all the subjects its test covers, ACT said. They fell 0.3 point for math, reading and science. They were down 0.4 point for English.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Rep. Steve Scalise, shown above at left, topped Rep. Jim Jordan, above right, in the secret ballot, while staffers Wednesday moved boxes out of former Speaker Kevin McCarthy's office.

Speaker Vote Reveals New Fight

Continued from Page One

gavel unless he can win some of them over.

Scalise's thin victory left the House staring down a potential replay of the 15-ballot marathon back at the start of the year, when Rep. Kevin McCarthy of California emerged as the winner only after making a series of promises related to spending and other issues to conservatives. Some of those same holdouts helped to oust him just nine months later.

"Obviously we still have work to do," Scalise said shortly after the vote selecting him as the GOP's nominee. "We're going to have to go upstairs on the House floor and resolve this and then get the House open again."

Republican leaders huddled late Wednesday in the speaker's office, where a wooden plate with McCarthy's name still hangs above the entrance.

Congress has little time to get back to work before the threat of a government shutdown returns. Lawmakers passed a short-term spending bill that expires in mid-November and little progress on spending negotiations can occur while the House is paralyzed with no speaker. The fighting in Israel and Gaza also added urgency to restoring House operations, lawmakers said.

SERKAN GURBUZ/ASSOCIATED PRESS

Jordan didn't publicly endorse Scalise on Wednesday, but wasn't working to stoke opposition to him, according to his spokesman. Still, Jordan's decision not to publicly throw himself behind Scalise gave Jordan's backers room to dig in. Many said they viewed electing Scalise as simply extending the status quo, while others have specific objections tied to strategy around spending bills or the process used to conduct the speaker election. House Republicans had initially hoped to hold a full House vote on the speaker later Wednesday, but that prospect dimmed as GOP leaders worked to wrangle the holdouts.

"I'm tired of the politics that are played in this chamber," said Rep. Lauren Boebert (R., Colo.), who said she still planned to vote for Jordan after meeting with Scalise. "I want somebody who's actually going to put some teeth into what we do."

The uncertainty could slow Scalise's fight to get to a majority of the House. By comparison, McCarthy had the support of 188 GOP members heading into his protracted floor vote.

For the second time in less than a year, the GOP was moving to fill the top job and tamp down dissent that could derail their pick, after the ouster of McCarthy brought the chamber to a standstill last week.

While some lawmakers said they would like McCarthy back in the speakership, he took himself out of the running.

Some Republicans initially thought a House floor vote could come as soon as midafternoon, but no vote was scheduled after it became clear that some Jordan supporters weren't ready to back Scalise.

The list grew as the day progressed, with Boebert as well as Reps. Max Miller (R., Ohio), Thomas Massie (R., Ky.), Chip Roy (R., Texas), Michael Cloud (R., Texas), Bob Good (R., Va.) and Marjorie Taylor Greene (R., Ga.) all saying they wouldn't vote for Scalise.

Speaker Pro Tempore Patrick McHenry (R., N.C.) briefly gaveled the House in and out of session Wednesday, an indication that GOP leaders were working to align support for Scalise before bringing a vote to the floor. "The speaker designee has the right to put his votes together for the floor, and make sure the time is right, so we're going to let that happen," McHenry said.

"What needs to happen is we need to get 217 votes, and we ain't got 'em," said Rep. Scott Perry (R., Pa.), chair of the ultraconservative House Freedom Caucus.

Other lawmakers said they were ready to coalesce around Scalise and end the messy, public battle over their party's leadership.

"My folks in West Texas don't send me up here to wander in the wilderness for 40 years and fail to advance our agenda," said Rep. Jodey Arrington (R., Texas), the House Budget Committee Chairman. "There's a lot on the line and there's a lot going on in the world. It's time to unite and rally behind our designee."

Democrats are all expected to vote for their leader, Rep. Hakeem Jeffries of New York.

Massie estimated there are at least 20 House Republicans who wouldn't vote for Scalise on the floor. He predicted it would be even more difficult for Scalise to win a majority than it was for McCarthy in January.

Some lawmakers were frustrated Wednesday by an internal vote earlier in the day blocking a proposal that would have required the winning candidate to secure 217 votes—the number needed to get elected on the House floor—rather than simply have the most votes of any candidate. Allies of Scalise had been lobbying against the rules change, which was dismissed in a 135-88 vote, according to a congressional aide.

Rep. Matt Gaetz (R., Fla.), who precipitated the leadership crisis when he brought the motion to vacate to the floor, has said he would support either Scalise or Jordan.

—David Harrison and Lindsay Wise contributed to this article.

The House stares down a potential replay of the 15-ballot marathon.

Politics Hinders Response to World Events

By Aaron Zitner

Heightened animosity between the two U.S. political parties and tumult in Congress are threatening to hamper efforts to respond to the attack on Israel, America's closest Mideast ally, and to address security crises arising from emboldened adversaries.

With the U.S. House essentially frozen after Republicans' ouster of the party's speaker, and the two parties fighting over issues including a defense budget for the current year, President Biden is suddenly confronting both political chaos at home and volatile challenges abroad at the same time. The abduction of Americans by the militant group Hamas, as Israel prepares for a ground invasion in Gaza, shows how high-stakes those challenges will be.

Danielle Pletka, a former staff member of the Senate Committee on Foreign Relations, said America's adversaries have been emboldened by events such as the Republican turmoil in the House and the lack of consensus over additional security money for Ukraine.

"They underscore an impression in places like Tehran, Moscow and Beijing that the United States is not the power it was," a view also fortified by America's policy decisions to withdraw from Iraq and Afghanistan, she said.

The sand in the gears of Congress lately has affected its work on many fronts:

◆ For the first time in history, the House voted to oust its speaker, bringing business to a standstill while the majority party, the Republicans, spends valuable time this week on an internal fight over a replacement.

◆ In a departure from tradition, a single senator, Republican Tommy Tuberville of Alabama, is holding up promotions for hundreds of senior military officers to protest the Pentagon's abortion policies, leading defense officials to warn about operational and staff-retention problems. A report from the nonpartisan Congressional Research Service says it would take the Senate more than 689 hours of floor time to approve the promotions individually, rather than as a group, the usual process that Tuberville has blocked.

◆ Partisan fighting has meant that the government is funded only through mid-November, and so Congress will have to spend time in the coming weeks on a debate over full-year funding that is sure to be contentious. Also on Congress's to-do list this year: Passing the typically bipartisan defense-policy bill, which sets military spending priorities and would include a 5.2% pay raise for troops.

Foreign-policy specialists say the Biden administration can accomplish its goals in the short term. Among other steps, the U.S. military is moving a carrier strike group and several Air Force jet fighter squadrons closer to Israel to deter Iran from taking advantage of the uncertainty in the region. But the administration will soon need Congress to return to regular functioning to consider its requests, such as additional Iron Dome funding, as the war between Israel and Hamas continues.

MICHAEL BROCHSTEIN/ZUMA PRESS

Sen. Tommy Tuberville

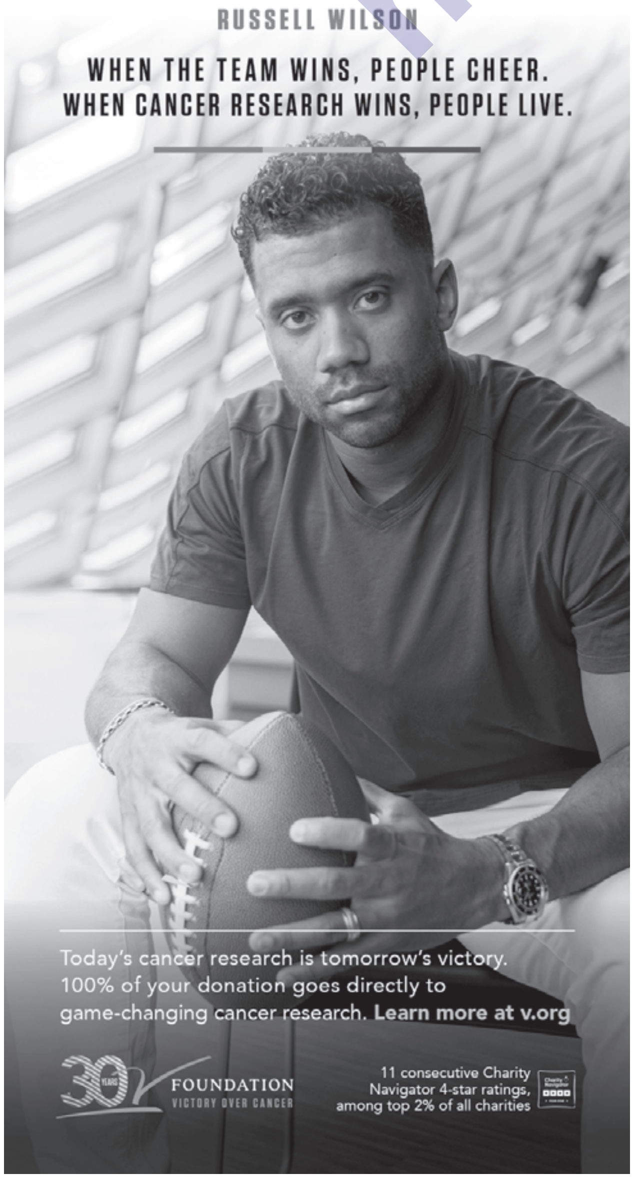
"The norms of behavior have been degraded in Washington," said William Wechsler, a deputy assistant secretary of defense in the Obama administration for special operations and combating terrorism, who says both parties are at fault. "We are now in a situation that makes governing challenging in the best of circumstances....Then, it's doubly a problem when we're dealing with questions of war."

Michael O'Hanlon, a Brookings Institution senior fellow who serves on a Defense Department advisory board, said partisan fighting could be most damaging to U.S. efforts to help Israel end the conflict with Hamas, after the militant group's strength is presumably destroyed or degraded.

"Anything resembling a Biden win in foreign policy could be anathema to many MAGA Republicans, especially as we get into an election year," he said, referring to Donald Trump's most ardent supporters.

For the past year and a half, the U.S. hasn't had an ambassador to Egypt, which has played a central role in brokering cease-fires to past clashes between Israel and the militant group Hamas. Biden made a nomination to the post in March.

On Monday, the White House signaled that it is pressing the Senate, where Democrats hold a majority, to move quickly to confirm Jack Lew, Biden's nominee to be ambassador to Israel. While the delay in confirmation hearings hasn't been excessive, given that Biden nominated him only last month, nominations to other Mideast capitals have been pending longer. Biden nominated an ambassador to Kuwait in August 2022. The post remains unfilled.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Justices Weigh South Carolina Election Map

By Jess Bravin

WASHINGTON—Voting-rights advocates faced a skeptical Supreme Court Wednesday in arguing that South Carolina's Republican-controlled Legislature unconstitutionally gerrymandered Black voters out of a Charleston-area congressional district, rather than drawing permissible lines to undercut Democratic chances of winning the seat.

Voting in South Carolina has long been racially polarized, with white residents highly favoring Republicans and Black citizens solidly Democratic.

"In instances where you have a high correlation between race and political affiliation, how would you constitutionally disentangle them?" said Justice Clarence Thomas.

In January, a special three-judge federal district court in Columbia, S.C., found that the Legislature drew the First Congressional District to keep its Black population at 17%, the threshold necessary to create a Republican tilt.

That court cited expert testimony from the plaintiffs, which suggested that the mapmakers used racial identity, which was reliable in predicting voting behavior.

There was no direct evidence that lawmakers intended to target voters by race.

"Have we ever had a case before where all it is is circumstantial evidence?" asked Chief Justice John Roberts. "This would be breaking new ground in our voting rights jurisprudence."

"If you're asking whether there is direct evidence that the Legislature admitted in the 21st century that they sorted voters on the basis of race as a means to achieve their political goal, no, we do not have that," said Leah Aden, an attorney for the NAACP Legal Defense and Educational Fund representing Black voters and civil-rights organizations.

In June, Roberts wrote the court's 5-4 opinion upholding lower court findings that Alabama violated the Voting Rights Act by breaking up a cohesive Black population into white-majority districts.

But the South Carolina case, although it also touches on the Southern legacy of racial discrimination, involves different facts that didn't amount to a Voting Rights Act violation. For that reason, plaintiffs filed suit under the 14th Amendment's equal-protection clause, where the standards of proof are more stringent. Without Roberts's vote, the plaintiffs face steep odds to prevail.

On the other hand, in a case of this sort, Supreme Court procedures call for affirming a lower court unless its factual findings are clearly in error. Several justices suggested doubt that South Carolina, whose lawyer argued that the plaintiffs' experts "had flawed methodology," established that the lower court got the facts dead wrong.

The state's First Congressional District had been tightly contested in recent cycles, with Democrat Joe Cunningham winning in 2018 and Republican Nancy Mace ousting him two years later, with each election decided by less than 1% of the vote.

In 2022, after the district was redrawn, Mace won with a 14-point margin over the Democrat.

Evidence in the court record indicated that a 20% Black population produced a tossup district, while 21%-24% would tilt the seat toward the Democrats.

But keeping the Black population to 17% "was effectively impossible without the gerrymandering of the African American population of Charleston County," which had historically anchored the First District, the court found. That violated the 14th Amendment's equal-protection clause, the three judges, all appointed by Democratic presidents, held. The court rejected challenges to two other South Carolina congressional districts.

South Carolina's new map placed some of Charleston County into the Sixth District, which stretches to the center of state. The Sixth District is the state's only majority Black district and the only one represented by a Democrat, Rep. Jim Clyburn, who is Black. Its other six House seats are held by white Republicans.

U.S. WATCH

F. JIMENEZ/NATIONAL PARK SERVICE

STORAGE SPACE: 128 Grazer was crowned winner of Fat Bear Week 2023, a contest held by Alaska's Katmai National Park that prizes the fatness that is needed during winter hibernation. 32 Chunk finished in second place.

MARYLAND

Security Enhanced After School Gunfire

Morgan State University plans to erect new physical barriers to limit access to campus and make other security upgrades after five people were injured in a shooting during homecoming week at the historically Black college.

The university said it would add 8,000 feet of fencing to an existing wall to enclose 90% of the campus, eliminating unfettered access to the school. Morgan State, located in northeastern Baltimore, will also add security personnel at entry and exit points and will erect additional guard booths and blue security lights, the university said.

"We are doing this, let me be clear, not to keep out our neighbors and our community," David Wilson, president of Morgan State, said Tuesday during a town hall presentation. "We are doing it to keep out the bad actors."

The school said the first phase of the security upgrades is expected to cost about $22.2 million.

—Joseph De Avila

CALIFORNIA

Gun-Rights Group Dealt Setback

In a setback to California gun-rights advocates, a federal appeals court has temporarily blocked a lower court's ruling that the state can't ban gun owners from having detachable magazines that hold more than 10 rounds.

The ban on higher-capacity magazines remains in effect while the case is still pending.

The Ninth U.S. Circuit Court of Appeals Tuesday granted state Attorney General Rob Bonta's motion for a stay of last month's ruling by U.S. District Judge Roger Benitez. The appeals court wrote that the attorney general's defense of the law is likely to succeed.

The September ruling came in a legal action filed by five individuals and the California Rifle & Pistol Association challenging the law's constitutionality.

Last year, the U.S. Supreme Court set a new standard for how to interpret gun laws that relies more on the historical tradition of gun regulation rather than public interests, including safety.

—Associated Press

Exxon Sets Deal to Buy Pioneer

Continued from Page One

amounts of domestic production. Following the deal, some 45% of Exxon's barrels will now come from the U.S., according to JPMorgan Chase.

The proposed tie-up could face close antitrust scrutiny from the Biden administration, which has been critical of big oil companies for not doing more to alleviate high gasoline prices. It has also challenged other big mergers, with mixed results.

Exxon Chief Executive Darren Woods said the deal would increase U.S. energy security and benefit consumers by bringing Exxon's technical prowess and financial wherewithal to bear on shale resources. "It's a win-win for the country," Woods said.

So far, consolidation in the U.S. oil patch has led to the deployment of fewer drilling rigs. While the U.S. will remain one of the world's largest fossil fuel producers for the foreseeable future, many in the industry have said drillers will no longer flood the market with oil when prices rise because of investor pressure to focus on returns instead of growth.

The megadeal would reshape the legacy of Woods. Under his watch, Exxon sputtered in 2020 to its first annual loss in decades as the pandemic ravaged the oil industry, and then it lost a proxy battle with a little-known activist investor the following year.

In 2022, as oil and gas prices surged following Russia's invasion of Ukraine, Exxon rocketed to a record annual profit of $55.7 billion, becoming the fourth-most prosperous U.S. publicly traded company after Apple, Microsoft and Google parent Alphabet, according to FactSet.

Woods has credited Exxon's countercyclical and sometimes unpopular investments in fossil-fuel projects, while others have pointed to higher oil prices and other factors outside the company's control.

Its cash windfall and the industry's recovery from the lows of the pandemic spurred Exxon executives to begin looking for transformative deals, particularly in the Permian Basin of West Texas and New Mexico, where Pioneer drills.

There are risks attached to the deal, including the potential for crude demand to sputter sooner than Exxon anticipated. The International Energy Agency recently predicted that demand for fossil fuels would peak this decade. Exxon believes that oil consumption will remain robust for decades, with growing demand driven by commercial transportation and feedstocks for the chemical industry.

The deal enhances Exxon's exposure to crude prices, and any decline would erode returns from the acquisition, said David Deckelbaum, an analyst at investment bank TD Cowen. Still, he noted that Pioneer's barrels are among the cheapest to produce in the world.

Exxon has made risky acquisitions before—notably a $31 billion deal to acquire shale gas producer XTO in 2009 that backfired when natural-gas prices cratered.

The companies said that the combined entity would have an estimated 16 billion barrels of oil equivalent in the Permian, and would allow Exxon's Permian production to double to more than 1.3 million barrels of oil equivalent a day.

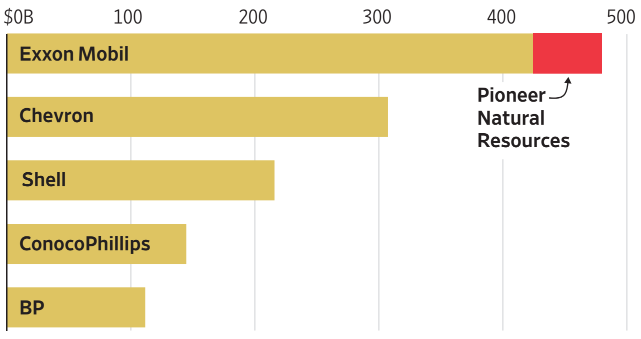
They said they expect the transaction to close in the first half of 2024.

The deal is by far the biggest takeover in a year of muted merger-and-acquisition activity. Global M&A volume stands at about $2 trillion, down 30% from the same period last year, according to Dealogic, as higher interest rates, economic uncertainty and a tough antitrust environment deter would-be deal makers.

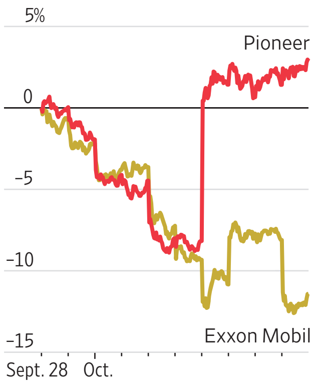
Exxon's all-stock transaction leans heavily on its higher share price relative to its peers over the past year. Several institutional investment firms have snapped up more of Exxon's shares following a surge in oil and gas prices.

In April, Pioneer CEO Scott Sheffield said he would retire at the end of the year. Sheffield is set to receive a roughly $29 million payout following the acquisition and is separately entitled to a nearly $13 million payout as part of his retirement package.

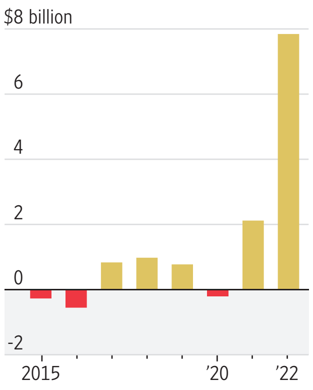
Market capitalization of large oil companies, in billions



Share-price performance over the past 10 days



Pioneer's annual net profit/loss



Sources: FactSet (market cap, share price); S&P Capital IQ (profit/loss)

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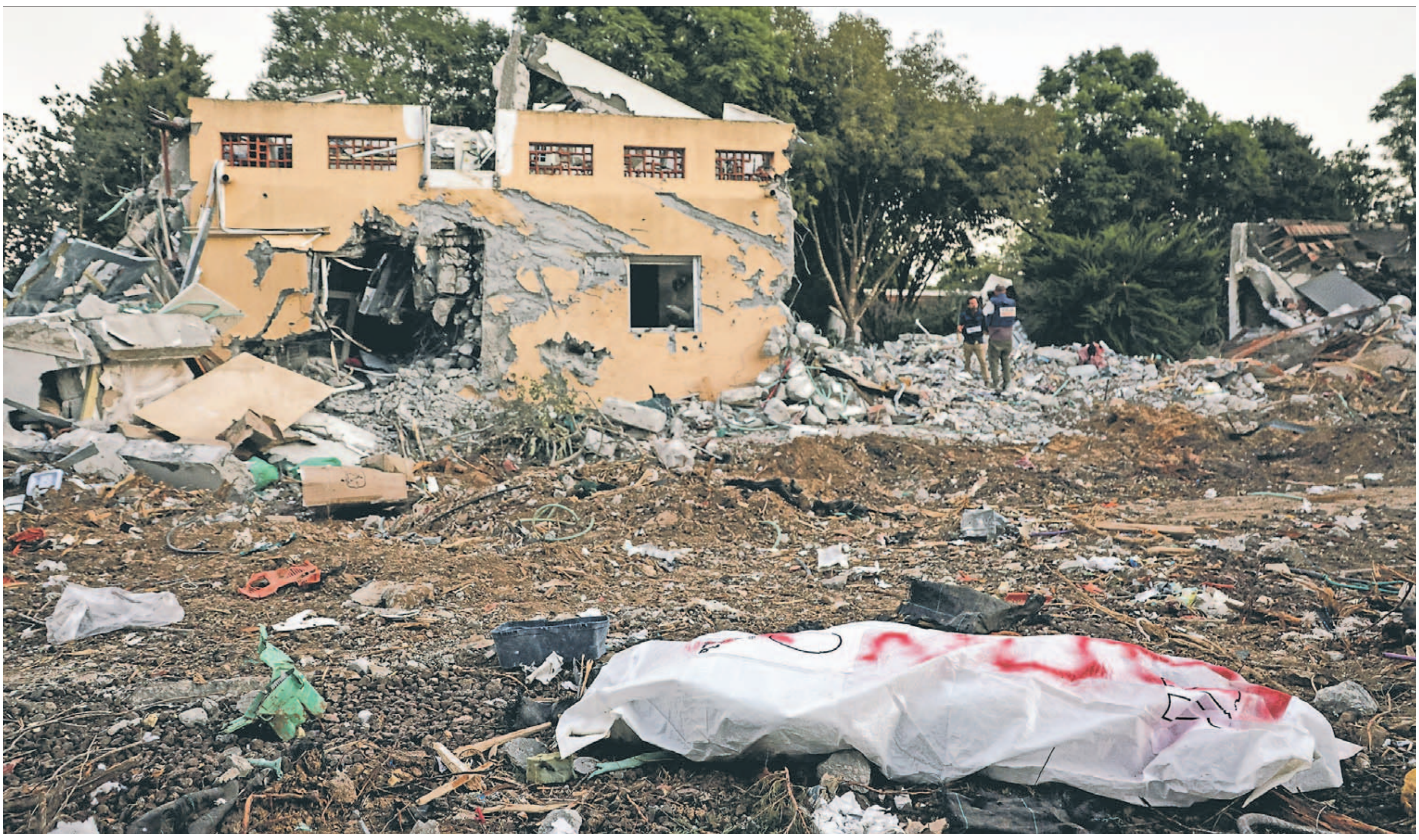

VIOLETA SANTOS MOURA/REUTERS

A body lies at the kibbutz of Be'eri, site of one of Saturday's deadliest attacks by Hamas, and where hundreds of Israeli soldiers have assembled ahead of an offensive against the militants.

Israeli Troops Gather at Site of Massacre

Survivors at kibbutz describe onslaught, as forces assemble to plan counterstrike

By *Dion Nissenbaum,*
Chao Deng
and Anat Peled

KFAR AZA, Israel—This small farming community near the Gaza Strip was the scene of one of Saturday's deadliest attacks by Hamas militants who killed more than 1,200 people across Israel. Now it is a staging ground for Israel's counterstrike.

Hundreds of Israeli soldiers were assembling near bloodstained homes, abandoned Hamas pickup trucks and the bodies of residents and militants in the fields to prepare for what the military is calling a paradigm-changing offensive against Hamas's Gaza stronghold.

Across southern Israel, Israeli soldiers said they were ready, even impatient, to fight. "I'll give it to you straight," one said. "I am looking for revenge. We are all out for revenge."

Israeli military officials said around 70 fighters from Hamas, which the U.S. and other countries deem a terrorist organization, stormed Kfar Aza, killing dozens of members of the 700-strong kibbutz community, whose homes lie within view of Israel's border with Gaza.

Officials said they found the mutilated bodies of women and children scattered across the kibbutz. Some residents, Israeli soldiers said, had been decapitated.

"It's not a war or a battlefield," Maj. Gen. Itai Veruv, head of the Israel Defense Forces Depth Command, told reporters at the kibbutz. "It's a massacre."

Hamas's onslaught devastated a series of kibbutzim—communities inspired by egalitarian ideals that played a central role in building Israel—that lie along the road that runs north-south near Israel's border with Gaza. Israel had long seen the villages as a first line of defense and encouraged people to live there, promising to provide security.

The kibbutz of Be'eri also suffered one of Saturday's deadliest attacks. The close-knit community of 1,150 members always believed the Israeli state would protect it. The Hamas militants who streamed in from Gaza shattered that assumption.

"Our contract with the state has been broken," said Alon Pauker, a 57-year-old resident who hid in a shelter with his wife during Hamas's attack on Be'eri until Israeli soldiers reached them on Saturday evening. "The army came too late."

Around 100 residents of Be'eri were killed, according to rescuers who collected bodies there. Survivors said dozens were still missing, with some taken hostage.

They described seeing charred buildings, bloodied bodies and bullet-ridden cars as they came out of their shelters at Be'eri. Most of them are grieving together at hotels near the Dead Sea, struggling to understand why they were left to fend for themselves.

After Saturday's attack, Kfar Aza lay littered with cars and pickup trucks bearing white-and-green Palestinian license plates, driven from Gaza by Hamas fighters. Empty canisters for rocket-propelled grenades lay strewn next to one militant's Toyota Hilux.

Col. Liron Batito, commander of Israel's Givati infantry brigade, led his soldiers into a fierce fight on Saturday against the Hamas fighters at Kfar Aza, who lay waiting for his forces when they arrived and used the kibbutz's rooftops to fire rocket-propelled-grenades at Israeli troops.

"It was one hell of an ambush," Batito said Tuesday night amid the constant boom of Israeli strikes hitting the nearby Gaza Strip.

The soldiers received frantic messages from people who were trapped in their homes and trying to stop Hamas fighters from entering their bomb shelters. Batito said it took his soldiers two days to flush out the last of the militants from the kibbutz, including some who themselves hid in bomb shelters. Soldiers are still checking homes for booby traps.

Residents of Kfar Aza were evacuated soon after the attack. Survivors are shocked and angry. On Israel's Channel 14 on Tuesday, one resident couldn't contain his rage as he lashed out at Prime Minister Benjamin Netanyahu.

"Mr. Prime Minister, go in front of the press and apologize for the thousands of people who were murdered on your watch," shouted Shirel Hogeg, whose sister, her husband and their infant suffered serious burns after Hamas militants set their house on fire.

The kibbutz has been transformed into a military base. Batito and his men are turning their attention toward the looming offensive. "What will happen to the other side will be 10 times worse than what happened to us," he said.

Israeli officials said they had regained control of the major cities, towns and rural communities. Batito said there were still holes in the security fence along the Gaza border.

The kibbutz of Be'eri came under fire from rockets around dawn on Saturday. Local resident Golan Abitbol grabbed his handgun and told his wife and four children to get inside the fortified shelter room of their house. His wife, Hagit, pleaded with him to join them. "I can't, it is my duty," she said he told her.

The family spent 20 agonizing hours in the shelter, not knowing how Abitbol, a pharmaceutical consultant who had served in the army, was faring outside. They knew through mobile-phone chat groups that Hamas militants had entered their community and begun a house-to-house killing rampage. Only at 2 a.m. the next day, when Israeli soldiers arrived at their house, was the family reunited.

Noa Kan, a Ph.D. student who was visiting her boyfriend, Yoav Lingwood, in Be'eri, sheltered for 11 hours. The couple didn't come out even when the Israeli military approached around 5 p.m.

Only when neighbors texted them, saying they were at the door, did Kan and her boyfriend feel safe to emerge.

—Ari Flanzraich and David S. Cloud contributed to this article.

Families Press Washington About Missing Relatives

By Chao Deng
And David S. Cloud

TEL AVIV—Many relatives from American families desperate to find loved ones missing in Israel after a deadly attack by the militant group Hamas are pressing Washington to take steps to bring them home safely, while some others are going out themselves to search for them.

At least 20 Americans are still missing after Hamas launched deadly attacks last weekend, killing 1,200 people and abducting more than 100, including foreign nationals, and taking them to Gaza. The State Department on Wednesday said at least 22 Americans died in the attack. U.S. officials said they were working to try to determine whether some of the missing may have been killed or taken hostage.

Concerns about the safety of the hostages have grown sharply as Israel strikes the Palestinian enclave and mobilizes troops and tanks for a possible ground invasion. Hamas, which the U.S. and other countries designate as a terrorist group, has also threatened to execute hostages for every unannounced strike against a Palestinian home.

"All we ask from the Biden administration is to act for the immediate release of all hostages," said Nahar Neta, who believes Hamas took his 66-year-old mother Adrienne Neta, a nurse, from her home in the border community of Be'eri.

"The U.S. government has a direct responsibility for the lives of the U.S. citizens that are held hostage by these terrorists," said Neta, who flew from his home in California, arriving in Israel on Tuesday to try to seek answers.

Neta was among family members of four U.S. citizens believed to have been taken hostage by the militants that made the appeal to the Biden administration at a press conference in Tel Aviv on Tuesday.

The growing pressure from families could draw U.S. government efforts into intelligence and hostage negotiations. President Biden on Wednesday said the U.S. was working on "every aspect" of the hostage situation in Israel, including "deploying experts to advise and assist with recovery efforts."

"I have not given up hope of bringing these folks home," the president said.

The Israeli army on Sunday appointed Brig. Gen. Gal Hirsch to coordinate a potential effort to rescue hostages. The Israeli army had as of Wednesday informed 60 families that loved ones had been kidnapped, said spokesman Daniel Hagari.

The Israeli foreign ministry has said it is in touch with the embassies of all foreign nationals that were kidnapped and is helping them with anything they need.

Inside Israel, families with missing loved ones have been working their networks, piecing together what may have happened by talking to survivors and looking at footage circulating on social media.

Some families with missing American relatives said Israeli authorities had them submit blood samples for DNA matching, as hundreds of bodies are still being retrieved from kibbutz communities in southern Israel, and from the site of the Nova music festival where militants sprayed bullets. Some also received calls from Israeli police officers saying their cases were being worked on, but for the most part they said they have received little information from higher-up authorities.

"We haven't gotten any information, not from the government, not from the army," said Jasmin Oren, whose brother-in-law Aviel Oren has been missing after he attended the music festival.

In recent days, the family has been huddled together at the parents' home. "He was the heart of the house, always taking care of everything when things came up," Oren's sister-in-law said.

On Tuesday, Aviel Oren's parents traveled to the site of the party to look for his body, bringing a search dog with them. But they couldn't get far as the Israeli army was still busy blowing up the grenades and bombs Hamas had left behind. The parents returned home after smelling burned bodies and seeing a highway scattered with burned vehicles, glass and debris.

Still, the family is hoping he is still alive, after hearing from Oren's girlfriend and friend who were with him at the party and escaped. The two survivors said Aviel and the group had been in one car trying to get away when militants started shooting. Aviel was in the passenger seat, when his friend in the driver's seat panicked and took a strong right turn, turning the car over. Militants continued to shoot at them. One person in the car died. A bit later, the men came back to shoot at them again. Aviel sustained a bullet to his leg, making it difficult to run. Only his girlfriend and friend made it to a hiding spot that allowed them to wait for an Israeli rescue crew to arrive at 4:15 p.m.

Since the incident, Aviel's family tried calling his phone, which they tracked to a location nearly 2 miles from the party in Israel on Sunday. By Monday, it was in Gaza, although they have no idea whether that indicates Hamas took Aviel or just stole his phone.

—Shannon Najmabadi, Scott Calvert, Dov Lieber, Anat Peled and Catherine Lucey contributed to this article.

ENNE NETA
AGE 66
MAYA ALLERUZZO/ASSOCIATED PRESS

Nahar Neta holds a photo of his mother, Adrienne Neta, who he believes was taken by Hamas.

How Hamas Turned a Music Festival Into a Killing Field

More than 250 people were killed at the Tribe of Nova Festival in Re'im, Israel, on Saturday, one of the deadliest sites of Hamas's attack. Scan this code for an in-depth video feature about the massacre.

U.S. Says Iran Knew of Planning

Tehran's leaders were likely surprised by timing and scale of Hamas operation

By Warren P. Strobel
And Michael R. Gordon

WASHINGTON—Tehran likely knew Hamas was planning operations against Israel but didn't know the precise timing or scope of the surprise attack the group mounted last week, according to a preliminary unclassified assessment by U.S. intelligence agencies.

The judgment by the American intelligence community represents an initial effort to determine what role Iran might have played in an attack that has sent shock waves through the region.

The assessment also notes that U.S. intelligence agencies haven't reached a definitive conclusion and will be looking in coming weeks at whether some in the regime might have had knowledge of what was being planned or helped direct the attacks.

"We have not currently seen anything to suggest Iran supported or was behind the attack," said a U.S. official who shared the assessment. "Our experience tells us though that it is premature to draw any final conclusion on the issue."

The Wall Street Journal reported that Iranian security officials helped plan the attack and gave the green light for it at a meeting on Oct. 2, according to senior members of Hamas and Hezbollah, another Iranian-backed militant group.

The unclassified intelligence assessment doesn't address the October meeting.

U.S. officials have long said Iran provides Hamas with weapons and financing, and Jake Sullivan, President Biden's national-security adviser, said Tuesday that Tehran was "complicit" in the attacks.

"They have provided the lion's share of the funding for the military wing of Hamas," he said. "They provide training, they have provided capabilities, they have provided support and they have had engagement in contact with Hamas over the years and years."

A key question for Western intelligence agencies is whether Iran played a more direct role, including by helping to plan or coordinate the attacks.

In addition to the unclassified assessment, the U.S. has also shared classified information in closed meetings to lawmakers. That includes intelligence indicating some Iranian leaders were surprised when Hamas's assault took place, according to five officials familiar with the classified reports. The officials didn't detail the kind of intelligence or identify which leaders were surprised.

Iran's role in the bloody Hamas attack, which has killed more than 1,200 Israelis and at least 22 U.S. citizens, is important because Israel has threatened to retaliate against Tehran if it was found to have direct involvement and because such involvement would pressure President Biden to take an even tougher stance against Iran.

U.S. officials said that Tehran hadn't reached out to Washington through third parties or diplomatic channels to say that it played no role in Saturday's onslaught.

Officials familiar with U.S. intelligence assessments said the Central Intelligence Agency and other agencies issued a series of classified reports this year warning of the prospects of heightened violence between Israel and the Palestinians. Those reports, which officials said were likely included in Biden's daily briefings, didn't pinpoint the time or scale of the assault.

The U.S. remains concerned about what actions Hezbollah, the Lebanese militia group that has been long supported by Iran, and Tehran might take now, especially if Israel forces begin a ground incursion in Gaza.

—Vivian Salama contributed to this article.

Secretive Militant Commander Is Prime Target

During the past two decades, Israel has tried to assassinate Mohammed Deif several times, maiming him in attacks and killing his wife and baby son. The commander of the armed wing of Hamas on Saturday inflicted in return one of the deadliest Palestinian blows on Israel.

The attacks by the Izz ad-Din al-Qassam Brigades, directed by Deif, show how the group has changed from a militia into a force that could prove formidable for the Israeli military.

On Wednesday, Israeli airstrikes hit the home of one of his family members, killing his brother and his brother's wife and children, according to Palestinian media reports and people in Gaza.

Among Palestinians, the secretive Qassam commander has become an almost mythical persona. Few people inside Hamas have met Deif. His real name is believed to be Mohammed al-Masri and he was born between 1963 and 1965, according to the U.S. government, which designates him a terrorist.

A spokesman for Hamas, Ghazi Hamad, said that "everyone now respects Mohammed Deif for his leadership of the recent assault."

On Saturday, Arab media broadcast a silhouette of what was supposedly Deif sitting in an office. Qassam launched the operation, Deif said, so the "enemy understands that the time for him to revel without accountability has ended."

—Rory Jones

Israel Forms Unity War Cabinet

Continued from Page One

The decision to form a new government comes after fierce criticisms of Netanyahu following the weekend's surprise attack by Hamas, which the U.S. and other countries designate as a terrorist group. The raids represented the worst failure of Israeli intelligence in decades.

Before the attack, Netanyahu's plans to overhaul the country's judiciary had sparked the largest protest movement in Israel's history and divided Israelis. Some security officials had warned that Israel's enemies might seek to take advantage of the domestic turmoil to strike.

"The most important action [now] is to establish the unity of the nation," said Netanyahu, who heads the conservative Likud Party, during a televised speech on Tuesday. "The division within us is over. We are all united. And when we are united—we win," he said.

Netanyahu and Gantz plan to join a small "war management cabinet" also including Defense Minister Yoav Gallant. Yair Lapid, the head of the opposition, will have a place reserved for him in the war cabinet if he wants to join, Netanyahu and Gallant said.

Israelis have been shocked at the intensity of the violence meted on civilians by the Hamas attacks. "They didn't distinguish between anyone. Everything with a pulse, they massacred them," said an organizer of the Nova music festival close to Gaza where Hamas killed more than 250 revelers. "This is cruelty...It's incomprehensible."

President Biden called the Hamas attacks the "deadliest day for Jews since the Holocaust" and a "campaign of pure cruelty" at an event with Jewish community leaders. "I never really thought that I would see and have confirmed pictures of terrorists beheading children," he said.

An administration official said that the president was referring to what the Israeli government and soldiers have said. A spokesman for the Israel Defense Forces said they could say with "relative confidence" that beheadings of children happened in Be'eri Kibbutz near the Gaza Strip. Hamas has denied that its militants beheaded children.

The Israeli military urged Palestinians in Gaza on Tuesday to leave via a border crossing with Egypt but Palestinians can't cross it without a special permit. Israeli forces have bombed the crossing three times in recent days, leading to long disruptions there, according to local authorities, Egyptian officials and the U.N.

The mass displacement in Gaza is putting pressure on Egypt to open its border with the strip to allow refugees to flee. The White House said the U.S. is discussing with Israel and Egypt options for granting safe passage to Egypt for civilians living in Gaza.

"Civilians are not to blame for what Hamas has done," National Security Council spokesman John Kirby said. "They didn't do anything wrong."

Egypt's military-backed government has tightened its restrictions on both Gaza and the neighboring North Sinai region in recent years, and has shown no indication that it will accept a tide of refugees.

In Gaza City's al-Karama neighborhood, Ahmad Hassouna, 42 years old, described how his family fled an airstrike the night before.

"We all came out, my sister, my brother, my mother and me. We were all here on the ground and we were all injured. We called for an ambulance and when it came, they struck the ambulance," he said. "Forget human rights, we don't even have animal rights."

Nine staff of the U.N. Relief and Works Agency for Palestine Refugees have been killed since the strikes began over the weekend, the agency said.

Israeli forces exchanged fire with Lebanon's Hezbollah for a fourth consecutive day on Wednesday, dialing up fears that a second front could open up in the war if the Shiite Hezbollah movement chooses to enter the fray.

The Israeli military said an antitank missile from Lebanon was launched toward a military post near the village of Arab Al-Aramshe along the Lebanese border on Wednesday. Israel said it struck in Lebanese territory in response.

Hezbollah said it fired a missile at an Israeli military vehicle in retaliation for an Israeli attack Monday.

The clashes with Hezbollah and with Palestinian armed groups in Lebanon have so far been limited in scope and within the broad rules of engagement understood by both sides, military analysts say.

Israeli officials have said that any offensive in Gaza would be larger and more severe than any in recent memory. It could be complicated by Hamas' seizure of Israeli and foreign hostages who are being held in Gaza. At least 20 Americans in Israel are still missing after the attacks.

The Israeli Air Force said Wednesday that it launched more than 80 airstrikes that it said hit weapons stockpiles, underground tunnels used by militants and other sites.

In Israel, calls for a unity government began soon after Saturday's attacks. Members of the government were heckled in public appearances.

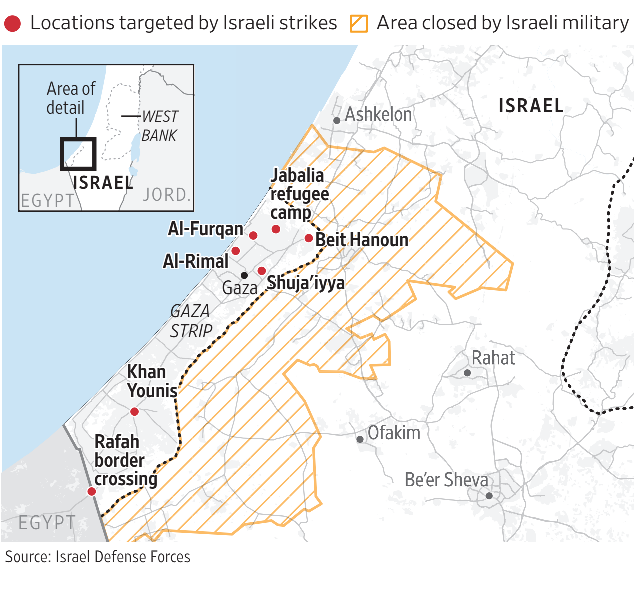
Now, with the arrival of Gantz, analysts said the public and military will have more confidence in the leadership's decisions.

"Expertise and legitimacy, these are the two assets this government will now have to fight this war," said Prof. Gideon Rahat, a political scientist at the Hebrew University and senior fellow at the Israel Democracy Institute.

—Vivian Salama and Benoit Faucon contributed to this article.

Women and children fled an Israeli airstrike in Gaza on Wednesday, top. At left, a building in the enclave that collapsed under bombardment. Above, the funeral in Tel Aviv for Mapal Adam, one of the Israeli victims of the Hamas raids.

CLOCKWISE FROM TOP: MOHAMMED ABED/AGENCE FRANCE-PRESSE/GETTY IMAGES; FRANCISCO SECO/ASSOCIATED PRESS; MOHAMMED ABED/AGENCE FRANCE-PRESSE/GETTY IMAGES



Source: Israel Defense Forces

Watch a Video

Scan this code to watch a video on Israel's airstrikes on Gaza.

AMIR LEVY/GETTY IMAGES

People took shelter in Tel Aviv on Saturday, after Hamas launched a massive attack against Israel from the Gaza Strip.

Israelis Prepare Their Families For What Could Be a Long War

By Shayndi Raice

TEL AVIV—WhatsApp chats with my friend Maytal Ross used to revolve around planning playdates for our 6-year-old sons, who go to the same public school in northern Tel Aviv. Since Saturday's attack, they have been about terror, loss and preparations for war.

Ross's husband, a reserve helicopter pilot in the Israeli military, joined the fight soon after the Hamas militants who stormed across the border from Gaza began their rampage through towns and villages in Israel's south, killing at least 1,000 Israeli civilians.

"He landed and he said; 'It was a f—ing war zone, I've never seen anything like it in my life,'" she told me. Ross told me she sneaks off to the bathroom to cry so her children can't hear her.

Clashes between Israeli soldiers and militants still on the loose continue; Tel Aviv and other cities are under rocket attack; social media is filled with images of the dead and the kidnapped; and men are being called up for active military duty.

All of it is leaving people here shocked, horrified and fearing for the future of their families and country.

Many parents at my sons' schools tell me they know people who have died or gone missing. Fathers are heading off to war and nobody knows for how long.

"My little son asked me: 'Why do you have to go?' How do you answer that question?" said Ross's husband. "I have to go and defend our country. This is it. I left and went to my squadron."

Since Saturday's attack, both my sons' schools have been closed. Many of us in Tel Aviv have been cooped up inside with our children, hesitant to let them outside. In my neighborhood, parents processed the shock of a massive national tragedy and braced for war, all while finding ways to occupy our children.

People here are shocked, horrified and fearing for the future.

Elysa Rapoport, whose daughter goes to school with my 4-year-old son, told me she spent Monday stocking the family's bomb shelter with flashlights and enough food and water to last for three days, as recommended by Israeli authorities. She also hid a knife and a screwdriver in a cupboard.

"I feel like I'm living in a movie," said Rapoport, 40 years old. "What the hell is going on that I'm actually doing this?"

Tel Aviv is eerily quiet, as if the shock and horror of its residents has somehow seeped into the atmosphere.

The cosmopolitan city's popular Mediterranean beaches are nearly empty, and its normally bustling cafes are half-staffed. Many store shelves are bare as people stock up.

The only busy areas seem to be the city's famous squares, where volunteers are filling up boxes with food and supplies that will go to soldiers on the front lines, while others collect toys and clothing for the families who have survived the attack.

Many Israelis have been sending their families out of the country, or to cities such as Eilat on the Gulf of Aqaba, far from the war, while planning to stay to do jobs essential to the war effort.

I am going through this myself, shortly sending my husband and three young children home to New York while I stay to cover the war. My 4-year-old keeps crying, "Mommy, please come with us, come, please," as I try to hide my pain from him at our impending separation.

Josh Hartuv, 34, another parent in my neighborhood school, is a combat medic in the Israeli army reserves. He is supposed to report for duty, but he won't go until he first flies to London with his two children and pregnant wife, who will stay with his in-laws while he returns to join the battle.

Hartuv lived on a kibbutz in the south for four years that was near where some of the worst attacks took place. He has two friends missing. He said he thought one day he would move back there with his family.

"The best cream of the crop of the people of Israel are there," he said. "These are the sweetest most amazing people ever." He still has many friends there but says he doesn't want to live there now.

Like many in Tel Aviv, Hartuv is furious at Prime Minister Benjamin Netanyahu's government for failing to protect its citizens and for embarking on a divisive plan to overhaul the country's Supreme Court.

"You have a government that's been so untrustworthy for the last year with all these mixed-up priorities that has led to this terrible catastrophe," he said. "I'm incredibly scared."

◆ Israeli cyber firms face balancing act...................... B5

Blaming Israel For Attacks Sparks Backlash Across U.S.

By Douglas Belkin
And Lindsay Ellis

Across U.S. universities, workplaces and halls of power, a swift backlash is meeting those who denounce Israel in the wake of Hamas's deadly attack on Saturday.

On social media and beyond, some groups and individuals sympathetic to the Palestinian cause effectively blamed the attack on Israel, alleging that the nation's policies have left Palestinians little choice but to lash out with violence. Some of that commentary came over the weekend, as reports of atrocities committed by Hamas were beginning to emerge.

Many of those statements have since been met with fierce resistance from a variety of voices, including Jewish groups and university heads. Some corporate leaders have also entered the fray, with some threatening not to hire students who blamed Israel.

That pushback prompted some progressive politicians and left-leaning student organizations to walk back statements blaming the Jewish state for the violence or remove their names from petitions condemning Israel.

The tension has ensnared the likes of Harvard President Claudine Gay, U.S. Rep. Alexandria Ocasio-Cortez and college students who faulted Israel for creating the conditions that they said led to the attacks.

On Tuesday, the law firm Winston & Strawn rescinded a job offer to a summer associate studying at the New York University School of Law after the student wrote in a newsletter that "Israel bears full responsibility for this tremendous loss of life."

The fallout highlights the rift between progressive Democrats, who have a strong voice on many college campuses, and moderate Democrats and Republicans over Israel, and especially the treatment of Palestinians. The U.S. has long backed Israel with military aid and diplomatic support, but in recent years, pockets of the left have grown critical of Israel, likening it in some instances to an apartheid state for failing to give Palestinians full rights. The rising rhetoric has accompanied an uptick in antisemitism reports on college campuses.

The Harvard Undergraduate Palestine Solidarity Committee and more than 30 other student groups signed a statement last weekend saying that Israel's "apartheid regime is the only one to blame" for the violence.

About the same time, Harvard President Gay issued a memo saying she was "heartbroken by the death and destruction" caused by the surprise Hamas attack on Saturday and Israel's retaliation against Gaza.

On Tuesday, at least 17 Harvard student organizations, 500 faculty and staff members and more than 3,000 alumni and students signed a statement calling the Palestine Solidarity Committee statement "completely wrong and deeply offensive."

Gay on Tuesday amended her statements about the attacks amid growing pressure. "As the events of recent days continue to reverberate, let there be no doubt that I condemn the terrorist atrocities perpetrated by Hamas," Gay wrote.

Several groups withdrew their support for the letter this week. By Wednesday, all of the signatories of the letter were removed and a note attached at the bottom of the letter said they had been "concealed" for student safety.

MICHAEL BROCHSTEIN/ZUMA PRESS

Pro-Palestinian demonstrators rallied outside the Israeli Consulate in New York City on Monday.

Washington Looks at Risks of Deeper Involvement in Conflict

By Vivian Salama

WASHINGTON—As Israel hammers Gaza with retaliatory strikes following Hamas's weekend attacks, Biden administration officials are deliberating what actions might trigger U.S. military involvement in what threatens to become a broader regional conflict.

Secretary of State Antony Blinken departed for Israel on Wednesday on a two-pronged mission to show U.S. support for Israel and rally regional allies to pressure Hamas to release the hostages its fighters took. A still undetermined number of Americans are believed to be among the dozens of hostages Hamas took in the attack that killed at least 1,200 Israelis and 22 American citizens, some of them dual citizens.

While the administration looks for a diplomatic breakthrough to end the fighting and secure safe passage for civilians in Gaza, it is mixing diplomacy with military muscle to try to keep the conflict from spreading and thereby forestall deeper U.S. involvement. The USS Gerald R. Ford, the first of two aircraft carriers the U.S. is deploying to the region, arrived in the Mediterranean near Israel this week, officials said, to deter Lebanon-based Hezbollah and other like-minded actors from joining in.

"We don't want to see this conflict widen any more than it already has," National Security Council spokesman John Kirby said Wednesday. "Israel is focused, rightly, on Hamas. Opening up additional fronts for them, obviously, would be just a horrible scenario."

Among the scenarios that could trigger the unleashing of U.S. firepower would be a large-scale incursion from the north by fighters from Hezbollah, the Iranian-backed militant group, U.S. officials said this week. So far, Hezbollah has traded sporadic fire with Israeli forces. A concerted offensive could strain Israeli forces, jeopardizing their ability to focus on what is expected to be a pounding ground battle to clear Hamas from Gaza. Additional clashes between Palestinians and Israeli security forces in the West Bank, where tensions were already high over the expansion of Israeli settlements, could further tax Israeli forces.

Evacuations of American citizens out of Israel or Gaza may also require U.S. military assistance given the fraught nature of any such operation, and the administration isn't ruling out providing help for hostage rescues.

An estimated 500 to 600 U.S. citizens live in Gaza, and some are looking for safe passage out, a senior administration official said.

The administration has said that it doesn't intend to send U.S. ground troops into Israel or Gaza to support the war. Kirby said Wednesday no decisions have been made about assistance for hostage recovery, pointing to the absence of any reliable information about their whereabouts or well-being.

American involvement, while intending to deter a wider conflict, also risks drawing the U.S. into another potentially long, bloody conflict, despite Biden's vow early in his presidency to avoid future "forever wars" like Iraq and Afghanistan. While Biden and his top officials have spoken forcefully about U.S. commitment to Israel, the administration is reluctant to risk additional resources and lives in a new conflict.

Biden has firsthand experience in the risks of U.S. involvement in Middle East security. As vice president, he was part of Washington's reluctant decision to conduct airstrikes in Syria and Iraq and provide support to Iraqi forces decimated by Islamic State's 2014 blitzkrieg. Until then, the Obama administration had scaled back the U.S. presence in Iraq.

Another potential headache for the U.S. would be mounting civilian casualties in Gaza. President Biden said Tuesday that in a conversation with Israeli Prime Minister Benjamin Netanyahu, he drew a contrast between Hamas, with its attacks on civilians, and the restraint the U.S. and Israel exercise to minimize the deaths of noncombatants.

—William Mauldin contributed to this article.

Rules for Mideast Upended

Continued from Page One

onist project" rather than Jews, and implied acceptance of a Palestinian state in the West Bank and Gaza, though still rejecting Israel's right to exist.

The horrors of the Hamas assault punctured the notion, championed by Israeli Prime Minister Benjamin Netanyahu, that Palestinian aspirations could be reduced to a manageable nuisance.

"The Netanyahu doctrine that you can ignore the Palestinians without paying a price has been shattered," said Mairav Zonszein, an expert on Israel and Palestine at the International Crisis Group. "It turns out that, no matter how much economic and military and diplomatic power you have, your entire country can ground to a halt."

The corollary of this new reality is that the U.S. is having to return to the Middle East, reversing the trend of three consecutive administrations that tried to pivot away and focus on other global challenges, such as China and Russia.

The Biden administration dispatched two carrier groups to the Eastern Mediterranean, as part of an effort to deter Iran and its Lebanese protégé, Hezbollah, from joining the conflict and sparking a regional war that could involve Iran and nations in the Persian Gulf. Washington is rushing weapons to Israel.

"It's a re-engagement. It turns out that our partners in the region are still heavily dependent on the security umbrella that the U.S. continues to provide," said Brian Katulis, a senior fellow at the Middle East Institute in Washington.

Israel's enemies were celebrating the surprising weakness displayed by Israel's military and intelligence services on Saturday. Israel's high-tech border-surveillance system around Gaza was knocked down with cheap drones, senior officers were killed at captured Israeli military bases, and it took several hours for Israeli forces to start driving back Hamas—time that Palestinian gunmen used to murder or kidnap civilians.

"The blow of Saturday, Oct. 7, cannot be recovered from. You have brought this calamity upon yourselves," Iran's supreme leader Ayatollah Khamenei addressed Israelis in a Hebrew-language post on X, formerly known as Twitter. To some Arab commentators, Hamas's success indicated that Israel could indeed be militarily defeated, and the goal of wiping out the Israeli state isn't that far-fetched.

In past clashes over Gaza, Hezbollah stayed largely on the sidelines.

But, despite Israeli officials describing Saturday's events as the country's Pearl Harbor, the damage to Israel's military capabilities was limited. The country's powerful air force is intact and within hours started pummeling the Gaza Strip. Several hundred Gaza residents, including civilians, were killed since then, according to the Hamas-controlled ministry of health, and key infrastructure destroyed.

"It's clear that the Israelis have underestimated Hamas, but now Hamas, Hezbollah and all the rest of the Iranian proxies stand a great risk of underestimating Israel," said Colin Clarke, director of research at the Soufan Group intelligence and security consultancy.

On Tuesday, President Biden said he expected the Israeli response to be "swift, decisive and overwhelming" while upholding the laws of war. Biden compared Hamas's actions to the "worst rampages" of Islamic State, in language seen by many in Israel as a green light to do in Gaza what the U.S.-led coalition had done to oust Islamic State from Mosul, Iraq, and Raqqa, Syria, in 2017. Both cities were heavily damaged in U.S. bombing campaigns.

Israel's expected ground campaign to eradicate Hamas, with the potential for the high casualties inherent in urban combat, would test the degree to which Iran and Hezbollah are committed to the group.

In past conflagrations over Gaza, Hezbollah stayed largely on the sidelines, observing the rules of mutual deterrence agreed after the 2006 Israeli invasion of Lebanon. The Lebanese group possesses an arsenal of Iranian-supplied precision missiles that could inflict significant damage to Israel's vital infrastructure and military facilities.

"Hezbollah and Iran are not very interested, as yet, to jump into this fight," said Emile Hokayem, a senior fellow for Middle East security at the International Institute for Strategic Studies. "The fundamental calculus for Iran still holds: Hezbollah is such a unique and powerful instrument of its security policy that it's not going to waste it on this war."

U.S. Announces New Military Aid for Kyiv

Zelensky, Western defense chiefs meet as Washington rifts raise funding doubts

By Gordon Lubold

BRUSSELS—The Pentagon announced a new batch of weaponry and other materiel for Ukraine's effort to fight off Russia's invasion, amid rising obstacles in Washington to future military and financial support.

The package, valued at about $200 million, was announced by Defense Secretary Lloyd Austin before a meeting with allies here Wednesday. Longer-term decisions over military support for Ukraine are on hold in Washington, where the House is without a speaker and Republicans are split over extending funding.

The U.S. has also pledged to provide arms to Israel for its military response to the attack by Hamas militants on Saturday, threatening to stretch the U.S.'s attention and resources.

On the battlefield, meanwhile, Ukraine's counteroffensive is making slow progress in its efforts to bisect Russian forces that occupy nearly 20% of the country. Ukraine is pressing its assault as time runs out before rains and cold weather make fighting more difficult.

On Wednesday, Ukrainian President Volodymyr Zelensky made a surprise visit to a meeting of North Atlantic Treaty Organization defense ministers in Brussels to plead for continued support for his country's efforts to expel Russian forces.

Zelensky briefly acknowledged the attack on Israel by Hamas in comments at the start of the meeting, then pushed for more funds to execute the war "without any pauses," seemingly a reference to worries that political dysfunction in Washington could suspend, at least temporarily, American support.

"We have to put even more pressure so that the aggressor weakens faster and does not have time to adapt to our pressure and we need to make sure that Russia is heading for defeat and does not even attempt to claim anything else," he said.

Zelensky repeatedly asked for more air defenses to help Ukrainian forces defend their cities and troops against Russian missile attacks.

The Pentagon's new tranche of weaponry for Ukraine adds to more than $40 billion already committed. It includes more artillery, additional ammunition for the High Mobility Artillery Rocket Systems, or Himars, precision aerial munitions, electronic-warfare equipment, missiles, anti-armor systems, small arms and more than 16 million rounds of small-arms ammunition.

Other allies have also made fresh pledges in recent days, including Germany, which committed new air-defense systems and other equipment in a package valued at more than $1 billion, and the U.K., which said it would send more than $100 million, including mine-clearing equipment and air-defense capabilities.

Belgian Prime Minister Alexander de Croo on Wednesday said the country is creating an $1.8 billion fund for Ukraine using tax revenue from profit generated by seized Russian central-bank assets.

—Laurence Norman contributed to this article.

Ukraine Says Two Brothers Called In Attack on Funeral

By James Marson
And Nikita Nikolaienko

HROZA, Ukraine—When Russian forces invaded this village in spring 2022, locals say the Mamon brothers became the occupiers' enforcers before fleeing when Ukraine's army returned.

On Wednesday, Ukraine's security service identified the two brothers as suspected informants who helped Russia carry out a missile strike that killed more than 50 at a funeral here last week.

The security agency, known as the SBU, said Volodymyr and Dmytro Mamon provided the time and location of a Ukrainian soldier's funeral to the Russian military, which struck the gathering with a ballistic missile. The two men couldn't be reached for comment.

The strike was one of Russia's deadliest in its war in Ukraine and highlights the threat posed by spies and informants who, according to the SBU, perform tasks from scouting targets for missile attacks to passing on information about the location of Ukrainian military forces.

The SBU says it has uncovered more than 2,000 people who have committed treason since the war began, including a former army-base worker tracking President Volodymyr Zelensky's planned movements, a trained sniper with a weapons cache under his daughter's bed and an insurance executive researching energy infrastructure in Kyiv.

The fight is a critical part of Ukraine's war effort as Russia seeks to grind down its neighbor's will to fight, including through strikes on civilian infrastructure and patriotic crowds.

In Hroza, an agricultural village of some 300 people in the northeastern Kharkiv region, the Mamon brothers were known for their pro-Russian views even before the invasion, several villagers said.

When the Russian army arrived in the village last year, the two police officers collaborated enthusiastically, locals and the SBU said.

Lyudmyla Pletinka said the brothers helped the Russians identify villagers, including her son, who had served in the Ukrainian army. In July 2022, she said, the Mamon brothers showed up at their house with Russian soldiers, looking for her son. The brothers put a gun to her husband's head and threatened to shoot him, she said. But neither Pletinka nor her husband knew where their son was. Eventually the Russians left, but they later located the Pletinkas' son and detained him.

Vasyl Pletinka, Lyudmyla's husband, said the Mamon brothers beat and tortured their son.

As Ukrainian forces closed in on the village in September 2022, the Mamon brothers fled to Russia, from where they built a network of informants in Hroza, the SBU said.

The SBU published photos of what it said were Russian passports in their names issued in September 2022 and conversations from an online messenger asking for details of the funeral.

On Oct. 5, a missile slammed into a cafe in the village where locals were holding a funeral for Andriy Kozyr, who had been killed in March 2022 while serving in Ukraine's army. More than 50 were killed, around one-sixth of the village's population. Even before the SBU's announcement, locals speculated that the Mamon brothers must have been involved.

Russian officials initially denied striking the village and said that they don't target civilians. Russia's ambassador to the United Nations, Vasily Nebenzya, later claimed that "neo-Nazis" and military-age men were at the wake. Ukrainian officials say the dead included a child.

The SBU's identification of locals as informants behind the strike demonstrates the challenges facing Ukraine away from the front line as Russia's invasion enters its 20th month.

One of the most high-profile cases is against one of the SBU's own former top officials, Oleh Kulinich, who used to head its Crimea department but was detained in July and charged with treason. Ukrainian officials say he secretly worked for Moscow for years, developing a network of Russian agents in the SBU, misinforming Kyiv about Russian plans against its neighbor and, at the start of the invasion, helping Russian forces take over the south of the country.

Zelensky removed the former head of the SBU in July 2022, saying the agency had become infested with traitors. His successor was Vasyl Malyuk, who led the operation to detain Kulinich.

In written comments, Malyuk compared the spread of Russian agents in the decades before the war to cancer cells. Now, he said, "the SBU is like a surgeon" in its efforts to identify and detain spies.

—Serhii Bosak contributed to this article.

ANATOLII STEPANOV/AGENCE FRANCE-PRESSE/GETTY IMAGES

Ukrainian workers cleared the rubble after Russia struck the village of Hroza this month.

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FROM PAGE ONE

Transplants Lift Texas Home Prices

Continued from Page One

two-thirds of homes in San Antonio were affordable for a median-income family. By the end of 2022, fewer than one-third were. Affordability, defined as what a family spending 28% of its gross income on housing could buy, also declined in Dallas, Fort Worth and Austin, before ticking up slightly early this year.

Maintenance technician Randy Templeton moved from Illinois to San Antonio a decade ago because of Texas' low cost of living. This year, however, when he started looking for an affordable home to buy and fix up for his growing family, he got an unpleasant surprise.

"The prices on those fixer-uppers shot up ridiculously," he said. "And then even if you do find a home that's for sale, you're paying twice what you would have paid even just four years ago."

Real-estate agent Marie Crabb prepared for an open house in San Antonio, where migration has made homes less affordable.

TAMIR KALIFA FOR THE WALL STREET JOURNAL

Affordability issue

Similar price spikes are hitting many other cities around the country where government workers, teachers, and other middle-class professionals have long found affordable housing. In this year's second quarter, 40% of homes in Raleigh, N.C., were considered affordable, down from 73% in first-quarter 2014, according to data from the NAHB/Wells Fargo Housing Opportunity Index. In Sacramento, the share of affordable homes fell from 45% to 18% during that period. The Affordability in Colorado Springs dropped from 79% to 25%, and in the Fort Myers, Fla., metro area, from 69% to 26%.

"Austin became extremely expensive during the pandemic, and San Antonio has experienced spillover migration as a result," said Daryl Fairweather, chief economist for residential real-estate brokerage Redfin. "Sacramento is the top migration destination for home buyers leaving San Francisco, and Raleigh has been popular among home buyers leaving Washington, D.C."

Texas gained 9,085,073 residents between 2000 and 2022, more than any other state, making it the fourth fastest-growing state in the U.S. Even before the pandemic hit, people were moving to San Antonio from other Texas cities and other states, according to tax data analyzed by the AEI Housing Center. The latest data, for 2019 and 2020, shows the largest source of net migration to Bexar County, where San Antonio is located, was Southern California, followed by other Texas counties primarily along the border, and Hawaii, Illinois and Washington.

San Antonio's affordability started to drop in the first half of 2021, according to the Dallas Fed report, which attributed the price spike to rising demand, increased labor costs and higher building-supplies prices related to the pandemic.

Texas home values rose sharply postpandemic. The price appreciation peaked in early 2022 at a 20% year-over-year increase, according to data from the Federal Housing Finance Agency. That spike was comparable to California's in 2004 and 2005, following the dot-com boom, although Texas homes are still much less expensive than those in California.

Luis Torres, senior business economist at the Dallas Fed's San Antonio branch, said that while Texas is still affordable compared with many other states, the drop in affordable housing was significant because the state was always less expensive than other parts of the U.S., and the region had never seen such sharp price increases. Home prices in Texas were largely flat from 2000 to 2005 when prices were rising nationally, which allowed Texas to largely escape the housing boom and subsequent bust that led to the 2007-09 recession.

Similar forces are driving up prices in Sacramento and Raleigh, both state capitals and traditionally affordable for the government workers who make up big chunks of their workforces.

Heidii Smith, a Sacramento real-estate agent since 1985, said the city has always been desirable because of its proximity to Tahoe and the Bay Area, but previous demand was nothing compared with the slew of people who started buying homes in cash at the start of the pandemic.

"They could pay cash, and that was maybe a quarter or third of what they sold their homes for in Silicon Valley," Smith said. "It's been a very hard market for first-time buyers."

'It's been a very hard market for first-time buyers,' said one agent.

Some first-time buyers are just watching the market and hoping to find a deal that fits their budget, she said, but it's a challenge with historically low inventory and people making offers substantially over asking prices.

Top employers in Wake County, N.C., where Raleigh is the county seat, include the public-school system and Duke University. Employees of those places now have to compete for housing against an influx of young professionals priced out of coastal cities or taking jobs in the growing local tech sector.

Carmen Cauthen, author of "Historic Black Neighborhoods of Raleigh," has lived in the area for more than six decades. In 2020, she and her then-husband purchased a home for $65,000 in the Oberlin neighborhood, one of the historically Black ones. They are now in the process of selling the house, which she said is now worth $319,000.

But even with her half, she said, she can't afford to buy in the city. "Here I am at 64, trying to figure out what to do next," she said.

Cauthen said she may do what other locals have done: move out of the city. She and her brother are considering building homes on land her family owns outside Raleigh.

In Texas, the low cost of living has long attracted out-of-staters. The pandemic accelerated that process. Net migration increased nearly 60% in the five quarters following the beginning of the pandemic, compared with the five quarters preceding it, the Dallas Fed report said.

Texas is still affordable compared with other places. The median listing price in Texas was $379,900 in September, compared with $760,000 in California, according to the Federal Reserve Bank of St. Louis.

"A lot of people were getting priced out of Austin and started moving into San Antonio," said San Antonio real-estate agent Marie Crabb. "They were getting priced out, according to them, by people from California. It was an interesting trickle-down effect."

Moving in

Among the new buyers in San Antonio were 34-year-old Kathleen Rubin and her husband, Justin Davidson, who had been living in Austin for years. In 2021, when the home they had been renting in the state capital went on the market, they decided their money would go much further in San Antonio, their hometown.

Last year, they bought a 2,500-square-foot home with three bedrooms and an office for about $400,000. The mortgage payment is roughly what they were paying the rent in Austin, she said.

"We just felt like we could get a lot more bang for our buck" by leaving Austin, Rubin said. "We also really upgraded our lifestyle."

The influx of newcomers to San Antonio, coupled with a limited supply of homes, has driven up prices. The city's top employers, predominantly in the military, education and healthcare sectors, provide stable but not high-paying jobs, contributing to the affordability challenge, said Ali Wolf, chief economist at housing-market research firm Zonda based in Newport Beach, Calif.

"This is when San Antonio started to face some of the issues of the other markets," Wolf said. "Now home prices were aligned with some of the newcomers."

Lesley Hernandez, who has lived in San Antonio since 1990, started looking for her first home in 2021. She qualified for a $300,000 loan but was disappointed by the homes she could afford in central San Antonio.

Hernandez ended up buying a $270,000 home on the southwest side of San Antonio, farther from her family than she wanted. A similar home closer to the city center would have cost $350,000 or more, she said.

Lorraine Warhurst, a San Antonio real-estate agent, said competition is high for available homes partly because would-be buyers from states like California, Oregon, Washington, New York and Florida want to capitalize on the equity from their homes there.

She cites higher interest rates as another factor making homes unaffordable for some first-time buyers.

Existing homeowners with low-rate mortgages, in many cases around 3%, are less likely to trade up to a more expensive one now that interest rates are much higher, said Buzz Roberts, president and CEO at the National Association of Affordable Housing Lenders.

Another constraint on supply in San Antonio and other Texas cities was that construction of single-family and multifamily residences had lagged behind demand. That also pushed prices higher.

Although pandemic-related supply chain problems have improved, said Roberts, construction costs remain high due to the increased cost of materials, interest rates and labor, said Roberts. And fewer starter homes are being built, he said, because builders are finding it more profitable to build larger, more expensive ones.

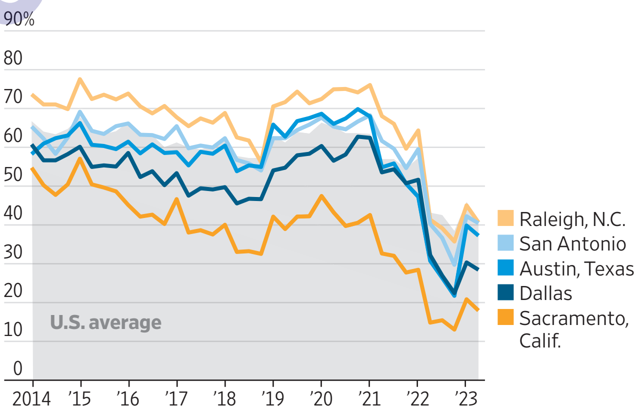
Two bills aimed at increasing housing availability and supported by the Texas Association of Builders died during the last state legislative session. One would have reduced requirements in Texas cities for how much land was needed to build a new home, and another would have made those cities loosen their rules on adding smaller dwellings on the same lots as larger homes.

The Dallas Fed report cited some evidence that the affordability situation is improving. "Recent moderating demand—a consequence of escalating costs—and rising housing inventory may curb further erosion of affordability" the report said. In the second quarter of 2023, 40% of San Antonio homes were deemed affordable, up from 29% at the end of 2022.

ALLISON JOYCE/BLOOMBERG NEWS

A new subdivision under construction in Raleigh, N.C., another city where housing has become much less affordable

Percentage of housing stock affordable to families earning median income



Source: National Association of Home Builders/Wells Fargo Housing Opportunity Index

TAMIR KALIFA FOR THE WALL STREET JOURNAL

Potential buyers visit an open house in San Antonio, where transplants were arriving even before the pandemic hit.

WORLD WATCH

GERMANY

Inflation at Lowest Since Start of War

German inflation fell sharply in September, confirming prior estimates and hitting its lowest rate since the outbreak of the war in Ukraine, a level that the European Central Bank could consider enough to end its current hiking cycle.

Consumer prices were 4.5% higher in September than the same month a year earlier compared with 6.1% in August, measured by national standards, data from the German statistics office Destatis showed on Wednesday.

The reading, the third decline in as many months, matched preliminary estimates published by Destatis at the end of September and a consensus of economists polled by The Wall Street Journal.

The decline was led by tumbling energy inflation. Food inflation was still high, at 7.5%, but down from 9% in August, Destatis said.

—Ed Frankl

CHINA

Australian Anchor Freed After 3 Years

China released an Australian journalist it had detained for more than three years on suspicion of disclosing state secrets, removing a key irritant in a tense relationship between a close U.S. ally and Beijing.

Cheng Lei, who was an anchor for the Chinese government's English-language television news channel, arrived in Melbourne by plane, where she was reunited with her two children, Australian Prime Minister Anthony Albanese said Wednesday. Her release comes as Albanese prepares to visit China this year.

A closed-door trial of Cheng in 2022 ended without a verdict being made public, with Australian diplomats denied access to the proceedings at the time. Albanese said her matter had been concluded through legal processes in China.

When asked if anything was negotiated to facilitate Cheng leaving China, Albanese said no. *—Mike Cherney*

ISRAEL

U.S. Weighs Dropping Charges

As part of its quest to gain access to minerals critical to the energy transition, the U.S. has recently considered a plan to drop sanctions against an Israeli mining magnate accused of corruption, according to people familiar with the matter.

The plan involves the U.S. lifting sanctions on businessman Dan Gertler to allow him to take part in mining deals with Saudi Arabia, the people said. Those mines would ultimately deliver metals to American companies

The Treasury Department sanctioned Gertler in 2017, accusing him of amassing his fortune through opaque and corrupt mining and oil deals in Congo through connections with former Congolese President Joseph Kabila. It imposed further sanctions on entities affiliated with him in 2018.

Gertler has repeatedly denied wrongdoing.

—Summer Said, Julie Steinberg and Stephen Kalin

EBRAHIM NOROOZI/ASSOCIATED PRESS

RUINS: Afghan women sat near the rubble of what was once their homes in Herat province Wednesday. A magnitude 6.3 quake hit days after a temblor left more than 2,000 dead in the area.

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The motto of head coach Deion Sanders of the Colorado Buffaloes is: Look good, feel good, play good.

What Deion Sanders Can Teach CEOs

Colorado's football coach has the ability to make confidence contagious

ON THE CLOCK

CALLUM BORCHERS

Everyone from The Rock to "60 Minutes" swooned over Deion Sanders after he led one of college football's worst teams to a 3-0 record early this season. To business gurus, though, this is the moment that Coach Prime and his swagger really get interesting.

Now that his Colorado Buffaloes have lost two of their last three games, the true test of Sanders's hyper-confident leadership style is whether it can withstand defeat, they say.

"Confidence is absolutely key because people need to believe that you know which levers to pull, whether you really know or not," says Carter Pate, who specialized in corporate restructuring at PricewaterhouseCoopers before a three-year stint as chief executive of MV Transportation. "What always hangs in the back is: Be careful how much you hype if you can't back it up."

Sports leadership lessons don't always translate to business, though they may be more applicable in the corporatized era of college athletics that Sanders embodies. "Neon Deion," as the flashy Hall of Famer is known, is less a coach of student athletes than a boss of young professionals. He has taken a chief executive's approach to cleaning house and rebranding, and has vaulted a moribund program to pop-culture sensation.

Inheriting a team that won a single game last year, he overhauled the Colorado roster by capitalizing on a relatively new rule that lets college athletes transfer without sitting out for a year, as was required in the past. Because Sanders's program has gotten so much buzz, his players also have better odds of landing endorsement deals—another recent change that upends traditional notions of amateurism.

Though Sanders's resume commands instant respect, legendary former players sometimes struggle to lead less-talented charges and often don't make the best coaches. Few, if any, of Sanders's Colorado players are as gifted as he, yet it appears at times like he sprinkled some of his ability on the "Prime 21" sunglasses he gave to each of them. (Look good, feel good, play good is Coach Prime's motto.)

Deion Sanders celebrated with his son and quarterback Shedeur after a touchdown last month.

PHOTO ILLUSTRATION BY ELENA SCOTTI/THE WALL STREET JOURNAL, GETTY IMAGES (2)

Pate, who now sits on three public-company boards, is a longtime Dallas Cowboys season ticket holder who witnessed Sanders's almost-supernatural athleticism during his playing career. In addition to winning two Super Bowls, Sanders played nine seasons of Major League Baseball and ran track at Florida State.

Pate says that, as a PwC consultant and managing partner, he distributed his own kind of good-luck charm to clients. He left his mobile-phone number off his business cards just so he could scrawl it in pen on the back. He'd hand the cards to executives at floundering companies and tell them to call if there is ever a crisis, making each feel like they were getting special access to a lifeline.

It was a shtick, Pate says, and exactly the reassurance some people needed.

Confident yet critical

There's no dimming Coach Prime's confidence, but he does know when to turn down the limelight.

After Colorado dropped a second straight game late last month, the 56-year-old Sanders declined an interview request through a university athletic department spokesman: "Coach is really scaling back on media."

Losses to the universities of Oregon and Southern California, each with top-10-ranked football teams, showed that the Buffs still have a way to go. Then they got back in the win column this past Saturday against Arizona State, the go-ahead field goal splitting the uprights with 12 seconds left.

"Wonderful win," Sanders said in a postgame news conference. "Played like hot garbage." He explained that he was pleased by the outcome but felt that his players' effort and discipline were lackluster at times. He refused to accept mediocrity, he said.

Several executives later told me that Sanders's assessment reveals something important about his brand of confidence: It isn't about a cocky feeling of inherent superiority but rather a belief that you're capable of greatness through hard work.

"If you look at it as a business turnaround—and, let's face it, college football is a business—he's done a lot of things right," says Doug Yakola, a former McKinsey & Co. senior partner who is now an independent consultant. "He's come in and set really high expectations, to the point where people are going, 'You're crazy.'"

Bright future

Jason Forrest says he's been studying coaches for 20 years, looking for tips he can use in the sales and leadership trainings run by his Forrest Performance Group. His favorites include Duke University basketball coach Mike Krzyzewski and New England Patriots coach Bill Belichick, whose understated work ethics he admires.

The loquacious Coach Prime is his latest fascination, partly because Colorado upset Texas Christian University, Forrest's alma mater, in the first game of the season.

He describes Sanders as a benevolent alpha, a leader who earns subordinates' trust by showing he cares while holding them to his own high standard. That's a model for contemporary management, in Forrest's view, as many executives struggle with employees' loss of ambition.

The key, he says, is to be upbeat yet realistic—and assertive in a way that spreads confidence to others. Being too domineering can have the opposite effect.

"They need to borrow your certainty during uncertain times," Forrest says.

Alvin Sanders (no relation) says pumping up his staff was a priority when he became president and CEO of World Impact, a Christian ministry training nonprofit, in 2017. A longtime fan and student of Sanders's career, he pulled a Prime Time move when he gathered the team to chart a path out of a budget deficit at the start of his tenure. He handed out sunglasses.

"I told them, 'Our future's so bright we're going to need these,'" Alvin Sanders recalls. "I was trying to give them some swagger."

Downsizing Today Doesn't Always Save

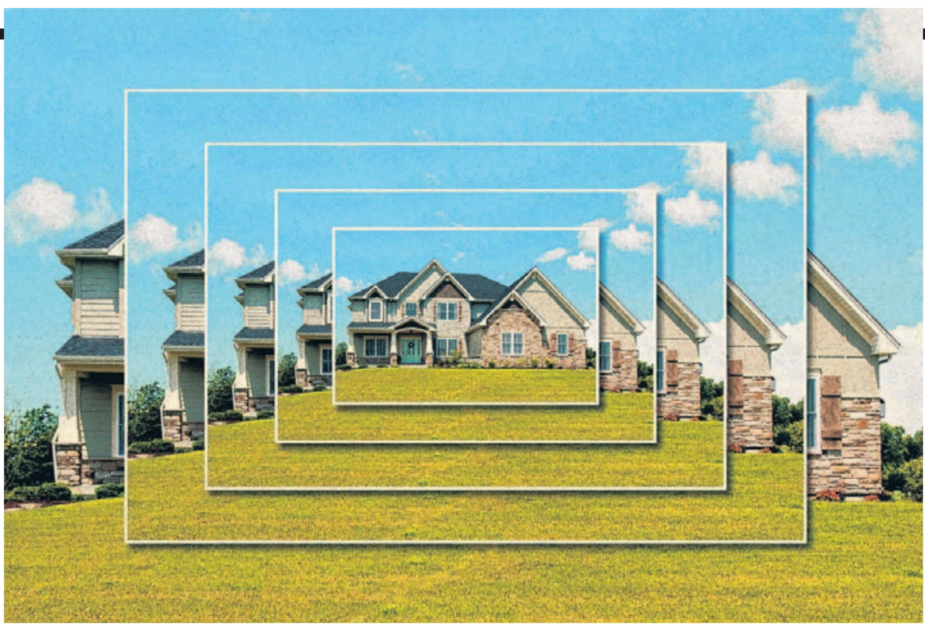


PHOTO ILLUSTRATION BY DAISY KORPICS/THE WALL STREET JOURNAL, ISTOCK

By Veronica Dagher

Downsizing from a big house to a smaller dwelling is a rite of passage for retirees hoping to simplify their lives and shore up their nest eggs. But it might no longer result in savings in today's housing market.

Trading to a smaller home has never been just about spending less money. People move to smaller homes to make their lives easier, to be closer to family members or to eliminate maintenance tasks as they age. But with mortgage rates pushing 8%, a meager supply of smaller homes for sale and steep prices for the few that are on the market, the math doesn't work in many retirees' favor.

The number of homes for sale that measure 750 to 1,750 square feet—the range downsizers tend to prefer—dropped 41% since 2019, and prices for these homes are 50% higher than they were before Covid, said Hannah Jones, senior economic research analyst at Realtor.com. The Wall Street Journal and Realtor.com are both owned by News Corp.

Downsizing is costliest for those who still have mortgages on their current homes, and are locked into low rates. For them, a smaller home might translate into bigger monthly home payments, further stretching the budget of people on a fixed income.

Why homeowners downsize

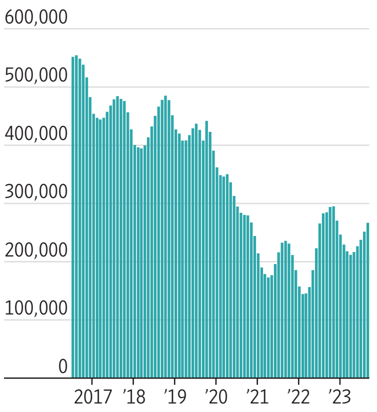
Despite the lack of options, just over a quarter of home sellers traded down for a smaller place, according to a 2023 report from the National Association of Realtors. That share hasn't changed much in recent years. Those who downsized the most were homeowners ages 77 to 97, who scaled back by around 220 square feet.

The top reasons older Americans give for downsizing are wanting to be close to friends and family, having less house to manage and becoming empty-nesters, said Jessica Lautz, deputy chief economist at the National Association of Realtors.

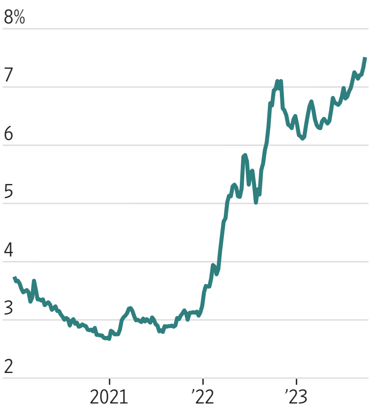
Stephanie and Allen Frew say they aren't downsizing for the money. The couple are selling their roughly 2,500-square-foot Gardendale, Ala., home and looking to relocate to Atlanta, where their children and granddaughter live.

The Frews hope to get about $740,000 for their current home, which has a chef's kitchen and a three-car attached garage. They expect to have to pay at least $600,000 in Atlanta, not including homeowner's association fees, for a place that will likely be half the size. If they don't net as much from their home sale, they might take out a mortgage for their next home.

Listings of active homes for sale that measure 750 to 1,750 sq. feet



30-year fixed-mortgage rates



Sources: Realtor.com (listings); Freddie Mac via St. Louis Fed (mortgage rate)

"It will all be worth it to be closer to our grandbaby," Stephanie said.

Staying put

There are advantages to keeping a larger home beyond just the comfort of a familiar neighborhood and having enough space to host the children and grandchildren.

Home equity grew significantly during the past few years, so those who have lived in the same place for decades could face higher capital-gains taxes if they sell, said Rick Sharga, founder and chief executive of CJ Patrick Co., a real estate consulting firm. A couple can typically exclude the first $500,000 in profit on the sale of a primary home, but beyond that, they will owe capital-gains taxes when they sell.

Retirees should think about whether it makes sense to risk moving from a place where they feel happy and comfortable, said Drew Cook, a financial planner in Charlotte, N.C. This is especially true if they can tap assets that may have no strong emotional attachment, such as a 401(k), to keep their current homes, he said.

"Electing to downsize is a more involved decision than just the finances," said Cook.

Some might be content with the trade-off of spending less in retirement to continue living where they are. People who choose to age in place aren't immune to rising home insurance and maintenance costs, which have generally jumped.

When it's worth it

Retirees who downsize often do it to live somewhere warmer or more convenient, or because they want certain amenities. Those who can offer a well-priced, well-maintained home might stand to profit, said Jones at Realtor.com.

Buyers who can pay for their next home in cash are in a better position, although high home prices and rising home-insurance premiums remain factors, said Daryl Fairweather, chief economist at Redfin, a real-estate company.

Leslie Speed sold her 2,500-square-foot home in Melville, N.Y., for about $650,000 this spring and bought a 1,100-square-foot condo for $535,000 in a 55-plus community in the same town. She enjoys her complex's two pools, a hot tub and new friendships with neighbors.

The condo's price carried a bit of sticker shock, especially since the unit is much smaller than her former house, she said. But Speed is happy she no longer has to worry about gardening or snow removal. "I'm having so much fun!" she said.

The Secret to Living to 100? It's Not Just Healthy Habits

Exercise and eating well can help, but good genes matter more the older you get

By Alex Janin

If you want to live to your 100th birthday, healthy habits can only get you so far.

Research is making clearer the role that genes play in living to very old age. Habits like getting enough sleep, exercising and eating a healthy diet can help you stave off disease and live longer, yet when it comes to living beyond 90, genetics start to play a trump card, say researchers who study aging.

"Some people have this idea: 'If I do everything right, diet and exercise, I can live to be 150.' And that's really not correct," says Robert Young, who directs a team of researchers at the nonprofit scientific organization Gerontology Research Group.

About 25% of your ability to live to 90 is determined by genetics, says Dr. Thomas Perls, a professor of medicine at Boston University who leads the New England Centenarian Study, which has followed centenarians and their family members since 1995. By age 100, it's roughly 50% genetic, he estimates, and by around 106, it's 75%.

Knowing what enables some people to live very long lives has consequences for the rest of us. Continuing research into very old age may help provide insight that could eventually be used to develop drugs or identify lifestyle changes to help people live healthier for longer, says Dr. James Kirkland, president of the American Federation for Aging Research.

Who gets to 100

Centenarians make up a growing share of the U.S. population. There are about 109,000 centenarians living in the country in 2023, according to Census Bureau projections, up from about 65,000 10 years ago, thanks in part to decades of advances in medicine and public health.

Despite a decline in life expectancy, which dropped to 76.4 in 2021, Perls estimates that roughly 20% of the population has the genetic makeup that could get them to 100 if they also make consistent healthy choices.

Not only do centenarians live longer, but data suggest they manage to avoid or delay age-related diseases like cancer, dementia and cardiovascular disease longer than the general population. Among the New England Centenarian Study participants, 15% are "escapers," or people with no demonstrable disease at the age of 100; some 43% are "delayers," those who didn't develop age-related disease until age 80 or after.

Chuck Ullman and his wife of 77 years, Betty, on the beach in 2022 and in the mid-1960s, above.

Chuck Ullman, who is 97 and lives in a retirement community in Thousand Oaks, Calif., says he is free of health problems—aside from a sore right shoulder from a recent electric biking accident—and has no desire to live to a particular age. He hopes to live as long as he feels good and can do the things he loves, such as woodworking, attending political discussion groups, and getting dinner with some of his many friends.

"There are 350 residents here, and I have 350 friends," Ullman says of his community. He also spends time with Betty, his wife of 77 years. "My objective is to enjoy each and every day that comes along."

Genes that matter

Researchers have identified some genes and combinations of them that are associated with longevity, such as the presence of a variant of what's known as the apolipoprotein E gene called e2, a trait thought to help protect against Alzheimer's. They emphasize each trait is a small piece in a large, complicated puzzle, which can factor in socioeconomic status, race and ethnicity, and climate.

Living past 100 requires a combination of many genetic variants, each with a relatively modest effect, says Perls. Gene variants that offer protective qualities, such as repairing DNA damage, are especially beneficial, he says.

People who are curious about how long they might live should start by looking at their family histories. Your relatives' lifespans are one of the strongest predictors of longevity, says Perls. Ullman, the 97-year-old, says his mother lived to 90.

If multiple members of your family have lived into very advanced age, "you've potentially won a much greater chance of having purchased the right lottery ticket," says Perls.

Good habits

Neurologist Dr. Claudia Kawas has been tracking the habits of the "oldest old," those older than 90, in Southern California since 2003, as part of a study at the University of California, Irvine. She and a team of researchers have found links between longevity and even short amounts of exercise, social activities such as going to church, and modest caffeine and alcohol intake.

"Super-agers," or people over the age of 80 whose cognitive abilities are on par with those 20 to 30 years younger, reported having more warm, trusting, high-quality relationships with other people than cognitively normal participants, investigators at Northwestern University found.

"Keeping in good relationships could be one key to healthspan," says Amanda Cook Maher, a neuropsychologist at the University of Michigan and lead author of the study.

Your outlook also matters. Harvard researchers identified a link between optimism and longer lifespans in women across racial and ethnic groups. Among the study participants, the 25% who were the most optimistic had a greater likelihood of living beyond 90 years than the least-optimistic 25%, according to the 2022 study published in the Journal of the American Geriatrics Society.

Jeanne Case, 100, says she has taken a glass-half-full approach to life. She plans to outlive her colon and skin cancers and keep enjoying swing music and Mexican food as long as she feels physically and mentally well.

A day in her life can include walking a mile, conversing with her writing group, or noshing on fish tacos with friends. The Irvine, Calif., resident has always exercised but also enjoys indulgences like cheesecake and lemon bars.

"I try not to let stress bother me," she says.

CLOCKWISE FROM TOP: ISTOCK; CHUCK ULLMAN (2)

Consumers Bond Over Funky Math

Continued from Page One

publicly cited the funky arithmetic to demonstrate how getting inked makes financial sense.

"Tattoos are basically free because you pay for it once and have it till you die," says the company's Facebook post. "Which means it only costs cents a day when you divide total cost over how long you'll have it." More than 900 people weighed in.

This wisdom rings true to Josh Benevides, 47, the co-owner of a used-sporting-goods store in Juneau, Alaska. He bought an exercise bike for physical therapy after he tore his ACL, and felt hesitant about the bike's $400 price tag until he soothed his mind with an equation.

"If I ride the bike 400 times, it only costs me a dollar a ride!" Benevides recalls realizing. He's since used it about 4,000 times, so thus, he says, he is now "riding for a dime! Boom."

The recent airing of spending justifications appeals to people because it's so relatable. Most of us have long done such shopping riddles, says Stacy Francis, president and CEO of financial advisory firm Francis Financial in New York. "Regardless of whether you're male or female, when you're spending small amounts like $5, your brain doesn't register that it could be a lot of money," says Francis. "Even though, in reality, $5 a day is $1,825 a year," and could be around $150,000 if invested over 30 years at 6%.

Illogical shopping math is also a diversion when prices at the grocery store, gas station and car dealerships are noticeably higher than in recent memory. It can feel extra good these days to psychologically discount that latte or trendy jeans.

"As a mom, I have guilt if I'm spending on myself because I should be spending on my kids," says Guldner, the Pennsylvania social worker. "It's a game you play in your head."

Many consumers use shopping riddles to justify purchases

Recently, for instance, Guldner set out to buy a pair of Dr. Martens boots that cost $130. In her search, she found a similar pair that cost only $50. By her computation, buying the cheaper shoes meant she had actually *made* money. "There was $80 more that I could have for sports bras and sweaters," she says.

Businesses have long tapped into quirks in consumer behavior, and will price items just below the dollar threshold, so that a TV costs $299 and those headphones are $99.99.

More recently the droll phrase "girl math" took off thanks to a New Zealand radio show that created a playful call-in segment by the same name.

One segment featured a mother of two who wanted help rationalizing buying a $400-plus hair dryer. Though it was denting her wallet, it was taming her hair and taking her only two minutes to dry her hair versus 40 minutes before. The verdict? The caller was actually making money if an hourly rate of her time was factored in, plus things such as the cost of frizz products she no longer needed.

The hashtag #girlmath, often promoted by women themselves, now has more than 844 million views on TikTok. There is also now #boymath—about oversights men make.

(Francis, the financial-firm president, says that women are just as money savvy as men, and that a better name for this kind of math, no matter who does it, should be "dumb math.")

Father and daughter, Austin and Marley Brown, enjoy debating the wisdom of creative calculations.

Kayla Garza, a 22-year-old college student at the University of Houston, says it has just been nice to see other shoppers talking freely about their logic and realize, 'Oh, I'm not the only one who thinks like this!'"

When Garza looks at price tags, she says, she often ignores the cents. She recently bought a pair of jeans from American Eagle for $95.95 but told her mom they were $90, and she understands why many Starbucks customers feel drinks they buy using their app don't cost anything.

When Marley Brown, an 18-year-old freshman at the University of Massachusetts Amherst, buys concert tickets, she determines the cost based on total hours of entertainment. So paying to see Taylor Swift's three-hour concert two times was worth her money, she says.

She also believes the cost of clothing can be calculated per wear. A $50 sweater worn 50 times technically means the sweater costs $1.

All of this is logic she has explained to her father, Austin Brown, a 47-year-old finance professional, in videos that have gone viral on TikTok. He often rebuts her arguments, pointing out the faulty calculations in a fatherly fashion. Their videos have received over 12 million views.

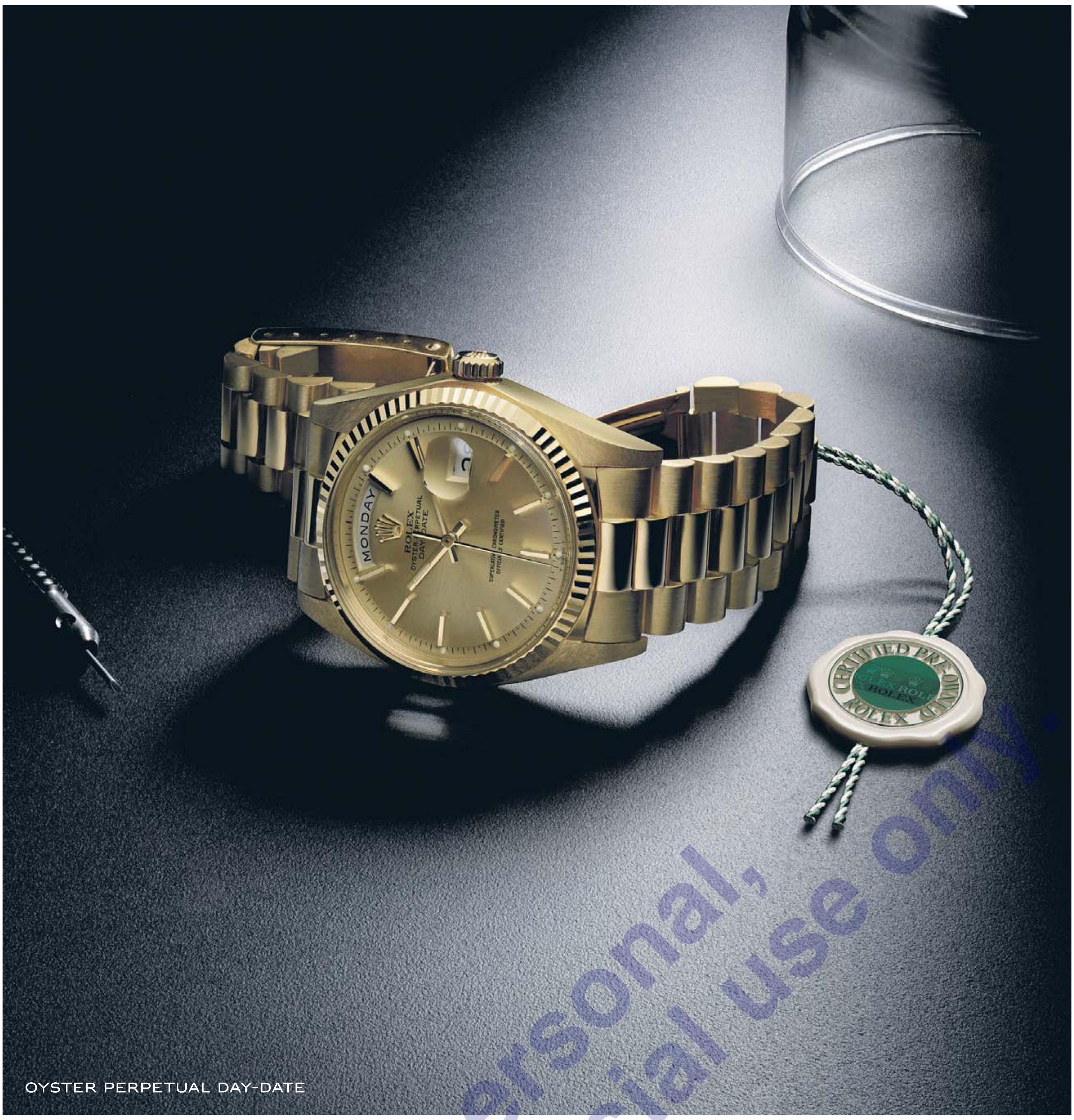
During a Google Hangout call, with a Journal reporter joining, father and daughter bickered over the wisdom of hitting a spending threshold to get free shipping.

"If the shipping is $5, I'll get another $10 shirt for the free shipping because I'd rather pay for a product and not something I don't have a return on," Marley explained.

Austin, naturally, didn't agree. "You've just fallen prey to consumerism culture by spending money on something you didn't need in the first place," he said, sighing.

Still, such shopping riddles don't bother him if people are financially responsible, which he said his daughter is. "I've seen men spending $8,000 on triathlon wheels because it might save them a millisecond," he said, "and I've seen guys spend $3,000 on new golf clubs because it might save one of their strokes."

SHANDLEY MCMURRAY BROWN



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ARTS IN REVIEW

ART REVIEW

Fusing Form and Function

An enchanting, community-curated exhibition features more than 100 works by indigenous Southwestern potters

GROUNDED IN CLAY
The Spirit of Pueblo Pottery

Installation views of 'Grounded in Clay,' above, including Lonnie Vigil's 'Jar' (1995), above left

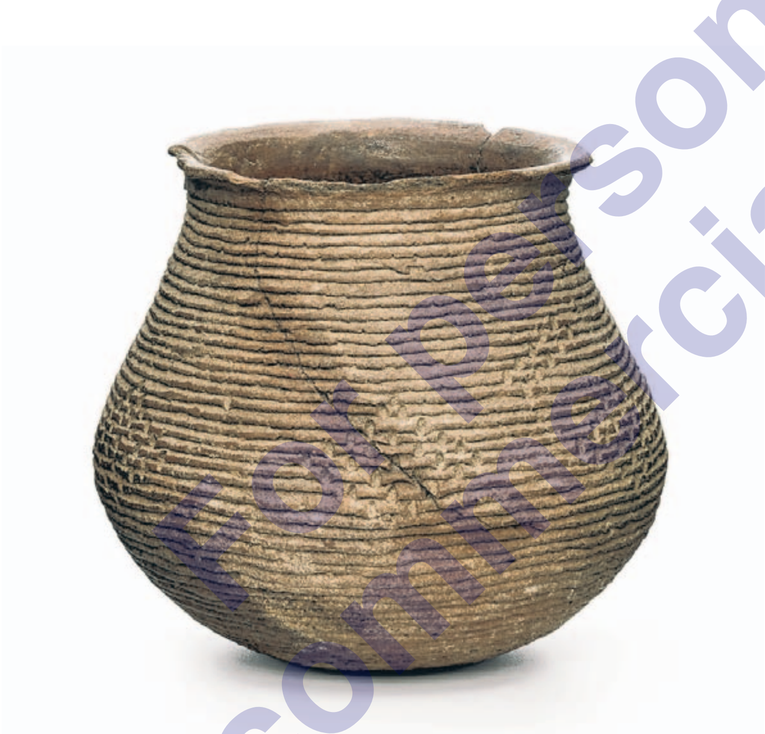
By Lance Esplund

New York

Pottery is both personal and communal, utilitarian and ceremonial, at the heart of civilization and family life. We need pots to carry water, prepare food and store perishables. But pots are as essential to our religious rituals and aesthetic traditions as they are to our breakfast, lunch and dinner. We can learn a lot about a culture—literally, from the ground up—by examining its pots. This is the impetus behind the Native American community-curated exhibition "Grounded in Clay: The Spirit of Pueblo Pottery," an exhilarating, long-term collaboration at two venues: the Metropolitan Museum of Art and, 10 blocks away, the Vilcek Foundation. (The Vilcek component is free to the public but requires a reservation and guided tour.)

Conceived and spearheaded by Vilcek president Rick Kinsel, the show was overseen at the Met by Patricia Marroquin Norby and at the Vilcek by Brian Vallo and Emily Schuchardt Navratil. Mr. Vallo, the former director of the Indian Arts Research Center of the School for Advanced Research in Santa Fe, N.M., is a member of the Pueblo Pottery Collective—about 65 people from 21 tribal communities. PPC members, primarily potters, each selected and wrote personal catalog entries about one or two of the show's approximately 115 works of Southwestern pottery, on loan from the collections of the Vilcek and SAR and divided evenly between both New York venues. Many of their inclusions—mostly bowls, pots and jars, but also rain gods, a Mesa Verde water ladle and mug (c. 1050-1300), storytellers, a nativity set and a leather-strapped "Hopi Canteen" (c. 1880)—are masterpieces.

Each pot has a story to tell, conveyed objectively through cultural styles, iconography and motifs: abstract symbols for flora, fauna, the sun, lightning, architecture, vegetation, clouds and metaphoric spirit breaks—literal gaps, or pathways, in the lines that encircle the rim to release the spirit of the pot or its maker. Through colors and materials: red clay; glistening, stone-polished black and bronze mica; white volcanic ash; and dense blacks made from wild spinach. But also through what they communicate, subjectively, to each curator.



THE MET (3)

'Mogollon Corrugated Jar' (c. 1050-1300), one of the earliest works in the two-venue show

"Mogollon Corrugated Jar" (c. 1050-1300), at the Met, is among the earliest and most unusual works in the show, which spans the pre-Columbian period to the present day. At roughly six inches tall, it's relatively small compared to some of the exhibition's large storage vessels, which extend in height and diameter to more than two feet. What's remarkable about this delicate jar—which comprises roughly 60 exposed, raised coil rings—is that, besides a pot, it conjures a woven basket and a striated desert landscape, but also rippling water or wind-swept grasses. "Corrugated Jar" physically and metaphorically embodies Pueblo pottery's four essential elements vital to transforming raw soil into a pit-fired vessel: mother earth and water (hand-mixed to make clay), fire (the force that hardens) and wind (the life-breath and spirit of nature, potter and pot).

A fusion of form and function, vessel and decoration, "Corrugated Jar" expresses and lays bare, even as it transcends, the ingredients and process of its creation. Like all of the best pots here, it feels organic, alive—transformative. Potter Martha Romero, who chose "Corrugated Jar," wrote in the catalog that this pot, "through Grandmother Clay," and through the "precision" and "tender touch" of its artist, "teaches us life lessons of patience, acceptance, love, connection, sharing, using, belonging, breathing, creating and feeling!"

The large "Acoma Four-Color Polychrome Storage Jar" (c. 1880), at the Met, selected by Mr. Vallo and once used to hold dried meat, corn or bread, is decorated with diagonal checkerboard patterns depicting clouds, rain and cornfields. So dynamic is its design that its surface appears to spin and upend the pot like a carnival ride. "Zia Water Jar" (c. 1900), at the Vilcek and chosen by Samuel Villarreal Catanach, is equally wild and perfectly integrated in terms of vessel and decoration (abstract wind and insect motifs).

Some of these pots become wondrous landscapes. "Ancestral Puebloan Jar" (c. 1050-1300), at the Vilcek and included by Rose Simpson, is a zigzagging, black-and-white, rotund maze of corn kernels and lightning bolts—the bringer of life. In the Vilcek's "Tesuque Jar" (c. 1870-80), chosen by Tony Chavarria, "pindii" (Tewa for "turkey"), Mr. Chavarria writes, "stomp, dance, strut and sometimes fight" among abstract patterns of water and flora. In Trinidad Medina's Zia "Storage Jar" (c. 1920-25), also at the Vilcek and selected by Ulysses Reid, roadrunners hover above an abstract Chicago skyline, transforming pot into cityscape. And on the Vilcek's "Santa Clara Jar" (early 1900s)—attributed to Santana Tafoya Gutierrez and chosen by Nathan Youngblood—a bear paw is suspended like a mirage within its glossy, inky surface. Here, pot becomes otherworldly.

"Grounded in Clay" also includes beautiful black masterworks by the San Ildefonso's Maria and Julian Martinez. And Lonnie Vigil's monumental, sparkling mica and turquoise "Jar" (1995), the Met's opening salvo, is like a star-filled night sky. I'm not usually a fan of crowdsourcing, but this show—pots chosen by potters—is grounded yet transcendent.

Grounded in Clay: The Spirit of Pueblo Pottery
The Met Fifth Avenue
Vilcek Foundation
Through June 4, 2024

Mr. Esplund, the author of "The Art of Looking: How to Read Modern and Contemporary Art" (Basic Books), writes about art for the Journal.

MUSIC REVIEW

Two Jazz Musicians' Enriching Exchange

By Larry Blumenfeld

Fifteen seconds into "The Gold Gate"—the opening track of bassist Todd Sickafoose's gripping new release, "Bear Proof" (Secret Hatch)—drummer Allison Miller establishes a groove. Following suspenseful phrases from clarinet, cornet and accordion, she plays a slightly staggered 11-beat rhythm, equal parts swing and march, whose appeal belies its complexity and which guides the piece onward.

The deep-toned thrum of Mr. Sickafoose's bass is among the first sounds heard on "Of Two Rivers," the two-part composition that begins Ms. Miller's own ambitious new release, "Rivers in Our Veins" (Royal Potato Family). His playing here grounds this opening track, which takes shape as folksy blues and then releases into raucous collective improvisation.

A bassist and a drummer play on each other's ambitious new albums.

Mr. Sickafoose and Ms. Miller met 20 years ago. She soon recruited him into the first iteration of her long-running band, Boom Tic Boom. The graceful lockstep they achieve together is integral to the depth and cohesion of these respective new recordings. So is their shared affinity for a wide range of musical styles—jazz, rock, folk, blues and free improvisation, and just as many moods, sometimes within a single song—as well as for "playing the long game," as Ms. Miller told me in an interview, describing their ambitions toward music that expresses extended narratives through instrumental sounds.

Mr. Sickafoose conceived "Bear Proof" as "62 minutes of music," he told me, "that forms a surreal meditation on the ideas of boom and bust, high times and ruin." Throughout, his octet seems to be mulling over one or two central questions—represented by brief musical passages, sometimes just three or four notes long—as stated and then reconfigured to get the most in terms of harmony, counterpoint and texture from an unusual ensemble (violin, accordion, electric guitar, clarinet, cornet, piano, bass and drums). The music is, by turns, consonant and dissonant, calm and boisterous, hard-driving and nearly out of tempo; its movement accentuates how easily one state slips into another, and back. Foreground drifts into background, and vice versa. Cycles build and then dissolve. Each song, and the entire album, is like a mosaic of irregular parts that conjoin to form a sensible whole.

SHERVIN LAINEZ

Bassist Todd Sickafoose, whose new record, 'Bear Proof,' features drummer Allison Miller

Ms. Miller's "Rivers in Our Veins" is a song cycle, drawn from a larger project of live performances involving her sextet, tap dancers and live video projections. The work, based on field research, is intended to express the beauty and power of some of this country's major rivers. In a few songs, the music mimics what Ms. Miller calls "a symphony of beautiful chaos"—the water's many currents that build momentum, relax or sometimes turn brackish. Here, Ms. Miller, whose mastery of rhythmic currents has made her a sought-after drummer as well as an authoritative bandleader, represents her deepest collaboration yet with dancers. The second section of her "Of Two Rivers" piece begins with tap dancers articulating both rhythm and the melody; later, using brushes on her trap set, Ms. Miller forms a tightly bound and nimble trio with tap dancers Michelle Dorrance and Claudia Rahardjanoto on "For the Fish."

The personnel in Mr. Sickafoose's octet and Ms. Miller's sextet overlap. Violinist Jenny Scheinman (with whom Ms. Miller has co-led the quartet Parlour Game, and whose quintet has featured Mr. Sickafoose) plays a mesmerizing solo on Mr. Sickafoose's "Switched On"; her bowed passages on "Riparian Love," on Ms. Miller's album, embody the music's heartfelt tone. Clarinetist Ben Goldberg weaves lovely improvised passages through "Boom Bust Startup Ruin" on Mr. Sickafoose's release; his buzzing low-end phrases, played on contra-alto clarinet, anchor the opening track of Ms. Miller's album.

Both releases feature accordion, played by Rob Reich on Mr. Sickafoose's album and by Carmen Staaf on Ms. Miller's. Ms. Staaf, who is primarily a pianist, lends force on her main instrument in some spots and, elsewhere, plays with disarming grace. Both albums have horn players in central roles (cornetist Kirk Knuffke on Mr. Sickafoose's release, and trumpeter Jason Palmer on Ms. Miller's).

"Bear Proof" and "Rivers in Our Veins" reflect grand concepts played out through connected musical pieces. Yet in each case, subtle sonic shifts and small, often fleeting details distinguish these works. On Mr. Sickafoose's release, these include the odd colors cast by Mr. Reich's accordion that underscore Mr. Goldberg's clarinet playing during "Bent Into Shape"; when the hard-driving groove of "Switched On" dissolves into guitarist Adam Levy's gentle three-note cycles; and the shadowy interplay of cornet, clarinet and guitar in the middle of "Prospects."

And these pleasures build. On Ms. Miller's album, when the spare and tender phrases of "Water" cohere into the steady beats and sweet-toned melody of "Hudson," and then give way to the forceful declarations of "Fierce," the music seems to move like, well, a river, through all sorts of terrain, following its own logic. There, and elsewhere on these finely crafted releases, Mr. Sickafoose and Ms. Miller, leaning in and out of rhythms with both ingenuity and economy, enable each other's purposeful flow.

Mr. Blumenfeld writes about jazz and Afro-Latin music for the Journal and is editorial director for Chamber Music America.

SPORTS

The NFL's Most Valuable Player Makes Less Than $1 Million

San Francisco 49ers quarterback Brock Purdy is leading the best team in the league—at a tiny fraction of the cost of his peers

By Andrew Beaton

Brock Purdy, the last pick of the 2022 NFL draft, remains undefeated as a starter in the regular season.

EZRA SHAW/GETTY IMAGES

Brock Purdy is a contender to win Most Valuable Player and the quarterback of the Super Bowl favorite San Francisco 49ers. But what makes him so outrageously valuable isn't just that he excels at the most important position in football for a team expected to vie for the Lombardi Trophy.

Top quarterbacks command contracts worth over $50 million annually. Purdy gets paid less than a million. There isn't another player who contributes so much and gets paid so little.

As the lowest-paid starting quarterback in the NFL, Purdy highlights the type of extreme market inefficiency that propels teams toward confetti showers. Since improbably taking over as the 49ers' quarterback last year as a rookie, he's undefeated, 10-0, as a starter in the regular season. The only thing that has beaten him is an elbow injury he suffered in the playoffs.

By any metric, Purdy is performing like a superstar. He's completing 72.1% of his passes and leads the league in passer rating. When Purdy threw for four touchdowns in the Niners' 42-10 blowout win over the Dallas Cowboys on Sunday night, it only further cemented his rise.

"Brock is playing as one of the best quarterbacks in the league," star Niners pass rusher Nick Bosa said.

Purdy, whose contract pays him an average of $930,000 per season, is also playing at that level for a fraction of the cost of his peers. Joe Burrow's new deal from the Cincinnati Bengals pays him $55 million per year. That nets out to nearly as much for a quarter of a game as Purdy gets in a season. Even plenty of Purdy's neighbors in the Bay Area make more: Netflix is offering up to twice as much as Purdy makes to hire an engineering director.

NFL teams salivate over the window to build their rosters around quarterbacks who are on rookie contracts, before they require megadeals that gum up the books. Purdy takes that to an entirely new level thanks to what made him such a marvel in the first place.

Purdy makes so little compared with his peers because he was the last pick of the 2022 draft, a selection that bestows the title "Mr. Irrelevant" on a player because the last pick of the draft isn't supposed to matter. Purdy was never supposed to matter for the Niners, either. He was the backup to the backup—until he became an unlikely sensation.

The 49ers had a clear vision of how to build their team, and it didn't involve the young quarterback the team plucked out of Iowa State. In 2021, they traded three first-round picks to move up in the draft and select Trey Lance, an athletic but raw passer out of North Dakota State. Lance was tabbed as the future of the team.

It didn't pan out that way. And when a team commits so many resources to a single player who turns into a bust, it can set a franchise back for years. But it turned out Purdy was the exact insurance policy that the 49ers needed when they mortgaged their future for another player—and that investment went horribly awry.

Lance was a blue-chip stock that saw its value tank. Purdy was the rare penny stock that exploded.

As a rookie, Lance was beat out for the job by Jimmy Garoppolo, the quarterback who took the team to the Super Bowl after the 2019 season. Lance got the job last season, but was underwhelming before suffering a season-ending injury during his second game and giving way to Garoppolo. Then Garoppolo also got hurt.

Suddenly, the rookie taken with the 262nd pick in the draft was thrust into duty, and he defied even the rosiest expectations. Purdy came off the bench to replace Garoppolo and led San Francisco to a big win over the Dolphins. In his first start the next week, Purdy completely outplayed a former sixth-round pick named Tom Brady.

Purdy led the 49ers all the way to the NFC Championship without losing a single game, including two playoff wins, and when the Niners fell to the Eagles just shy of the Super Bowl he wasn't at fault. San Francisco's miserable run of luck continued when Purdy suffered an elbow injury, and then *his* back up got a concussion. Purdy had to return to the game essentially unable to throw the ball.

Purdy's crazy run of success combined with an injury that required elbow surgery left the 49ers with a dilemma they never expected to be on their hands. But instead of sticking with Lance simply because they once gave up so much to get him, the 49ers admitted he was a sunk cost before the season. Purdy was named the starter. And San Francisco recouped a pittance on its investment in Lance when it traded him to the Cowboys for a fourth-round pick.

Purdy has recovered from his elbow surgery and made that decision look brilliant. The 49ers are now 5-0, and he has dispelled any notion that he's a mere byproduct of coach Kyle Shanahan's offensive schemes.

"Brock's the real deal," Shanahan said in August.

Purdy's numbers are among the best in football, no matter the cost of the quarterback, but what makes Purdy unique is how little the Niners have to pay him in a sport where teams are constrained by a salary cap. Every rookie contract has a slotted value based on draft order, and Purdy getting taken last means he's not just an improbable story. It's why there's such a huge gap between his immense contributions and his tiny contract.

For comparison, the Jacksonville Jaguars' Trevor Lawrence was taken with the No. 1 overall pick in 2021, and his contract pays him an average of $9.2 million a year. That's far less than what he'd be worth on the open market. It's also about 10 times Purdy's average earnings.

Purdy's average money a year ranks 80th among 84 quarterbacks in the NFL, according to the salary-tracking website overthecap.com. Almost every kicker and punter earns more than him. Across the entire league, there are more than 1,500 players who make more money per season than the player who might win MVP.

The result is that the 49ers have about $40 million in cap space—the most in the NFL—giving them unmatched flexibility to make any deals before the league's trade deadline. And that doesn't go to waste if San Francisco doesn't use it: teams are allowed to roll over unused cap dollars into future seasons.

What's more is that the Niners couldn't pay Purdy more even if they wanted to. Clubs are prohibited from renegotiating or extending rookie contracts until after a player's third season.

So Purdy will continue to be absurdly cheap for all of this season—and next year, too.

The WSJ Daily Crossword | Edited by Mike Shenk

1	2	3	4	5	■	6	7	8	9	10	■	11	12	13
14					■	15					■	16		
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60			■	61								62	63	64
65			■	66					■	67				
68			■	69					■	70				

RISE UP! | By Mike Shenk

Across

1 With 3-Down, 2008 Meryl Streep film with a 2018 sequel
6 "The situation gives me no other choice"
11 Five-milliliter meas.
14 Canucks center Pettersson
15 Cost as much as
16 Manhattan component
17 Major nuisances
19 Columbarium vessel
20 Periods of economic growth after a slump
21 Bronze ingredient
22 Goddess who loved Endymion
25 Syn. of ant.
26 Cry of insight
27 ___-Magnon
28 Blasting stuff
30 Polo's goal
32 Three-time American League MVP
34 What a teacher may do with a note or a sick student
39 Amble
41 Scout's work
42 Cleansing process
43 Like rubies and sapphires
46 Big hauler
47 Puget Sound metropolis
48 Taste of tequila
50 Auction unit
51 Reserved
52 The Horned Frogs' sch.
55 Cowboys' place
57 Vacation rental
58 Alike
60 Copa Mundial de Fútbol cheer
61 Interpretation of a song
65 Mass., Mich., Miss., Mont. and more
66 Guiding lights
67 Blasting stuff
68 Shock absorber
69 Otter's kin
70 Early stage

Down

1 Not particularly interesting
2 Hoppy Happy Hour choice
3 See 1-Across
4 Abuela's daughter
5 Challenge for a mountaineer
6 "Dies ___"
7 Keyboard shortcut
8 Square
9 Increase, as an incline
10 Fling
11 "Actually..."
12 The Euphrates flows through it
13 Philadelphia founder
18 Patisserie fixtures
22 Prankster
23 Overthrow, say
24 Bad thing to pull
26 Arson evidence
29 Garr of "Tootsie"
31 Comment further
33 Go downhill
35 Top suit
36 Responsibility
37 Jason of "Fast X"
38 Leaves
40 ___ Kippur
44 Persian paws
45 Wasn't impartial
49 Hoffa's portrayer in "The Irishman"
51 Spicy bowlful
53 Hershey harvest
54 Once-time connector
56 Admit
57 Overthrow, or, if reparsed, a hint to making sense of four pairs of Across answers
58 Planetarium sights
59 Sci. school
62 "___ been swell!"
63 Load from a lode
64 Undoing word

Previous Puzzle's Solution

I	N	C	H	■	G	O	O	■	■	A	M	M	O	■
C	A	L	I	■	E	U	R	O	■	S	A	U	C	E
E	T	A	T	■	M	I	C	K	J	A	G	G	E	R
B	A	N	J	O	S	■	A	B	E	■	I	B	A	R
A	S	K	O	U	T	■	■	Y	E	A	■	O	N	O
T	H	E	B	R	O	T	H	E	R	S	F	O	U	R
H	A	D	■	■	N	E	E	■	■	E	L	K	S	■
■	■	■	B	R	E	X	I	T	D	A	Y	■	■	■
■	B	W	A	Y	■	■	N	A	N	■	■	A	P	E
J	E	R	M	A	I	N	E	J	A	C	K	S	O	N
A	R	A	■	N	A	Y	■	■	T	U	M	U	L	T
I	M	P	S	■	M	T	A	■	E	R	A	S	E	R
M	U	S	I	C	B	O	X	E	S	■	R	U	N	E
E	D	U	C	E	■	L	I	L	T	■	T	A	T	A
■	A	P	S	E	■	■	S	I	S	■	S	L	A	T

▶ Solve this puzzle online and discuss it at **WSJ.com/Puzzles.**

LIV Golf Takes a Major Hit In Push to Earn Ranking Points

By Andrew Beaton And Louise Radnofsky

LIV GOLF, the Saudi-backed upstart that divided the sport until reaching a stunning agreement with its establishment rival, received a crushing blow Tuesday when the body that doles out world ranking points said it would not accredit the new league.

The Official World Golf Ranking wrote in a letter to LIV executives that its board unanimously determined LIV wouldn't be recognized for ranking points "based on the cumulative weight of the deficiencies" in LIV's competitive structure the board found. While some issues could be accounted for mathematically, the letter said, other issues such as its lack of meritocracy in inviting new players onto the tour precluded its inclusion in OWGR.

LIV's format—an attempt to shake up the game by adding a team feature to its tournaments—turned out to be a liability in its bid to secure ranking points for individuals. The OWGR committee's letter said it "continues to be concerned about the implications of conducting individual and team competitions simultaneously."

"The decision to respectfully decline LIV's application at this time is not meant to discourage your efforts to innovate in men's professional golf and/or cause you to make changes you may not believe to be in the best interests of your tour and events," the letter from OWGR chairman Peter Dawson said.

OWGR's decision was first reported by the Associated Press.

LIV Golf assailed the ruling, noting its effect on major championships and sponsorship opportunities, while saying OWGR can no longer deliver on its objective of fairly ranking the best golfers in the world.

"Professional golf is now without a true or global scoring and ranking system," LIV said in a statement. "There is no benefit for fans or players from the lack of trust or clarity as long as the best player performances are not recognized."

The news comes months after the head-spinning June agreement in which LIV's Saudi backers, the PGA Tour and Europe's DP World Tour agreed to join forces after a year of battling on and off the course. As part of the deal, both sides also said they would drop their lawsuits against each other, in which the warring sides were battling over every part of the golf ecosystem, including vendors, players—and the OWGR.

Dustin Johnson has fallen from No. 13 in the world to No. 121.

JOHN SMOLEK/ZUMA PRESS

While the rankings are a handy measure for fans and pundits alike to compare the best golfers in the world, they're far more important for the players. Major championships use the world-ranking system as a primary method to decide who qualifies for the most prestigious tournaments. Players are also sometimes compensated by sponsors based on where they rank.

That had made the issue of securing OWGR points a crucial one for LIV since the inception of its challenge to the PGA Tour. In the wake of the merger between the PGA Tour and LIV's Saudi backers, the upstart league already faced a murky future, and the OWGR decision could put even more pressure on its fate.

People familiar with OWGR's criteria had previously told The Wall Street Journal that LIV's format was likely to generate concerns from the body. Its small fields of 48 players, competing in tournaments that are just 54 holes rather than 72, both fall short of OWGR's standards, the people said. LIV's lack of a cut also presented a potential issue, the people said.

LIV, though, had pointed to the OWGR's close ties with the golf establishment and argued that it was acting in their interests. And after LIV wooed some of the world's top golfers with millions of dollars in payments, its argument also boiled down to something simple: As long as LIV didn't receive accreditation, the rankings would simply be inaccurate and become an increasingly poor metric for measuring the world's best golfers.

That has increasingly become a reality. Dustin Johnson has tumbled from No. 13 in the world when he joined LIV to No. 121 currently. While some other big-name players such as Brooks Koepka, who won the 2023 PGA Championship, have managed to keep their ranking afloat through their performances in majors, most have plummeted.

OPINION

Killing Civilians: The New Normal

WONDER LAND
By Daniel Henninger

The most noted aspect of Hamas's attack on Israel is that its fighters on the ground explicitly targeted Israeli civilians for killing. Israelis were shot while driving along the street. They were pulled from their homes and killed. Hamas carried out the mass murder of some 260 people at the Tribe of Nova music festival.

The reaction of any normal person to these scenes, especially because the images are put on screens by the hour, is horror. President Biden called the Hamas attack "sheer evil." True. But that suggests an event falling outside our daily experience, a rarity. No longer.

The moment has arrived to recognize that for the adversaries of the free world, killing innocent civilians is the new normal.

Vladimir Putin, a purported friend of Israel, has said little, other than blaming a failure of U.S. policy in the Middle East. No surprise there. What Hamas did to the Israelis is what Mr. Putin has been doing to civilians in Ukraine for almost two years.

Since the February 2022 invasion, it is estimated that about 10,000 Ukrainian civilians have been killed. Russia has killed hundreds with missiles fired into residential areas of Ukrainian cities and towns. It has targeted schools, hospitals and food markets.

Just last week, a Russian rocket killed more than 50 people attending a funeral in the village of Hroza. The Russian siege of Mariupol last year killed thousands of civilians. Russia has shelled columns of refugees. One of the most infamous atrocities was the massacre of men, women and children by Russian soldiers in Bucha, north of Kyiv.

I want to emphasize: These civilian deaths—by Hamas in Israel and Russia in Ukraine—are not collateral damage from urban warfare. They are part of the war plan, thought out by calm men sitting around a table, in Moscow or Beirut, looking at maps and civilian targets.

In 2015 and into 2016, Mr. Putin—and Hezbollah—helped Syrian President Bashar al-Assad implement the siege of Aleppo in northern Syria, which also targeted schools and hospitals. Some 75% of the fatalities were civilians. Thousands were children.

On Monday, Israeli Prime Minister Benjamin Netanyahu likened Hamas's murders to the "atrocities of ISIS." The Islamic State perfected the targeting of innocent civilians during the Iraq war, such as the 2016 bombing that killed 200 people on a Baghdad shopping street.

Afghanistan's Taliban became synonymous with the killing of innocent civilians, culminating in the August 2021 bombing at Kabul's airport that killed dozens of civilians and 13 U.S. service members.

What few gains Mr. Putin made in eastern Ukraine were facilitated by Yevgeny Prigozhin's Wagner Group paramilitaries, including, as The Wall Street Journal reported, the atrocities against civilians in Bucha. The Wagner Group has been linked to hundreds of civilian killings in Mali and the Central African Republic.

Hamas and Hezbollah, whatever their ideological underpinnings, are now essentially Iran's own Wagner Group. Killing Israelis is what they do, for money.

It is affecting to note there are—or were—international rules, most prominently the Geneva Conventions, against the acts described in this grim catalog (to which add China and the Uyghurs). Such acts are called war crimes or crimes against humanity.

For Hamas in Israel and Putin in Ukraine, killing the innocent is now part of the plan.

That is increasingly unenforced parchment paper. Crimes against humanity are becoming normalized.

Again, consider Ukraine. After two years, a numbness about Mr. Putin's civilian atrocities has set in. So much so that some House Republicans, including speaker candidate Jim Jordan, and at least one GOP presidential candidate, Vivek Ramaswamy, are open to defunding Ukraine. Gov. Ron DeSantis is ambivalent.

The standard argument against more funding for Ukraine is that there is "no plan." Israel has a plan: Defeat Hamas. How about this plan for Ukraine: Defeat Russia.

Some, aware of the Ukraine example, are asking how long this week's outpouring of support for Israel will last. Good question. The Hamas-Iranian strategy may be to drive the Israel Defense Forces to enter Gaza's dense neighborhoods, ensuring the death of Israeli soldiers from roadside bombs, killing local civilians as well, and, as planned, eroding the world's morale.

Another question for the we're-done-with-the-world wing of the Republican Party is how many Americans would they leave on the other side. Hostage-taking, along with civilian killings, is now established in our adversaries' playbook.

Hamas is holding more than 100 people hostage, including an uncounted number of Americans. Hamas's paymaster and planner, Iran, just exchanged five American hostages for $6 billion. Mr. Putin, who has abducted hundreds of Ukrainian children into reeducation camps inside Russia, is holding Journal reporter Evan Gershkovich and former Marine Paul Whelan.

Our adversaries—Russia, Iran, China and North Korea—will continue the mass killing of civilians and hostage-taking as a strategic policy until the U.S. decisively counters this awful new normal.

That means funding a credible U.S. military deterrent and ensuring that the Israelis and Ukrainians have the means to defeat uncivilized enemies. The likely alternative is another lapse into pre-9/11 complacency. The cost of that, this week has proved again, is too high.

Write henninger@wsj.com.

Biden Has Abandoned Border Towns

By Karl Rove

Tom Perez and Kathy Hochul have each other on speed dial. He directs the White House Office of Intergovernmental Relations and is a former Democratic National Committee chairman; she is New York's governor.

Politico reports they were brought together while "coordinating responses" to the influx of migrants New York has received since spring 2022. Mr. Perez said that Ms. Hochul is "working her tail off." In response, she said "frequent conversations and his engagement" have "made a huge difference."

Good for them. Yet far to the southwest, GOP Rep. Tony Gonzales is still waiting for the White House to phone local officials in Texas' 23rd Congressional District. The epicenter of the border crisis, it runs 823 miles along the Rio Grande, two-thirds of the Texas-Mexico border.

Bigger than Pennsylvania, the district contains most of the El Paso Border Patrol sector, all of the Big Bend and Del Rio sectors, and part of the Laredo sector. Of fiscal 2023's 1,827,133 encounters—detentions of migrants for crossing the border illegally—so far, 790,734 occurred in those four sectors. That doesn't yet count September's encounters, and the total is on pace to be the largest in history.

Mr. Gonzales sees the financial and human cost in the communities along the border. Mayors and county officials complain about migrant housing, food and transportation needs. Law-enforcement officers talk about crimes committed by "getaways"—migrants who elude the Border Patrol. Community groups have exhausted their resources trying to meet ever-increasing demands for social services. Local hospitals are stuck with bills for care they've provided migrants dumped in emergency rooms. In Eagle Pass, Texas, there's one small hospital with 101 beds. It gets hit with $100,000 a month in uncompensated migrant care that the federal government won't reimburse.

Intrigued by reports of Mr. Perez's New York outreach, Mr. Gonzales checked to see if the White House was calling mayors, sheriffs or county judges (the top executives in Texas counties) in his district. Most are Democrats. "They haven't heard a word from Perez," Mr. Golzales told me, "though they're on the border and local resources have been depleted while cities thousands of miles away from the frontline of the crisis are getting attention from the White House." It feels to Mr. Gonzales as if "Texas is being punished for this administration's policy failures."

Douglas Nicholls, mayor of Yuma, Ariz., once received calls from Mr. Perez's predecessor as White House director of intergovernmental affairs, Julie Chávez Rodríguez. A granddaughter of Cesar Chávez and a native of Yuma, she at least paid attention to that part of the border. But since she left to run President Biden's re-election, crickets. Yuma, population 99,246, had 168,269 encounters between Oct. 1, 2022, and Aug. 31, 2023, and its resources are stretched. Its only hospital had $26 million in uncompensated migrant services between November 2021 and December 2022, and the burden is growing.

New York and Chicago get federal help. Eagle Pass, Texas, and Yuma, Ariz., don't.

Compare the challenges faced by big Northern cities with those of Southwestern border towns. Since spring 2022, New York City, with a population of 8.3 million, has received 118,000 migrants. Chicago, population 2.6 million, accepted around 15,000. The mayors of both cities and their states' governors have complained bitterly about the burden this imposes.

Eagle Pass and Del Rio, Texas, combined population 63,433, saw 347,572 migrant encounters in the first 11 months of fiscal 2023, and no White House officials are working them like Mr. Perez is working New York and Illinois.

But Mr. Biden and his party are paying a political price for their indifference and ineptitude. A June 11 Pew Research poll found only 23% of Americans say the government deals with the border well while 47% believe illegal immigration is a very big problem. A Sept. 19 NBC News poll found voters believe the GOP handles immigration better than Democrats by 45% to 27%.

Mr. Gonzales argues that securing the border and restoring confidence starts with asylum reform. Those seeking asylum should have to prove they're eligible and didn't come through a safe third country, or else face swift deportation.

Sen. John Cornyn (R., Texas) would also end "catch and release." In December 2020, the Border Patrol released into the U.S. 17 migrants who didn't make asylum claims. Last December, it released 140,355. Detaining and quickly removing illegal aliens would discourage others from coming.

This is a serious political problem for Mr. Biden that a few more miles of border wall won't solve. The president needs to ignore his party's open-border wing and negotiate in good faith with Republicans on reforms in this year's Homeland Security budget if he wants a chance at regaining voters' trust on immigration—let alone helping those Southwestern border towns bearing the brunt of the crisis. Local leaders there are increasingly angry about the administration's indifference to their plight. They want action.

Mr. Rove helped organize the political-action committee American Crossroads and is author of "The Triumph of William McKinley" (Simon & Schuster, 2015).

This Isn't Israel's 9/11. It's Dunkirk

By Ashley Rindsberg

A metaphor quickly emerged after Hamas's barbarous attack casting it as Israel's 9/11. That's the day we will look back on, dividing the before and after times. This misses the mark. Oct. 7 is our Dunkirk—the decisive start of a massive and prolonged war of survival, the beginning of a historic test whose outcome is still uncertain.

The reason the 9/11 metaphor falls down is simple: Israel isn't America. The attack on the twin towers and Pentagon was isolated in time. In response, the U.S. had total freedom to maneuver. It could have simply sat out the fight. The establishment of the Department of Homeland Security, a sustained chain of operations abroad and some internal soul-searching would have produced an acceptable result from a national-security standpoint.

Israel has no such luxury. Neither in geography nor in time can the country take a wait-and-watch approach.

The Jewish state's position is far more perilous than that of the U.S. in 2001.

With jihadists marauding through southern Israel as if we had been vaulted back to the Middle Ages, and with 130,000 Lebanese rockets trained on Israeli population centers, we are in the fight of our lives.

That's why Dunkirk is the more precise parallel. Britain understood that getting its soldiers home was a life-and-death matter, not only for them but for the country. Without a serviceable fighting force, Britain couldn't have fought the Nazi machine.

So too with Israel. In 2001, the U.S. faced a loose network of terror groups. In 2023, Israel faces an entrenched axis of state and statelike powers that spans Hamas, Russia, Turkey and Qatar but swings on the fulcrum of Iran—not a group of ruthless jihadists hiding in caves, but a genocidal ideology that, like Nazi Germany itself, sees the extinction of Jewish power, of Jews themselves, as its messianic mission.

As with Dunkirk, if we have any hope of fighting the enemy in the long term, it will require rallying on a national level. As in 1940, Israel can rely only on itself. The Biden administration's calamitous commitment to the Iran deal and Barack Obama's attempt to restructure the Mideast may take precedence over any need of America's closest ally.

As an Israel Defense Forces spokesman recently said, the "paradigm has shifted." The range of IDF tactics will widen beyond what the U.S. administration has considered acceptable. Any attempts to corral Israel into a strategically flawed cease-fire will be rebuffed. Israel is in a new world. That world is Israel's alone. We shall go on to the end.

Mr. Rindsberg is author, most recently, of "The Gray Lady Winked."

BOOKSHELF | By Matthew Rees

Young at Heart, If Not Otherwise

The Big 100: The New World of Super-Aging

By William J. Kole
(Diversion, 304 pages, $28.99)

If Joe Biden wins re-election next year, he will be 86 at the end of his second term. His age, alongside his miscues and mishaps, has prompted a few Republicans to recommend mental-competency tests for presidential candidates. But it's not a partisan issue. More than two-thirds of Democrats say President Biden may be too old to serve again.

In fact, a lot of us are getting old. Most notably, the vast baby-boomer cohort is moving into its sunset years. In 2034, the U.S. will have more people over 65 than under 17. Meanwhile, emerging medical technologies are showing ever more potential to extend life spans. A Stanford study says that half of today's American 5-year-olds can expect to reach age 100.

THE BIG 100
THE NEW WORLD OF SUPER-AGING
WILLIAM J. KOLE

So "The Big 100" comes not a moment too soon. William J. Kole, a veteran journalist, explores various aspects of the graying of America, including age-based discrimination, the challenges of dementia and loneliness, the shortage of elder care and the gerontocracy's presence at the highest levels of government: Think not just of Mr. Biden but of Nancy Pelosi (83), Chuck Grassley (90), Bernie Sanders (82) and Mitch McConnell (81). Though Mr. Kole jokingly refers to his survey as a "geezer's guide to the galaxy," he promises to address "what we must do now to ensure our longer lives will truly be worth living."

He begins with an overview of America's life-expectancy trends, a topic that has had a pleasing trajectory until recently. He notes that the average age of death in 1900 was just 47; the leading causes of death, at the time, were pneumonia, tuberculosis and (yes) diarrhea. Thanks to chlorinated drinking water and medical breakthroughs—especially antibiotics—life expectancy steadily increased in the first half of the 20th century. Today it's 76, though it has declined in the past few years, mostly because of the toxic trinity of Covid, opioids and obesity. There are about 60 nations where people live longer than in the U.S., including several countries with much lower per capita incomes, from Costa Rica to Thailand.

Why do some people live longer than others? Mr. Kole cites studies showing that only 25% of longevity is driven by genetics. Good dietary habits and plenty of exercise will help get you to 90, but genes take over after that. Men with a sibling who has reached 100 are 17 times more likely to become centenarians themselves. (For women, the figure is eight times.) Of the medical realms in which life-extending treatments seem most promising, Mr. Kole cites genetic sequencing, gene therapy and immunotherapy. He also mentions the potential of liquid biopsies, which involve analyzing blood for evidence of DNA fragments from cancer cells—a test that contributes to early detection. For developing countries, he thinks that a new vaccine for malaria holds out great promise. (Malaria killed 619,000 people in 2021.)

But much of "The Big 100" has to do with the social challenges of old age. Consider Alzheimer's, which affects more than six million Americans today (and is projected to affect more than 12 million by 2060). So far there is no treatment for it, which means that family members must devote themselves to nearly full-time assistance or hire professional caregivers. For many, the emotional cost is high—and the financial one, too. The annual cost of assisted living or nursing-home care can be $100,000 or more. Government help is limited—there are strict criteria for what Medicare will cover. Mr. Kole thinks we need to liberalize our immigration laws to address the scarcity of caretakers. Japan, where life expectancy is about 85, has been trying to get around this problem by relying on robots in assisted-living facilities.

The oldest living person credits her longevity to good connections to family and friends—also to 'staying away from toxic people.'

Other aspects of old age are less dire than Alzheimer's but nonetheless troublesome. As friends and spouses die off, Mr. Kole reminds us, there is a danger of loneliness. He cites a study showing that prolonged isolation affects life span—the equivalent of smoking 15 cigarettes a day. The oldsters he talks to, including those who have reached the "big 100," emphasize the value of staying active, maintaining friendships and helping others. The oldest living person today is 116. She has said her longevity is a product of "order, tranquility, good connection with family and friends" and "staying away from toxic people." Mr. Kole writes about Jeanne Calment, a French woman who lived to be 122. Upon turning 120, she said: "I see badly, I hear badly, I can't feel anything, but everything's fine." So a positive attitude seems to help.

Mr. Kole puts forward some familiar ideas for making long lives more prosperous and fulfilling. He believes that current Social Security payouts are too low, and he'd like to see a more robust federal law prohibiting age discrimination. He points to a World Health Organization analysis showing that artificial intelligence favors the young over the old when it is used to vet job candidates. He also cites statistics showing that most age-discrimination complaints are not pursued by the Equal Employment Opportunity Commission, and when cases do go to court, fewer than 10% are settled in favor of the plaintiffs.

More interesting is a study of seven nations in Europe showing that younger heads of state result in higher economic growth rates, since aging leaders tend to cling to the status quo and miss the opportunities presented by new technologies. That's one more reason for apprehension about a presidential election that would—if (for the moment) we assume that Mr. Biden will run for re-election and that Donald Trump will be the Republican nominee—pit an 81-year-old against a 78-year-old. Maybe a competency test for candidates isn't a bad idea after all.

Mr. Rees is the founder of Geonomica, a ghostwriting firm, and editor of the Food and Health Facts newsletter.

OPINION

REVIEW & OUTLOOK

Biden Faces an Iran Reckoning

President Biden on Tuesday showed appropriate outrage at the wanton slaughter by Hamas this weekend, and his pledge of support for Israel is welcome. But there was a crucial word missing from his remarks at the White House: Iran. Tehran is Hamas's terror master, and its assault on Israel exposes the failure of his Iran strategy.

Tehran looms behind Hamas's atrocities and Hezbollah's next move.

The Journal has reported that Iran gave the approval for Hamas's bloody assault at an Oct. 2 meeting in Beirut. Iran's Supreme Leader Ali Khamenei has denied it, and the U.S. is saying it has no "specific evidence" of Iran's assent. But Iran has long been the chief benefactor of Hamas and Islamic Jihad in Gaza, as well as Hezbollah in Lebanon and Shiite militias in Iraq and Yemen. All have praised the Hamas assault, as has Mr. Khamenei.

This is what Iran sends Hamas guns and money to do. Hamas killed at least 22 Americans in the attack at last count, and others are now captives. Mr. Biden has a duty to get them home and avenge those deaths.

It's implausible that Hamas would have struck without Iran's approval, knowing Israel's response would be devastating. One question is whether the massacres were part of a deliberate strategy to court such a response. An Israeli ground assault could be the excuse for Hezbollah to open a second front in Israel's north.

Hezbollah receives an estimated $700 million a year from Iran, and its missile stockpile runs to 100,000 or more with greater accuracy than rockets fired from Gaza. They could target most of Israel. A Hezbollah attack would also require Iran's approval.

Mr. Biden on Tuesday warned unnamed countries not to take advantage of the war in Gaza, and his deployment of a carrier strike group to the Eastern Mediterranean is a useful show of support for Israel. But the question is whether Iran will believe this attempt at deterrence after Mr. Biden's behavior over the past three years.

* * *

It's worth recalling how hard Mr. Biden has tried to accommodate the mullahs in Tehran. Upon taking office, his Administration ended Donald Trump's "maximum pressure" campaign. It relaxed enforcement of sanctions on Iran's oil sales, which has been worth tens of billions. It also dispatched Iranian sympathizer, Robert Malley, to renegotiate the 2015 nuclear deal. (Mr. Malley has since been sidelined for unexplained reasons that may be related to security concerns.)

Iran has refused these entreaties. The latest "understanding," before the Hamas invasion, was that Iran would slow or stall its uranium enrichment for a bomb while the U.S. would let Iran have billions of dollars held by Iraq and South Korea. This included the $6 billion that was part of the trade for five Americans held as hostages by Iran.

Mr. Biden has also failed to respond aggressively when Iran's proxies have attacked Americans. Under questioning from Sen. Tom Cotton, Defense Secretary Lloyd Austin said Iran or its proxies have launched 83 attacks on Americans since Mr. Biden took office, but the U.S. has responded militarily only four times.

One goal of all this seems to have been to avoid any confrontation with Iran through the 2024 election. But Iran has clearly interpreted it as a sign of U.S. weakness. The Hamas assault should finally convince Mr. Biden that Iran has no intention of abiding by his timetable. It will order its proxies to strike when it serves its purposes and sees a vulnerability.

Iran's current purpose may be to blow up the emerging rapprochement between Israel and Saudi Arabia—at a moment when the U.S. is also assisting Ukraine against Russia. Iran is run by a revolutionary regime that wants to destroy Israel and dominate the region. It wants a "Shiite crescent" of power from the Persian Gulf to the Mediterranean.

* * *

The question now is whether Mr. Biden will adapt to this reality and drop his appeasement strategy. He can start by blocking the transfer of the $6 billion and return to maximum pressure. He may also soon face a decision on whether to assist Israel militarily if Hezbollah opens a second front in the north.

Israel can defeat both adversaries, but at great cost. If Israel's new unity government, which was announced Wednesday, requests U.S. help from the air or otherwise, Mr. Biden would be wise to grant it. Iran and the world will detect further American weakness if he won't help a steadfast ally. Sen. Lindsey Graham has proposed that the U.S. bomb Iranian oil facilities, and Iran has to know that its military sites, nuclear program and oil fields aren't off-limits if it escalates its war against Israel.

The history of another Democratic President is instructive. For three years, Jimmy Carter sought detente with the Soviet Union. But the Soviets sensed weakness and promoted revolution around the world. When they invaded Afghanistan, Mr. Carter recognized reality and began a defense buildup that laid the groundwork for the Reagan rearmament.

President Biden now faces a similar reckoning with Iran. For three years he has tried to appease Tehran into taming its revolutionary ambitions. That hope has exploded with the Iran-backed slaughter of more than 1,000 Israelis and Americans. Can Mr. Biden make a Carter-like pivot back to reality? His legacy may depend on it.

Hamas Explains How They Did It

The leaders of Hamas are delighted by their murderous handiwork, and in a remarkable interview on Sunday a senior Hamas official explained how they did it.

"In the past couple of years, Hamas has adopted a 'rational' approach. It did not go into any war, and did not join the Islamic Jihad in its recent battle," Ali Baraka said in an interview that ran on Russia Today and was translated by Memri. "We made them think that Hamas was busy with governing Gaza, and that it wanted to focus on the 2.5 million Palestinians there, and has abandoned the resistance altogether. All the while, under the table, Hamas was preparing for this big attack."

There you have it. Hamas presented the illusion that it cared about Palestinians in order to dupe Israel into putting its guard down. Then it pursued its main ambition, which is to kill as many Jews as possible.

Ali Baraka also said that Hamas has a license from Russia to produce Kalashnikov bullets and that Russia is sympathetic to Hamas and likes the war with Israel because it complicates U.S. aid for Ukraine. Oh, and Hamas will insist on a prisoner swap of American hostages for Hamas fighters in U.S. jails. When your enemies tell you that they want to kill you, believe them.

Exxon's Pioneer Shale Play

Is Exxon Mobil CEO Darren Woods seeking protection from President Biden? On Wednesday the oil and gas giant struck a $59.5 billion deal to buy Pioneer Natural Resources. The way to read the deal is as a bet on U.S. shale fracking and hedge against the left's anti-fossil fuels policies.

The oil and gas giant protects itself from Biden leasing rules.

The acquisition is a response to higher interest rates that are raising the cost of capital for smaller producers, as well as to a hostile regulatory environment making it more difficult to explore and develop new resources. It would make Exxon the biggest player in the rich Permian shale basin that spans Texas and New Mexico.

Wildcatters pioneered hydraulic shale fracturing, aka fracking, and horizontal drilling some two decades ago. Many failed or sold out to larger producers when oil prices plunged in the middle of the last decade and again during the pandemic. Now rising interest rates are making it more expensive to drill, which is encouraging more consolidation.

Pioneer holds prized assets in the Permian, which Exxon says complement its own. By combining they will be able to drill longer, more productive horizontal wells while reducing the need to acquire new leases and permits. Exxon says the deal will let it drill laterals up to four miles long, resulting in fewer wells and a smaller environmental impact.

The merger would more than double Exxon's current Permian production and nearly quadruple it by 2027 to two million barrels of oil equivalent a day, which is more than half of its current worldwide production. Exxon is making a huge bet on U.S. shale despite its forays into biofuels and carbon capture that are heavily subsidized by the Inflation Reduction Act (IRA).

The Permian is among the lowest cost drilling regions in the world and can turn a profit even with oil at $35 a barrel. Unlike conventional resources that take decades to develop and pay off, shale yields a quick return on investment. The Pioneer tie-up makes Exxon less vulnerable to government policies aimed at reducing long-term supply and demand.

In response to criticism of its climate policies, the Biden Administration has been pointing out that U.S. oil production is set to surpass pre-pandemic levels this year. But Canada achieved this milestone last year, and U.S. output has been increasing mainly because producers are running down their inventory of drilled but uncompleted wells.

Since January 2020, the number of such wells has dropped to 830 from 3,330 in the Permian. The Administration continues to slow-walk new drilling permits and leases, which increases the incentive for producers to grow by acquisition. How ironic that Mr. Biden's climate policies create an incentive for big players to get bigger.

The Interior Department last month released its statutorily mandated five-year offshore leasing plan, more than a year late. It included a mere three auctions through 2029—the least necessary to comply with the IRA. Since 1992 no five-year plan has offered fewer than 11 lease sales. Any wonder that Exxon has been investing heavily off Guyana?

As Mr. Woods has noted, the world will need fossil fuels for many decades. It's better for U.S. workers and the economy if production happens at home rather than overseas.

LETTERS TO THE EDITOR

Heritage and the Truth on the War in Ukraine

Kate Bachelder Odell quotes Heritage Foundation President Kevin Roberts's claim that "We have to take care of our interests at home before spending any more money on Ukraine" ("What Time Is It at the Heritage Foundation?" op-ed, Oct. 6).

In 1960, 49% of federal budget outlays were dedicated to defense. By fiscal 2023, defense spending had fallen to 13% of the budget and nearly 70% was dedicated to entitlements. Total aid to Ukraine to date—military and humanitarian—represents about 1% of the federal budget.

Is the Heritage Foundation really trying to claim that aid to Ukraine to resist a Russian takeover of their country is threatening our domestic programs? Ukraine's governance has its flaws, as does ours, but resisting totalitarian domination of struggling democracies eventually won the Cold War. What will remain of American leadership and credibility if we, once again, abandon allies under siege?

Peter Coffey
Madison, Conn.

The Heritage Foundation's weak position on support for Ukraine is appalling. Those failing to support Ukraine don't seem to comprehend the essential nature of this war. It is only superficially about Russia restoring its Soviet boundaries.

It is really about whether a ruthless dictator with a nuclear weapon is free to take whatever he wants, or to do whatever he wants without limit.

Every tyrant and dictator is looking on and understanding that if you have a nuclear weapon, you can do whatever you want to do, "annex" whatever country you covet. If Vladimir Putin's forces aren't completely expelled from Ukraine, the price will be much, much higher. The nuclear-armed dictators in China, North Korea, Iran and elsewhere are watching and waiting.

Eric Levenson
Los Altos, Calif.

I have a suggestion for ending the war in Ukraine. Let's get the North Atlantic Treaty Organization countries together with the Russians someplace in Europe—maybe Munich. The Ukrainians need not attend. I'll bet if we give the Russians not only Ukraine, but also the Czech Republic and Slovakia, the war would be over. It worked well once, why not again?

Lt. Col. Alex Dade, USAF (Ret.)
Bay Village, Ohio

It's surprising to see "Reagan's think tank" have such a depressed view of America's prospects.

Those of us who served in Germany sitting on the Fulda Gap, waiting for the Russians to come across, find it absolutely splendid that other people are fighting the Russians instead of us. I suggest Mr. Roberts look to the words of Ronald Reagan: "We win. They lose."

Mitchell R. Miller
Beverly Hills, Calif.

Gaetz Echoed Concerns of Many Angry Voters

Daniel Henninger writes that the rebel Republican faction will hurt election results in 2024 ("A Sellout for Nothing," Wonder Land, Oct. 5). I wonder if that's true. The Republican base and I believe the majority of voters are angry with the government's handling of the debt.

That Florida Rep. Matt Gaetz would echo those feelings won't suppress voter turnout; apathy from not being heard extinguishes voter enthusiasm. A pragmatic Republican is a Democrat lite. Maybe we want someone who speaks to what is right and necessary like the border and the debt.

Gerard Fischer
Naples, Fla.

Will Rogers once famously said "I am not a member of any organized political party—I am a Democrat." Millions of Republicans must share that sentiment today. We approach another election where all indicators—an administration failing at every level and an electorate believing we are heading in the wrong direction—would predict a sweeping victory at the polls for the Republican Party.

It's not to be. A handful of amateurs masquerading as patriots have crippled the House Republicans and their chance to expand or even keep the majority.

Jim Barber
Mesa, Ariz.

The Right Should Oppose All Automobiles

The right shouldn't follow Joseph C. Sternberg's advice to rally around the car as a culture-war totem ("The Culture War Is Coming for Your Car," Political Economics, Oct. 6). Building a car-dependent society was a mistake.

To someone who believes in free markets, driving a state-subsidized vehicle on roads planned, constructed and financed by the state isn't freedom from government interference. Vehicles permit people to go where the state has deemed it appropriate for them to go, so long as they pay for fuel, insurance, maintenance, registration and tolls.

How does the current state of affairs convey more freedom than a state-provided public-transportation network, with the first and final legs of a trip done by cycling or walking?

For the conservative, car dependency conserves nothing of value. We have all experienced the desolate, soulless stretches of big-box stores surrounded by seas of asphalt. These places repel us because they aren't built for people, they are built for cars. They don't foster community. Conservatives should be preserving traditional, walkable communities.

Mr. Sternberg writes that driving brings "the freedom of cheap mobility." But forcing people to buy cars by building vehicle infrastructure and depriving them of other mobility options doesn't make people more free, and it certainly isn't cheap.

The right can make the conservative case for walkable communities, woven with public transit and cycling infrastructure or it can delude itself into thinking that car dependency helps someone other than auto and gas companies.

Alexander Dragone
Woodcliff Lake, N.J.

I was fascinated by Mr. Sternberg's reframing of the electric-car debate in the context of the culture wars. The one thing that was missing was the demographic differences between the drivers of electric versus carbon-emitting vehicles. My guess is that Tesla drivers are far richer and whiter than gas-powered-car drivers. This issue could also be framed in the context of class warfare.

James Azeltine
Leawood, Kan.

The Newsom-DeSantis Tilt Could Backfire on the GOP

Your editorial suggests that the Nov. 30 debate between Gavin Newsom and Ron DeSantis moderated by Sean Hannity on Fox News will be a forum to pin down Mr. Newsom on issues, but that could backfire ("Who's Afraid of California Voters?" Oct. 7). Mr, Newsom has spun the veteran Mr. Hannity pretty handily in recent interviews.

Newsom-DeSantis reminds one of the 1960 debates between Richard Nixon and John F. Kennedy. Radio listeners thought Nixon won on the facts but TV viewers gave it to Kennedy based largely on charisma.

Mr. DeSantis risks boosting undeclared candidate Mr. Newsom's profile through this unnecessary debate and could lose his spot as top competitor to Donald Trump. The suave Mr. Newsom might propel himself to compete with the aging President Biden and show himself as a vibrant alternative to Mr. Trump. Mr. DeSantis and the Republicans have much to lose and little to gain in this debate.

Bill Doyle
Atlanta

Letters intended for publication should be emailed to wsj.ltrs@wsj.com. Please include your city, state and telephone number. All letters are subject to editing, and unpublished letters cannot be acknowledged.

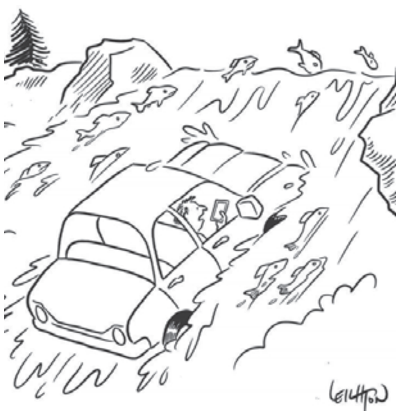
What Backs the U.S. Dollar?

Barton Swaim complains about a "currency backed by nothing," referring to cryptocurrency ("Crypto and the Smart Set," Bookshelf, Oct. 6). How does that description differ from our government's money?

Robert Hellam
Seaside, Calif.

Pepper ... And Salt

THE WALL STREET JOURNAL



"Hang on, I had the mapping program set to 'spawn'."

The Moral Duty to Destroy Hamas

By Walter E. Block
And Alan G. Futerman

A mob of Islamist Arabs incited by Jew-hatred entered the town and killed as many Jews as they could find. They went door to door, broke into the homes of their victims, and slaughtered innocent men, women and children. These gangs raped, mutilated and tortured them while screaming "Kill the Jews!"

That was 94 years ago, on Saturday, Aug. 24, 1929, in Hebron. The picture is essentially the same, only that then the Arab riots that included this massacre ended with 133 Jews murdered. This time, it is several times as many, and we don't know the final figure.

Israel is entitled to do whatever it takes to uproot this evil, depraved culture that resides next to it.

Given that the events are virtually the same, the question is: Why? There was no state of Israel in 1929. There were no "occupied" territories, no "settlers." There was no "blockade." No security fence, no checkpoints, nothing. If the excuses of today's murderers did not exist at that time, what did exist? A deep, maniacal, murderous and utterly destructive hatred of Jews—the same essential factor operating today, to which all other excuses are subservient.

It has been the policy of the state of Israel not to show what its enemies do to its citizens. That both kept the victims' dignity and prevented the demoralization of Israelis. But it also avoided letting the world see clearly what kind of threat Israelis were dealing with. What kind of true evil they are fighting against. Now that is clear. The videos showing mass murder; the kidnapping of children, elderly and women; the storming of a music festival to shoot and kill whatever person they could find; and the stories of rape, execution and utter destruction are there for the world to see.

A desecrated synagogue in Hebron, Palestine, 1929.
GETTY IMAGES

These images and videos were propagated by the assassins themselves. They use them to show their strength and prove Israeli weakness. To demonstrate to the Palestinian Arab population that the Jews can be killed like flies. What does it say of a society that these monsters think this type of "propaganda" is a "good" way to mobilize the population? It screams of a deeply perverse and murderous culture, in love with death and destruction. It is the same culture that teaches toddlers to hate. The same society that pays wages to mass murderers and celebrates on the streets with sweets and shootings when Jews get killed. It is the culture that creates the types of monsters capable of the evil they themselves proudly show to the world through social media.

"From the river to the sea, Palestine will be free!" chant the useful idiots at elite institutions and parades in the West. Who are these people? Atheists who support theocratic lunatics, democrats who endorse medieval tyrants, feminists who defend misogynists who parade with the desecrated corpses of women, gays who defend maniacs who would joyfully hang them or toss them off the roof of a tall building. They talk of a secular, democratic and socialist Palestine. As George Orwell observed: "One has to belong to the intelligentsia to believe things like that: no ordinary man could be such a fool." But the world has now seen what "from the river to the sea" actually means. It is nothing less than a remake of the Nazi *Einsatzgruppen*.

Israel expelled its own population from Gaza in 2005 so that Palestinian Arabs could begin building their own state. They instead chose Hamas. The enemies of Israel aren't in favor of a Palestinian state. They aren't in favor of anything positive, but only of a negative: the denial of life, especially of Jewish life. The goal is genocide. The method is mass murder of the type Jews haven't experienced since the Holocaust.

Hence, the West needs to understand that to defend human life and dignity, it isn't enough to claim to side with Israel. It needs to understand what this means: total, unrestrictive support. That is nothing less than allowing this beleaguered country to defend itself fully. To recognize that Hamas needs to be destroyed for the same reason and by the same method that the Nazis were. Israel is entitled to do whatever it takes to uproot this evil residing next to it. And, more important, that once it begins to proceed in that direction, it won't be demonized for defending that which is the core of Western civilization and which its enemies hate the most: the love of everyone's right to human life, dignity and happiness.

In other words, it needs to support a complete, total and decisive Israeli victory. If this implies an overwhelming, unprecedented use of military force, so be it. Hamas is and will be responsible for any civilian casualties. Cause and effect. They created their own destruction, and its consequences.

Mere victory isn't enough. Israel has won every war it has ever fought. This time, the triumph must be so thorough and conclusive that there will never be any other war for this country. Israel has a moral right to finish the job, and the West has a moral duty to support it. Let Israel do what it must to finish this war in the fastest way possible, with the minimum civilian and military casualties on its side. The consequences of this lie on the group that initiated the causal sequence—the one that must be completely destroyed, Hamas.

Messrs. Block and Futerman are the co-authors of "The Classical Liberal Case for Israel."

India's Left Equivocates About Hamas's Atrocities

EAST IS EAST
By Sadanand Dhume

As the world recoils from the horrors Hamas has inflicted on Israel, India's left-of-center opposition Congress Party offers a valuable lesson in how not to respond to Islamist terrorism. The party's de facto leader, Rahul Gandhi, apparently hopes to win Muslim votes by ignoring Hamas atrocities, but this transparent identity politics will likely backfire by alienating moderates who expect their government to take terrorism seriously. For the West, where public discourse has grown more tolerant of reflexive Israel-bashing over the past two decades, it's a cautionary tale.

On Saturday, as news of the attacks became known, Prime Minister Narendra Modi of the ruling Bharatiya Janata Party took to Twitter with an unambiguous response: "Deeply shocked by the news of terrorist attacks in Israel. Our thoughts and prayers are with the innocent victims and their families. We stand in solidarity with Israel at this difficult hour."

In contrast, it took Congress more than 24 hours to respond to the crisis. Jairam Ramesh, a member of Parliament in charge of party communications, tweeted that Congress "condemns the brutal attacks on the people of Israel," and that it had "always believed that the legitimate aspirations of the Palestinian people for a life of self-respect, equality and dignity must be fulfilled only through a process of dialogue and negotiations while ensuring the legitimate national security interests of the Israeli people."

A day later, the party appeared to backtrack. A statement from Congress Monday didn't mention Israel at all. Instead, the party reiterated "its long-standing support for the rights of the Palestinian people to land, self-government and to live with dignity and respect." As of Wednesday morning, Mr. Gandhi hadn't said a word about the conflict.

Chalk up some of Congress's equivocating to its stubborn tendency to view Israel through a postcolonial ideological prism in which Palestinians are always the oppressed indigenous people and Israelis forever settler colonists. This dogmatic position dates back to Mr. Gandhi's ancestors—great-grandfather Jawaharlal Nehru, grandmother Indira Gandhi and father Rajiv Gandhi—who between them ruled India for almost four decades after independence in 1947. India established full diplomatic relations with Israel only in 1992, during an interregnum when the Nehru-Gandhi dynasty had lost control of Congress.

The Congress Party's weak response to the attacks on Israel reflects an outdated postcolonial mind-set.

An anachronistic postcolonial prism ignores one of the most significant political developments of the past 50 years: the rise of Islamism, a totalitarian ideology based on Shariah. Hamas, which has ruled Gaza since 2007, grew out of the Muslim Brotherhood, the world's most influential Islamist group. But in its worldview and its actions Hamas most closely resembles another bloodthirsty Islamist militia—Islamic State. Fashionable leftist activists may not get this, but ordinary people can see it plainly in the images of casually machine-gunned civilians and captured Israeli women paraded like chattel in the streets of Gaza.

Mr. Gandhi may also think that giving Hamas's atrocities a pass could help Congress in next year's national elections. Indian Muslims constitute roughly 14% of the country's population. Without their support, Congress can't dislodge Mr. Modi's BJP, which has held power since 2014. Mr. Gandhi himself represents a parliamentary constituency in the southern state of Kerala with a large Muslim population.

But even viewed in crude electoral terms, Congress's response was self-defeating. Most Indians have no sympathy for Islamic terrorism, which has claimed thousands of lives in India over the past three decades. The Hamas operation was also eerily similar to the 2008 Mumbai attacks, which remain fresh in Indian minds. In both cases, terrorists used a neighboring land to launch a surprise assault on civilians going about their daily lives. In both cases, the dead and wounded included people of many nationalities. In both, the terrorists caught security forces by surprise, and the carnage played out on television screens over days.

Nor will Congress's stance help Indian Muslims. After leading his party to two consecutive drubbings in national elections, Mr. Gandhi is trying to reinvent himself as a mass politician who seeks to open "a shop of love," in contrast to the BJP's sometimes hateful rhetoric toward Indian Muslims and Christians. Pandering to violent extremists undercuts Mr. Gandhi's otherwise laudable defense of religious minorities and insults moderate Indian Muslims who have no sympathy for Hamas or other Islamists.

The West should take heed, too. Since 9/11, Western governments have successfully limited mass-casualty terrorist attacks, but apologists for Islamism have developed an expanding presence in Western legislatures, universities, media and city streets. Twenty years ago, it would have been hard to imagine a crowd outside the Sydney Opera House chanting "gas the Jews" or more than 30 Harvard student groups holding Israel "entirely responsible" for Hamas atrocities. Nowadays, Western voters regularly elect Israel-baiting politicians like Britain's Jeremy Corbyn or America's Rashida Tlaib and Ilhan Omar.

The Congress Party's weakness offers a simple lesson: The fight for liberal democracy can't be led effectively by those who lack a moral compass.

Repeal the 1974 Budget Law That Fuels the Shutdown Cycle

By Ron Johnson
And Mike Gallagher

Total federal government spending was $4.4 trillion in fiscal 2019. Four years later, in 2023, Washington spent about $6.4 trillion. The federal debt has surpassed $33 trillion, and the deficit for 2023 alone approached $2 trillion. Federal spending, deficits and debt are out of control, as is the dysfunctional appropriations process that facilitates spending.

Congress rarely passes spending legislation on time, according to Pew Research Center. Since 1974, Congress has passed all of its required appropriations bills only four times: in 1977, 1989, 1995 and 1997.

Government shutdowns have happened five times since 1995, and congressional sessions routinely operate under the shadow of a potential shutdown. Lawmakers regularly pass one or more continuing resolutions to keep the government open, buying themselves time to pass an omnibus spending bill—a package usually enacted quickly and without the scrutiny it deserves. That's a recipe for excessive spending.

Deficits increase, adding to the debt. The federal government grows larger and less accountable. Congress grows weaker and less competent, eroding the checks and balances fundamental to our constitutional republic. As last week's chaos in the House shows, in such a system members of Congress also grow less loyal to the institution and more willing to destroy norms.

The solution is to rein in the federal government's size, but until the appropriations process is under control, that will be impossible.

In 1974 lawmakers passed the Congressional Budget Control and Impoundment Act to bring order to the annual appropriations process. As we approach its 50th anniversary, it's clear that the law has failed to bring order. It's time to repeal and replace it rather than continuing this destructive cycle.

Some members of Congress and two joint select committees, in 1993 and 2018, have proposed different ideas for how to replace the act. Some ideas enjoy bipartisan support; others face resistance. The first idea is to end the annual ritual of threatened government shutdowns. In Wisconsin, if legislative dysfunction precludes the funding of state government or agencies, we don't shut them down; we keep operating them at last year's spending levels until appropriations are passed. What could be more common-sense? Members of Congress have introduced proposals to end federal government shutdowns forever. It's past time to pass one of those bills.

A second idea is to move to biennial budgeting. We often hear the excuse that there isn't enough time to pass all 12 annual appropriations bills one at a time. But many states use a two-year budget cycle. Congress each year could pass bills that provide two years of funding for six appropriations accounts while conducting oversight of the previous year's spending on the other six accounts. This would give lawmakers time to pass bills individually and allow greater scrutiny of each account. By aligning the federal government's fiscal year to the calendar year—it currently starts Oct. 1—Congress would have three more months to pass the appropriations bills.

The act promotes runaway spending and debt and induces lawmakers to erode political norms.

The third idea is to consolidate committee jurisdiction. When several committees claim jurisdiction over the same federal departments, agencies and legislation, it creates overlap and congressional dysfunction. This would be challenging to fix because entrenched committee chairmen would likely oppose anything that reduced their power. But aligning the full standing committees to functions and departments within the executive branch would be a major improvement over the status quo. We should also consider dissolving appropriations committees and transferring their duties to subcommittees under the properly aligned authorizing committees. Each full committee should also have an adequately staffed oversight subcommittee.

Other reforms are worth considering, such as requiring zero-based budgeting (requiring agencies to justify all expenditures), establishing a sunset commission to recommend eliminating duplicative or obsolete programs, and removing the requirement that the U.S. president start the process with a budget proposal.

We should, however, retain portions of the 1974 Congressional Budget Act. For example, budget points of order can act as speed bumps to slow runaway spending.

The appropriations process for fiscal 2024 is already a mess. Rep. Matt Gaetz and seven other Republicans used it as an excuse to remove the House speaker. We hope that House Republicans can quickly come together and elect a new speaker who will have the entire conference's support. But changing who sits in the speaker's chair matters less than changing the process by which Congress conducts oversight and appropriates money to the executive branch. By committing to repeal and replace the Congressional Budget Act, Republican lawmakers can avoid further chaos while providing a path to future fiscal sanity.

Messrs. Johnson and Gallagher, Wisconsin Republicans, serve in the U.S. Senate and House, respectively.

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Notable & Quotable: Guns

From an Oct. 11 report in the Jerusalem Post:

The National Security Ministry said Wednesday that it has received over 7,946 new requests to carry arms since fighting with Hamas began in Israel's South this Saturday.

Over 545 permits for personal handguns have been processed, with 970 new licenses being issued overall. . . . "Every city resident will be able to get an armament license," National Security Minister Itamar Ben-Gvir said this morning at the Sderot police station. "We are facing operation Guardian of the Walls 2, so we will be ensuring that we are prepared, with guns on every street corner," he added. . . .

The terms for obtaining gun permits have been eased considerably following recent events. According to the ministry's updated conditions, any Israeli citizen interested in obtaining a permit, either for self-defense or because they are serving in the IDF, will be entitled to a gun license, provided that they have medical approval, police approval, and passed the exams for carrying private firearms.

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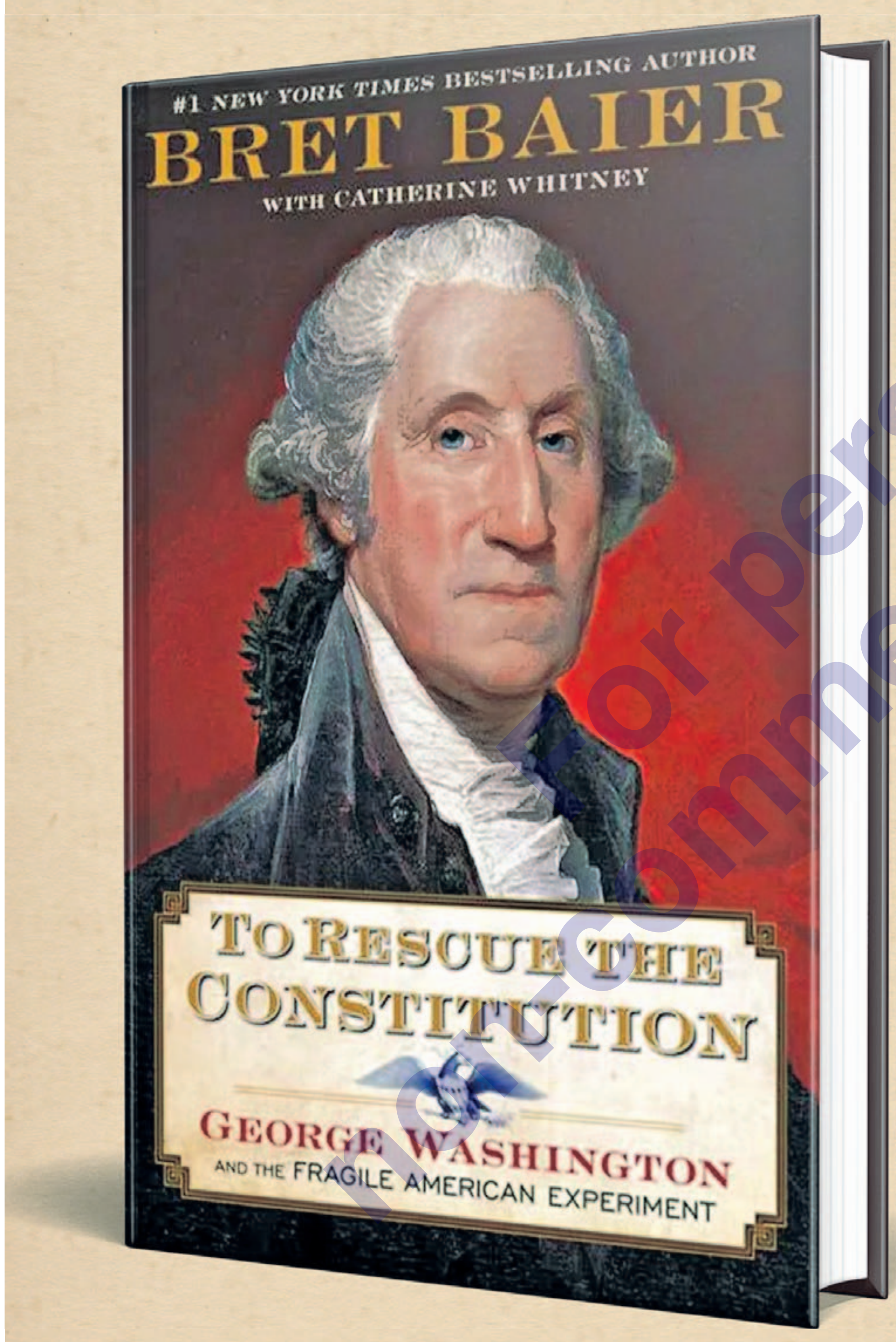
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Birkenstock Shares Fall in Debut

Decline is an ominous sign for market for initial public offerings

By Corrie Driebusch

RICHARD DREW/ASSOCIATED PRESS

The company had argued it deserved to be valued in line with premium shoe lines.

Birkenstock shares declined in their stock-market debut on Wednesday, a potential blow to an IPO market that was just showing signs of recovery.

Stock in the shoe maker closed at $40.20, down 13% from its offering price of $46.

It is rare for large companies, especially well-known brands such as Birkenstock, to sink on their first day of trading.

Birkenstock's offering met some pushback on its roadshow to pitch investors on the deal. Some stock analysts and fund managers said they saw the valuation the company aimed for as rich against the backdrop of a choppy stock market and questions about the health of the U.S. consumer.

The company and its private-equity owner, **L Catterton**, argued that Birkenstock deserved to be valued in line with premium brands such as Nike, according to people familiar with the matter. They settled on an IPO price around the middle of expectations that values Birkenstock, at about $8.6 billion.

Three buzzy IPOs last month all priced their offerings at the high end or above expectations, and their stocks all initially rose. British chip-designer Arm and marketing-automation company Klaviyo currently trade above their IPO prices; grocery-delivery company Instacart closed down roughly 17% from its IPO price on Wednesday.

How a company trades in the days, weeks and months after its IPO is critical. Many of the 2020 and 2021 class of IPOs trade below their initial prices, meaning funds that bought stock in those deals are potentially sitting on losses. Those investors will be wary of buying more new stock, which put a damper on the new-issue market for more than a year before it began to show signs of recovery this summer. (The allure of alternatives to stocks like high-interest bonds and money-market funds also hasn't helped.)

In recent weeks, IPO advisers emphasized that they believe the market is open for large companies with proven results, but a high-profile flop like this could discourage others considering late-2023 offerings. While the majority of companies preparing IPOs are looking to wait until 2024, some are considering late 2023. Among them: healthcare-payment software firm Waystar.

About $19 billion has been raised by traditional IPOs in the U.S. so far this year, a third of which came from Arm, Klaviyo and Instacart. Last year, traditional IPOs in the U.S. raised just $8.6 billion compared with more than $150 billion in 2021 and $85 billion in 2020.

Goldman To Unload Specialty Lender at Steep Loss

Goldman Sachs has agreed to sell specialty lender GreenSky to a group of investors, a major step in what has become a costly retreat from the Wall Street bank's grand ambitions to serve the masses.

By AnnaMaria Andriotis, Laura Cooper and Peter Rudegeair

Goldman said it would sell the business to a group led by **Sixth Street** that also includes private-investment firm **KKR**, **Bayview Asset Management** and credit-card company **CardWorks**. Bond giant **Pacific Investment Management** is buying a large portion of existing GreenSky loan balances. **CPP Investments** is providing strategic financing.

GreenSky will continue to originate loans that are mostly geared toward consumers making home renovations.

Goldman bought GreenSky just last year for about $1.7 billion and is selling at a fraction of that. While Goldman didn't disclose the purchase price, people familiar with the matter say it equates to something in the neighborhood of $500 million.

The Wall Street Journal previously reported that the Sixth Street group was poised to prevail in an auction of the business.

The purchase of GreenSky was a centerpiece of Goldman Chief Executive David Solomon's bid to make the firm a bigger competitor in consumer lending and a "banking platform of the future," as he told the Journal in 2021.

But soon after it bought GreenSky, amid internal concerns about its consumer strategy and the money being spent on it, Goldman decided to pull back on consumer lending. Goldman is trying to figure out whether to unload its credit-card partnerships with **Apple** and **General Motors**, which would essentially complete its exit from consumer lending. Goldman remains committed to taking consumer deposits.

A chunk of Goldman's consumer-lending business, including GreenSky and credit

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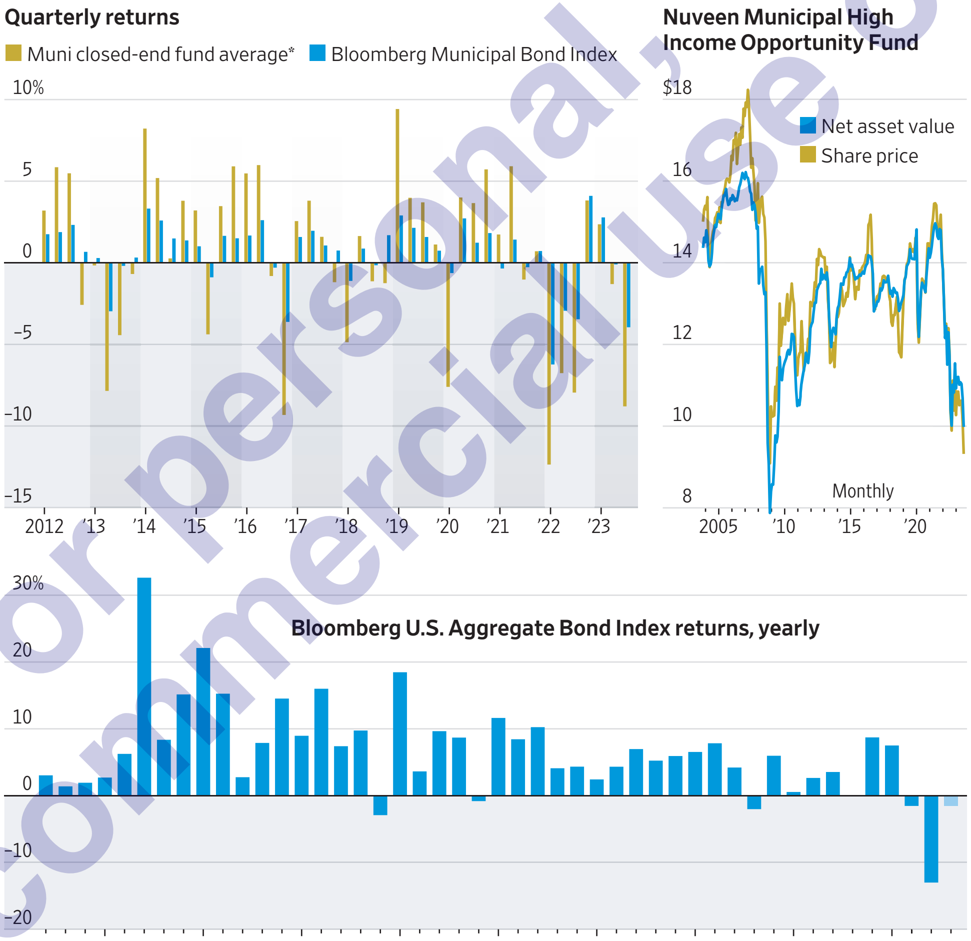
Highly Leveraged Closed-End Muni Funds Take Big Hit

By Heather Gillers

The historic bond rout has hit leveraged muni funds particularly hard, pushing share prices to near 2008 lows and often driving those prices below the value of the underlying assets.



*Closed-end fund returns are based on share price. †As of Oct. 10

Sources: Morningstar Direct (closed-end funds); FactSet (Bloomberg Municipal Bond Index, U.S. Aggregate Bond Index returns); Nuveen (Nuveen Municipal High Income Opportunity Fund)

Some municipal-bond funds are suffering their worst stretch since the 2008-09 financial crisis, an acute example of how two years of rising interest rates have slammed investors' portfolios.

Closed-end municipal-bond funds have been particularly hard hit because they often use borrowed money to invest in fixed-rate, long-term bonds sold by state and local governments. The leverage helps boost the returns from debt that is ultrasafe but pays relatively little interest.

That worked for much of the past decade until rates started rising. Now, short-term borrowing is becoming more expensive, while the market value of older, lower-yielding bonds in the mutual funds is falling.

The structure of these funds is also working against them. Unlike with traditional, open-end mutual funds, closed-end-fund investors can't easily cash out their shares, and managers can't sell additional shares. Instead, investors trade closed-end funds shares between themselves. Managers therefore generally have little cash to add newer, higher-yielding bonds that would make the funds more appealing to today's investors.

"Munis have this double whammy," said Sangeeta Marfatia, senior closed-end fund strategist at UBS. "Their borrowing costs have gone up, their underlying bonds have gone down, and the combination of that is what's crushing them."

Fallout from higher rates has hit stocks, home purchases and capital investment by big companies. Before last year, bond prices had never declined for two years in a row in the history of the

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Postpandemic Boom Ebbs for Budget Airlines

By Alison Sider

Americans' appetite for travel is in question after nearly two years of bingeing on flights.

Consumers' pent-up desire to take trips has driven a post-pandemic resurgence—known as "revenge travel"—that propelled some airlines to sales and profit records. Now some budget airlines say they are having to slash fares to keep seats full.

"You've got fuel, capacity and demand all headed in the wrong direction," **Frontier Airlines** Chief Executive Barry Biffle said during an industry conference last month. "We're kind of the canary in the coal mine."

Other airlines see the good times continuing. **United Airlines** and **Delta Air Lines**, which cater to premium and international travelers, say higher costs will dent profits, but demand isn't slowing.

"We have not seen any dramatic change in the bookings," said Mike Leskinen, who took over as United Airlines' chief

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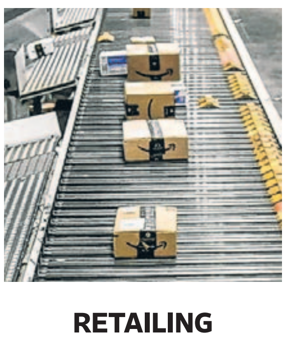

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SEONGJOON CHO/BLOOMBERG NEWS

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Samsung posts sequential improvement in sales, profit. **B4**

Disney Boosts Prices at Its Theme Parks

By Jacob Passy and Will Feuer

BRYAN R. SMITH/AGENCE FRANCE-PRESSE/GETTY IMAGES

Florida's Walt Disney World lifted the price of annual passes.

Walt Disney is raising prices at its theme parks as the entertainment conglomerate looks to make more money from its parks division amid softness in its linear TV business and challenges in its shift to streaming.

At the company's Disneyland park in California, prices for the lowest-tier single-day ticket remains $104. On the most popular days, though, Disneyland is raising prices by more than 8% from the current price of $179 to $194. For a five-day ticket, Disneyland raised prices by nearly 16% to $480.

The park also raised the price of various add-ons. Disneyland's Genie+ product, which gives customers access to shorter lines, will now cost $30 a person, up by $5. For five-day tickets, the price for Park Hopper, which lets customers go between Disneyland and Disney California Adventure Park on the same day, rose by 25% to $75.

Disneyland also raised the price for parking and other products, including its Magic Key annual passes.

Walt Disney World in Florida separately raised the price of parking and annual passes, though the price for date-based passes hasn't changed.

The diversity and degree of Disney's increases are a sign of how the entertainment giant is trying to carefully calibrate prices to maximize profits while not alienating fans.

Some families have said the costs of attending Disney parks have become prohibitively expensive, and attendance at Disney World thinned this summer. Still, Disney has logged strong demand for annual passes to its domestic theme parks, with many tiers of the passes selling out within days.

"We are constantly adding new, innovative attractions

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Crypto Remains Untamed After FTX Collapse

By Dave Michaels

The collapse of crypto exchange FTX wiped out millions of its customers' crypto holdings and turned its billionaire founder into a pariah now facing criminal fraud charges in New York.

But the fall of Sam Bankman-Fried and his Bahamas-based exchange, which at its peak held more than $10 billion in customer deposits, hasn't fundamentally changed how crypto works or is regulated. The sector is still the Wild West of finance.

Terrorists and money launderers use cryptocurrencies to cover their tracks. Hackers frequently find ways to steal digital coins. Worldwide trading is still concentrated in a huge offshore exchange, Binance, which has been accused of some of the same risky practices as FTX.

Although it roiled the crypto world, FTX's collapse didn't alter the legal and regulatory landscape. Unlike past crises that spurred U.S. lawmakers into action, this one has legislators divided over how, and even whether, to address crypto markets.

Instead, regulators have pursued a piecemeal enforcement campaign designed to impose Wall Street's rules on

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Boom Ebbs For Budget Airlines

Continued from page B1

financial officer in September, speaking at the same event last month. As for the challenges described by budget airlines, "we're scratching our heads."

Airlines are due to start reporting financial results for the third quarter of the year this week, beginning with Delta on Thursday.

Delta President Glen Hauenstein said in September that demand for seats on the airline's planes has remained solid through the fall, led by its high-end seats, for which customers are increasingly willing to pay up.

The airline is planning its biggest-ever trans-Atlantic expansion next summer, betting that travel abroad will remain strong, and it has said it is encouraged by returning business travel.

Still, Delta last month cut its quarterly profit projections to a range of $1.85 to $2.05 a share from $2.20 to $2.50 a share because of a run-up in fuel prices and other rising costs.

Rising inflation and interest rates have economists concerned about consumers' spending capacity. Airline shares have been battered as investors fret over the combined threat of waning demand and rising costs. An NYSE index of airline stocks has fallen over 33% in the past three months.

Consumers' wallets have remained open, according to the most recent government data. Spending continued to grow in August, albeit at a slower pace than the previous month, with gains in spending on air travel. Passenger volumes at U.S. airports remain higher than they were in 2019, according to Transportation Security Administration data.

But travelers spurned domestic destinations in favor of international trips this summer, a shift that caught some domestic-focused budget airlines off guard. The result has been an oversupply of airline seats within the U.S., analysts said.

"It's not like demand has fallen off a cliff," TD Cowen analyst Helane Becker said. "It's just that fares have come down a lot because so much capacity came into the domestic U.S. market."

At the same time, cost-conscious customers who opt to fly budget airlines have borne the brunt of the impact of inflation and resumption of student-loan payments, Becker said.

Spirit Airlines said last month that it had seen "steep discounting" for travel booked through the pre-Thanksgiving period. Biffle, the Frontier CEO, said the airline had recently had some big booking days, but that required charging very low prices. He said Frontier would focus on simplifying its business and bringing costs down to remain competitive.

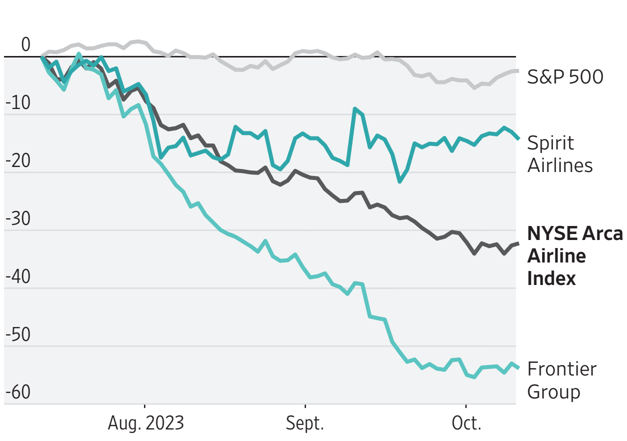
The price for domestic travel fell 26% from June to September, according to booking app Hopper—a bigger drop-off than the 18% price difference during the same period in 2019, but less than last year's price decline.

Airlines with more luxurious seating options have said they aren't seeing indications that fliers are tightening their belts, with sales in premium cabins continuing to outpace coach.

The emerging gap between the major airlines and the budget carriers is a change from previous dynamics, when discounters seized on the chance to grow rapidly and grab market share after a downturn, said Raymond James analyst Savanthi Syth.

Unlike last year, when people continued to travel well into September and October, bookings are returning to more typical prepandemic patterns, including the post-summer slump for leisure trips, she said.

Share and index performace over the past three months



Source: FactSet

Ellison Dreaded FTX Collapse

By James Fanelli
And Vicky Ge Huang

Caroline Ellison, a former close associate of FTX founder Sam Bankman-Fried, called the final days of the crypto exchange the "worst week of my life," tearfully telling a federal jury Wednesday that she had dreaded the public learning of the lies she told to cover up the theft of billions of dollars.

Ellison, the former chief executive of FTX's sister hedge fund, Alameda Research, was testifying for a second day in Bankman-Fried's fraud trial. She spent much of the time detailing how she worked with Bankman-Fried to secretly siphon funds from the exchange's customers to cover Almeda's risky investments and pay back loans. She also lied to lenders to mask Alameda's precarious finances, she said.

In early November, a news report about a leaked Alameda balance sheet sparked a run on customer funds at FTX. The exchange could only cover a fraction of the withdrawals, Ellison said, ultimately leading to FTX filing for bankruptcy protection.

"I was terrified," Ellison said. "This is what I had been worried about the past several months and it was finally happening."

Ellison, who dated Bankman-Fried on and off over two years, is the star witness for federal prosecutors. She is one of three members of his inner circle who are cooperating with the government and previously pleaded guilty to fraud and other offenses.

STEPHANIE KEITH/BLOOMBERG NEWS

Caroline Ellison arrives to testify Wednesday in fraud trial.

Bankman-Fried has denied wrongdoing. His lawyers have said he acted in good faith in building FTX and that prosecutors have wrongfully characterized him as a villain.

To attract customers to FTX, Bankman-Fried cultivated an image "as a smart, competent, somewhat eccentric founder" who dressed sloppily, didn't comb his hair and drove a Toyota Corolla rather than a luxury car, Ellison said. "He said he thought his hair had been very valuable," she said.

Bankman-Fried was equally concerned with building FTX's brand as a safe and secure place for customers to trade by promoting the exchange on Twitter and in media interviews, Ellison said.

"I thought it was an inaccurate image," she said, adding that FTX never disclosed Alameda's ability to use customer funds.

Internally, Bankman-Fried was concerned about how employees communicated with one another, Ellison said. She and other employees were instructed to be mindful of what they put in writing out of fear it could lead to legal trouble, she told jurors.

Bankman-Fried urged them to not write anything on Slack unless they were comfortable seeing it on the front page of the New York Times, Ellison said. He also encouraged employees to communicate in encrypted-messaging apps that automatically deleted chats, she said

Bankman-Fried loomed large over FTX and Ellison, who started working at Alameda in 2018. First she was a trader but was eventually promoted to co-CEO of Alameda in the summer of 2021.

Ellison previously testified that Bankman-Fried stepped down as chief executive of Alameda to distance himself from the hedge fund while he ran FTX. She still reported directly to him and followed his instructions, she said.

Their romantic relationship complicated matters, especially when Bankman-Fried criticized her work. "It made me feel bad and made me feel like sort of an unequal partner in our relationship," she said. The two would swap Google Docs to share their feelings.

Professionally, Ellison also took pains to address Bankman-Fried's concerns, even keeping a list that she titled "Things Sam Is Freaking Out About."

The list included Bankman-Fried's desire to get Alameda to hedge its risks more and to push regulators to crack down on rival crypto exchange Binance in hopes of increasing FTX's market share.

In the fall of 2022, Alameda sought to hedge a downturn in crypto by selling several billion dollars worth of Nasdaq futures and put up $2 billion of FTX customer money as collateral, Ellison testified.

When Ellison started at Alameda, she never imagined doctoring a balance sheet, she said. For Bankman-Fried, it was different, according to Ellison. He viewed himself as a utilitarian who wasn't bothered by lying or stealing so long as what he did created the greatest good for the greatest number of people, she testified. The longer she worked with him, though, the more willing she was to lie and steal as well, she said.

"Over time it was something I became more comfortable with," she said.

Ellison will spend a third day on the stand Thursday, when she will be grilled by Bankman-Fried's lawyers.

Crypto Remains Untamed

Continued from page B1

crypto—a move the biggest crypto exchanges, such as Binance, are fighting in court.

The upshot is that another FTX could happen and investors could be the losers again.

"Of course it could happen again, because there is nothing to stop it," said John Reed Stark, a former enforcement official at the Securities and Exchange Commission.

Some of the challenge with regulating crypto stems from its global nature. The biggest exchanges are offshore, and Americans still find ways to trade on them. Almost 20% of Binance's customers were in the U.S. in 2020, despite the exchange's not being eligible to serve traders here, according to regulatory lawsuits.

FTX and Binance both started in Asia and hopped from one country to another to stay ahead of regulatory clampdowns. FTX eventually landed in a crypto haven, the Bahamas, that didn't effectively regulate it. Binance says it has no headquarters.

Another possible reason FTX hasn't led to more action? For all the hype around it, crypto is still small—with a global market capitalization of about $1 trillion—compared with mainstream markets and the financial system. So while individual investors are often at risk, the sector hasn't so far posed a systemic danger.

While bitcoin's price has risen since last year, venture capitalists have reined in their support since FTX's downfall. U.S. banks don't fund crypto, limiting its consumer reach and the knock-on effects of market turmoil.

The potential risks to individual investors, though, are behind efforts by the SEC to bring the sector to heel. Another FTX could happen because crypto's basic business model is rife with conflicts of interest, SEC Chair Gary Gensler said.

MATIAS J. OCNER/MIAMI HERALD/GETTY IMAGES

In 2021, the Miami Heat renamed their site FTX Arena. It is now known as the Kaseya Center.

"There is a lot of interconnectedness, centralization and leverage in the system, and noncompliance," Gensler said. "It's a recipe for more investors to get harmed going forward."

FTX was forced into bankruptcy after users learned some of their funds were misused and rushed to pull crypto from the exchange's digital vault. The stampede revealed a multibillion-dollar shortfall and revelations that Bankman-Fried's hedge fund, Alameda Research, had siphoned off billions in FTX customer funds for other investments.

Bankman-Fried's former top lieutenants testified against him last week in court. He has been charged with wire fraud, conspiracy to commit securities fraud, money laundering and other violations.

The red flags that played a role in FTX's demise are still present at other exchanges. Binance, like FTX, has affiliated trading firms that traded with customers on the platform, including on Binance's American outpost—known as Binance.US—according to the SEC's lawsuit against the firm.

FTX wasn't the only big ship to sink in 2022. A number of crypto-lending companies grew quickly and imploded just as fast when borrowers defaulted on loans or they were taken down by their deep connections to FTX.

Binance also stores its customers' assets and, according to the SEC, kept them in an account controlled by one of its affiliated trading firms.

On Wall Street, brokerages that safeguard investors' assets must follow rules requiring that they keep them separate from the firm's own.

Binance says it shouldn't be confused with FTX. The exchange can account for all user assets and the company can meet withdrawal requests, it said in a statement. The company doesn't have any debt and has a diverse base of trading firms that support 24/7 trading, it said.

The SEC and other U.S. regulators have filed lawsuits asking American courts to impose federal investor protections on Binance and the biggest American-based exchange, **Coinbase**.

The companies are fighting the complaints in court, arguing the SEC doesn't have jurisdiction over their activity.

But litigation is a slow-moving way to impose change on a market. Another problem: The SEC could lose in court. So far, it has a good record in crypto litigation, but a federal judge in July dismissed part of the agency's lawsuit over one of the biggest cryptocurrencies, a token known as XRP.

Meanwhile, Congress is divided over what, if anything, to do. Republicans tend to favor legislation that would impose customized rules on crypto. But top Democrats are content letting the SEC and other regulators police the system, said Ian Katz, a policy analyst at Capital Alpha Partners.

"If they really felt like there were more Main Street mom-and-pop types getting hurt, there would be more of a drive to get something done," Katz said.

Qantas Chairman, 2 Directors to Step Down

By Mike Cherney

SYDNEY—Australia's biggest airline, **Qantas Airways**, said Chairman Richard Goyder and other board members would step down as the company seeks to repair its battered reputation among customers.

Qantas said Goyder will retire before the shareholder meeting in late 2024. Board members Jacqueline Hey and Maxine Brenner will retire at the airline's half-year result in February.

The airline said the plans for board renewal are in recognition of the reputational issues facing the group. The airline's brand took a hit after regulators alleged it had been dishonest with customers and lawmakers criticized its pricey airfares. Its longtime chief executive, Alan Joyce, recently stepped down early.

The airline said once new directors are in place, the board is expected to have an average tenure of around three years, providing a balance of fresh leadership with continuity. Hey and Brenner have been on the board for about 10 years, Qantas said.

"As a board, we acknowledge the significant reputational and customer service issues facing the group and recognize that accountability is required to restore trust," Goyder said.

He added that orderly succession at the board level would support work by new CEO Vanessa Hudson.

Qantas previously announced that board member Michael L'Estrange would retire at this year's shareholder meeting in November. It said that three new directors, including Hudson, Doug Parker and Heather Smith, as well as two existing directors, Todd Sampson and Belinda Hutchinson, would offer themselves for election at the meeting.

The airline said it has initiated a process to appoint new directors in the months ahead, as well as a new chairman.

STEPHANIE KEITH/BLOOMBERG NEWS

The company faces an apparent drop in average spending per order by Prime members.

Amazon to Steer Users To 'Buy Again' Option

By Sebastian Herrera

Amazon.com has tested a new feature on its app meant to coax users into more repeat purchases, one of several steps the tech giant is taking to squeeze more revenue out of its existing customers.

The company has tested a "Buy Again" feed and featured it in a tab on the most prized real estate on the home page of its app. The tab uses a customer's order history to make recommendations, including in categories such as groceries or electronics.

"Buy Again" has been used in recent weeks on a variety of accounts tracked by market-intelligence firm Watchful Technologies. Amazon, which has seen less growth in its Prime memberships in recent years and less spending from its users, is seeking to drive customers toward more regular purchases or steer them toward subscription-based ordering through a feature called "Subscribe & Save."

> The tab uses a customer's order history to recommend purchases.

Analysts have estimated that after years of fast growth, sign-ups for Prime memberships have slowed. Customers as a whole also appear to be spending less per order. Average annual spending from Prime members decreased from about $1,400 in 2018 to $1,100 last year, according to research firm Consumer Intelligence Research Partners. The spending amount for non-Prime members also fell during the same period, decreasing from an average of roughly $600 a year to $500 a year. Amazon said Prime membership continues to grow year over year.

Amazon has tried different ways to get customers to reorder items they have purchased in the past. Its Alexa assistant, for example, notifies some customers of potential order options based on order history. In addition to boosting revenue from existing users, making the subscription service more prominent could be another way to further entrench Amazon into users' lives, said Daniel Buchuk, a researcher at Watchful Technologies, which analyzes Amazon's testing practices.

"In the current climate when people have less disposable income, the question becomes, 'How do we increase revenue?'" Buchuk said. "We all have a purchase history with Amazon that is really useful to [the company]. And those subscriptions that can reoccur, that's a trend not just for Amazon but for companies as a whole."

It is unclear if Amazon will make the tab available to all customers, or how it may change it before launching. The company said that customers "have many options for where they shop every day, and that is why we are always innovating to help make their lives easier."

It also remains to be seen how much Amazon could hone the recommendation tool, since some items on the site may not ever convert into something customers would buy on a repeated basis.

The company this week is hosting its "Prime Big Deal Days," a sales event following its "Prime Day" sales event during the summer.

A buy-again and subscription option is available on Amazon's website but doesn't often appear to have top billing. Most customers can access similar information on the app but have to pass through multiple steps to reach the section. The tests Amazon has conducted move the "Buy Again" option to a prominent place in the app with a dedicated feed of products customers have previously purchased. It could include search-and-filter options, as well as a "Discover" section where customers could receive personalized recommendations for products they may want to buy, analysts said. In tests, the tab's icon has appeared as an arrow encircling a check mark.

Amazon often takes steps to remind customers of its strengths in fast shipping and item availability, said Josh Lowitz, a partner and co-founder at Consumer Intelligence Research Partners.

Customers in recent years have reported more dissatisfaction with their experiences with Amazon on issues such as advertisements and product quality, The Wall Street Journal previously reported. The company has been recovering from a postpandemic slowdown in e-commerce. Chief Executive Andy Jassy has looked to rein in costs while finding new revenue streams.

It is unclear how much revenue Amazon would gain if it broadly launched the new tab. About 60% of Amazon's traffic in August came through its app versus its website, according to an estimate by data firm Comscore.

Amazon has made other changes to its app in the past year. In 2022, it launched a new tab on its app named Inspire that shows a TikTok-style feed of shoppable products to customers. The tab relies on creators to upload videos and pictures that appear as a seemingly endless stream of content.

The company has made recent changes to the Inspire tab to allow customers to upload content themselves and added a "share" button to the feature. Amazon last year launched Inspire during the holiday-shopping period, its most important sales period of the year and when it looks to increase engagement with customers.

Auto Workers Add Ford's Biggest Factory to Strike

By Nora Eckert

The United Auto Workers union went on strike at a **Ford Motor** pickup-truck plant in Kentucky Wednesday evening, escalating its nearly four-week labor action by hitting the automaker's largest factory.

The plant's 8,700 workers walked off the job at 6:30 p.m., marking the largest strike action taken by the UAW at any of the three Detroit automakers since the union declared a strike against Ford, **General Motors** and Chrysler parent **Stellantis** in mid-September.

The Louisville, Ky., factory makes Super Duty pickup trucks and the Ford Expedition and Lincoln Navigator large SUVs, among the company's biggest moneymakers.

"It's time for a fair contract at Ford and the rest of the Big Three," UAW President Shawn Fain said. "If they can't understand that after four weeks, the 8,700 workers shutting down this extremely profitable plant will help them understand it."

Ford said: "The decision by the UAW to call a strike at Ford's Kentucky Truck Plant is grossly irresponsible but unsurprising given the union leadership's stated strategy."

Ford said a work stoppage at the plant would have significant consequences for the company, its workers and suppliers, potentially leading to ripple-effect layoffs at other facilities. The vehicles produced at the plant generate $25 billion a year in revenue, the company said.

The strike at the Kentucky factory leaves more than 33,000 of the Detroit automakers' 146,000 unionized workers in the U.S. on strike across six assembly plants and dozens of parts-distribution centers.

Ford faces walkouts at an assembly plant near Detroit, which produces the Bronco SUV and Ranger pickup, as well as its Chicago factory, where workers build the Explorer and Lincoln Aviator.

Sticking points in the talks, which have been going on since July, include wage hikes, retirement benefits and the status of nearly a dozen future battery factories under development by each company.

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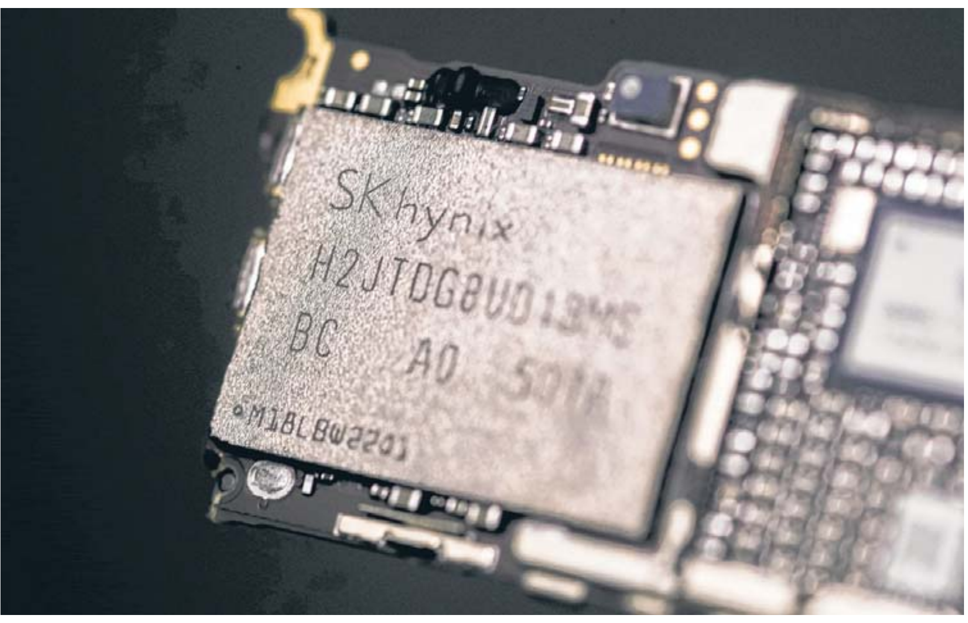
U.S., in Chip War with China, Extends Breaks for Asian Allies

Samsung, SK Hynix and TSMC can keep operating in nation but hurdles remain

The U.S. has informed three major Asian chip makers that they can maintain their current operations in China for the foreseeable future, though significant tech upgrades would prove difficult.

*By **Jiyoung Sohn** in Seoul and **Yang Jie** in Tokyo*


BRENT LEWIN/BLOOMBERG NEWS

The restrictions particularly spooked Samsung Electronics and SK Hynix.

The Biden administration levied major restrictions on China's semiconductor industry a year ago, aiming to curtail Beijing's military advances in advanced technologies. The effort particularly spooked South Korea's **Samsung Electronics** and **SK Hynix**, which dominate in memory chips, as well as **Taiwan Semiconductor Manufacturing** Co., the world's largest contract chip maker.

The three firms are among the few foreign chip makers with sizable China-based production sites. Placing significant hurdles to their business there, the companies worried, would hurt their bottom lines and disrupt the tech supply chain.

The Biden administration in October 2022 granted one-year waivers to the three companies. But concerns persisted, with SK Hynix even floating the possibility of moving out of China in the long term if it became too difficult to continue operations there.

On Monday, South Korea's government said Samsung and SK Hynix were designated as "validated end users," which will allow them to import American chip-making equipment for their existing China-based facilities without having to seek separate U.S. approval. The designation doesn't carry an end date, South Korea's presidential office said in the announcement.

The two countries have agreed to a list of preapproved chip-making equipment that would allow Samsung and SK Hynix to maintain their China-based facilities and carry out minor upgrades to current production technology, according to people familiar with the negotiations.

TSMC is expected to be granted another one-year waiver, according to people familiar with the U.S. government's moves. Washington has told the company that it can maintain its operations in China for the foreseeable future as long as it doesn't make significant technological upgrades.

It isn't known if TSMC will be designated as a validated end user or if Samsung and SK Hynix will be issued a separate one-year waiver. Taiwan, unlike South Korea, hasn't publicly commented on the matter.

The U.S. Commerce Department's Bureau of Industry and Security, which implements export restrictions and the validated end-user program, declined to comment. The Biden administration's move had been widely anticipated by the chip industry.

SK Hynix said the U.S. decision would contribute to the stabilization of the global semiconductor supply chain. Samsung said uncertainties about its China-based chip business had been significantly removed. A TSMC spokeswoman declined to comment.

Samsung and SK Hynix have collectively invested about 55 trillion won, equivalent to around $40.7 billion, into their China-based chip-making facilities since 2010, securities firm CLSA estimates.

For the South Korean firms, questions still loom over the longer-term prospects for their China-based production. Further advances in the production of one type of memory would require new machinery barred from China. Samsung and SK Hynix also must stay mindful of capacity expansions that could violate the terms of U.S. subsidies that seek to limit investment in China, said Yeon Won-ho, of the Korea Institute for International Economic Policy, a state-run think tank.

"The latest measures lift short-term uncertainties for South Korean chip makers, as they will be able to continue with their current operations in China," said Yeon, who researches economic security. "But not all restrictions affecting Korean businesses [in China] have been resolved."

For now, Samsung and SK Hynix wouldn't see a strong need to expand their China production, given the prolonged slump in the memory market that has strained finances, said Avril Wu, a Taipei-based analyst at TrendForce, a chip-market analytics firm.

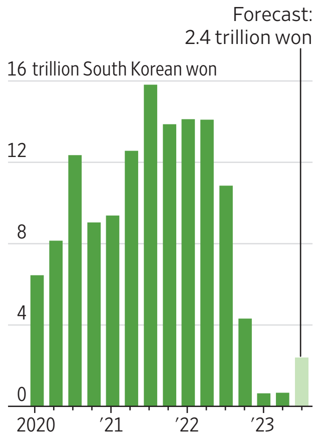
China is heavily reliant on Samsung and SK Hynix for the two major forms of memory called NAND flash and DRAM. Chinese rivals aren't yet capable of making at scale the types of advanced memory chips it needs for tech products.

—Yuka Hayashi contributed to this article.

Samsung Reports Improving Sales Data Sequentially

By Kwanwoo Jun

Samsung's quarterly operating profit



Note: 1 trillion won = $744.8 million
Sources: S&P Capital IQ; the company

South Korean tech giant **Samsung Electronics** reported sequential improvements in third-quarter sales and operating profit, sending shares higher on hopes that the worst of a severe chip industry downturn may be over.

The world's largest maker of memory chips, smartphones and televisions said Wednesday in a preliminary earnings forecast that its operating profit for the latest quarter came in at 2.4 trillion won, or about $1.79 billion. That is down from 10.852 trillion won a year ago but roughly triple the amounts booked in each of the first and second quarters this year.

Samsung also said it expects to book revenue of 67 trillion won in the third quarter—down 13% from a year earlier but up from the first two quarters of 2023.

Shares gained 2.7%, outperforming the local index as investors welcomed both the sequential rises and analysts' suggestions that chip prices appear to have bottomed out.

The rally partly reflects growing market consensus that prices of dynamic random access memory chips have begun bouncing back, said Jung Min-gyu, an analyst with Seoul-based Sangsangin Investment & Securities. Samsung started cutting down on memory-chip production in late April, and output reductions usually start to take effect one to two quarters later, Jung said.

He added that the positive impact of "the DRAM spot-price rebound starting at the end of the third quarter is expected to spread from the fourth quarter."

Samsung has been reeling from a global tech-industry downturn that has weighed on its all-important semiconductor segment, which booked losses in the first and second quarters.

The company cut semiconductor output to reduce inventory and support prices for memory chips, while also trying to meet brisk demand for powerful computing chips among artificial-intelligence companies.

> **The tech giant has been reeling from a global downturn in the sector.**

Daishin Securities analysts Kangho Park and Wi Min-bok said in a recent research note that Samsung remains on course for accelerating earnings growth on rising chip prices, with operating profit likely to top 3.4 trillion won for the final quarter of the year.

Samsung is due to report full third-quarter earnings later this month.

Special Advertising Feature

Ultimate Growth Strategy:

Reimagining Positioning Theory With Category Creation

By Thomas Mackintosh

In an era marked by economic stagnation, one of the standout successes defying the odds is RIES, the pioneers of brand positioning. RIES showcases outstanding performance and helps numerous enterprises flourish, acting as a catalyst for transformative growth for entrepreneurs and industry leaders.

Central to RIES's success is its innovative approach to business strategy. Global CEO Simon Zhang, known as the father of Category Creation Theory, has elevated the concept of traditional positioning theory to new heights with this new direction.

"Category creation differs from traditional innovation, as it's based on cognitive innovation," said Zhang in a recent interview. "Some products may not be first in the market, but they are the first in the mind of consumers. It's all about finding an open hole in the category within people's minds and then launching a new brand to occupy this hole." Amid changes in consumer behavior, the transformation of media consumption and emergent opportunities in areas such as artificial intelligence and renewable energy, the theory has been found to be lacking."

Since its introduction in the 1990s, positioning theory has had a tremendous impact in China, becoming the most influential business concept among local entrepreneurs. Strategy consultants, however, are increasingly encountering issues when applying it. "Positioning theory urgently needs to evolve with the times following a myriad of changes to the external environment," Zhang says. "However, many people's understanding of the theory remains stuck in the last century. Some firms simply copy 'high-end leader' positioning, applying it to all categories and brands, while others label every positioning effort as a 'grand battle.' They encourage clients to gamble on marketing investments, increasing business risks and negatively affecting the theory's reputation."

Simon Zhang, Ries Global CEO

Positioning theory evolved

Positioning theory gained traction in the 1980s as a framework forming a basis for business strategy. Academic and industrial publications gave it further credence in the 1990s with RIES, in the form of the father-daughter combo Al and Laura Ries, gaining industry recognition. Zhang's groundbreaking work in 2022 took this idea to the next level while overhauling the underlying logic.

Category Creation Theory represents a revolutionary approach to understanding consumer psychology and business strategy, integrating cognitive insights. Phrases like "the mind categorizes based on instinct" and "limited rungs, but unlimited categories' serve as cornerstone ideas, setting the theory apart from traditional paradigms. Unlike more rigid frameworks, Category Creation Theory adopts an "infinite game" perspective, offering opportunities for new market spaces. Academic endorsement from eminent scholars like the psychologist and economist Daniel Kahneman highlights its scientific rigor and practical relevance.

The mechanics of the theory are straightforward yet impactful. Companies must identify a void or unexplored niche in the consumer's mind-set. The theory then advocates occupying part of the cognitive realm and leading from the outset by employing its 4N model for new category design: launching a new brand, creating a unique new positioning and, finally, devising an apt naming strategy to encapsulate it all.

Supercharged growth trajectories

In practical terms, companies like Tesla have seized upon this concept to astonishing effect, particularly when accelerating growth trajectories. Multiple Chinese brands have also benefited from this strategic framework. A case in point is RIES's collaborations with brands like Tank in the vehicle sector and Deertile in building materials. Within five years, RIES has successfully nurtured 10 industry leaders, whom they refer to as "growth kings."

For Tank, RIES identified an untapped opportunity in the automotive market. The off-road space has been notably resistant to the electric vehicle revolution. The team undertook exhaustive research to understand the limitations of electric cars in this market. They then worked with Tank to develop a fuel-based, luxurious off-road SUV, marrying functionality with style.

"Fusing elements of fashion, color, and smart technology into the design, Tank strategically created an off-road SUV that generated over 100 million dollars in net profit," Zhang says. "Such was the demand that customers went on a waiting list of three to six months. Our collaborative efforts demonstrate the power of targeted innovation to fulfill unmet market needs."

Category Creation Theory's power lies in the actionable guidance it supplies, something missing from other innovation theories. While pioneers like the political economist Joseph Schumpeter and the business consultant Clayton Christensen laid important foundations, they did not provide a step-by-step playbook for practical implementation. This theory fills this void by introducing core insights into market dynamics, technological advancements and cognitive processes. It provides businesses with a strategic roadmap that is both actionable and insightful.

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This content was commissioned by Ries. ***Ries.com***

RIES
Positioning Pioneers

Israeli Cyber Firms Face Balancing Act

Companies juggle their security issues with clients' amid digital attacks

By Kim S. Nash
And James Rundle

FROM TOP: MAHMUD HAMS/AGENCE FRANCE-PRESSE/GETTY IMAGES; LEAH MILLIS/REUTERS

Anne Neuberger, below, a White House deputy national-security adviser for cyber and emerging technology, acknowledged the potential for significant strikes and said the U.S., from a cyber perspective, is 'surging support for anything our Israeli partners need.'

Disruptive cyberattacks in Israel are growing, hitting business and government websites. Cybersecurity companies in Israel, concerned about more digital attacks in the coming days, are finding ways to keep products and services available.

CYBERSECURITY

Executives from Israeli security providers described frantic efforts to support their employees after the weekend's cross-border incursion from Gaza by Hamas gunmen. Israel has called up more than 300,000 reservists, some of whom staff critical functions at cyber companies and their customers.

"Our primary concern is obviously the safety, well-being and protection of the team, but also customers and partners," said Eyal Benishti, chief executive of email-security company **Ironscales**, which has offices in the U.S. and Tel Aviv.

Anne Neuberger, White House deputy national security adviser for cyber and emerging technology, acknowledged the potential for significant strikes.

"Certainly from a cyber perspective, we will, of course—and we are already—surging support for anything our Israeli partners need," Neuberger said Tuesday at a cybersecurity conference at George Mason University in Washington, D.C.

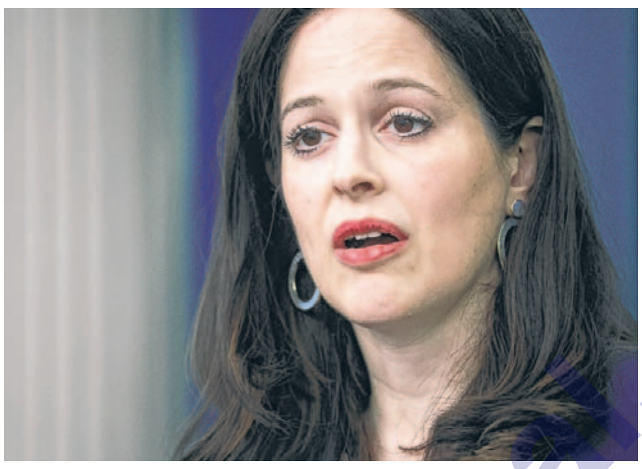
The Jerusalem Post, an Israeli newspaper, said Monday on the social-media platform X that its website was down after "a series of cyberattacks." The website has since been restored.

Denial-of-service attacks intermittently knocked out about 20 town and consumer websites in the country, said Gil Messing, chief of staff at **Check Point Software Technologies**, an American-Israeli company that monitors cyber threats worldwide.

Iranian and pro-Palestinian groups including Anonymous Sudan, as well as pro-Russian Killnet, have been "very active," Messing said. The hackers have threatened to target Israel's electrical grid, he said.

Cyber groups linked to Iran and China have been conducting misinformation campaigns designed to drum up support for Hamas, cybersecurity companies such as Mandiant, a unit of **Alphabet**'s Google, said Tuesday.

Yossi Appleboum, chief executive of cyber risk-management company **Sepio**, said he has seen phishing attacks triple since Sunday.



Sepio, with offices in Tel Aviv, Lisbon and Rockville, Md., is receiving and monitoring hacker email mimicking aid organizations in an attempt to set off malware through attachments and QR codes.

Benishti said Ironscales received similar attacks. The attempts involved hackers posing as allies and friends who expressed sympathy for them during the conflict, purporting to offer links to resources that instead contained malware.

"You can't really trust anything that is being posted these days and people need to be super, super careful, a lot of fake stuff and malicious stuff is currently circulating," he said.

Appleboum, a former intelligence officer in the Israel Defense Forces, said he expects escalating cyberattacks in the country. With the prospect of Iran-supported Hezbollah militants entering the conflict, he said, state-sponsored cyber activity is likely and could provoke a U.S. response. "Cyber is the weapon of choice in modern war," he said.

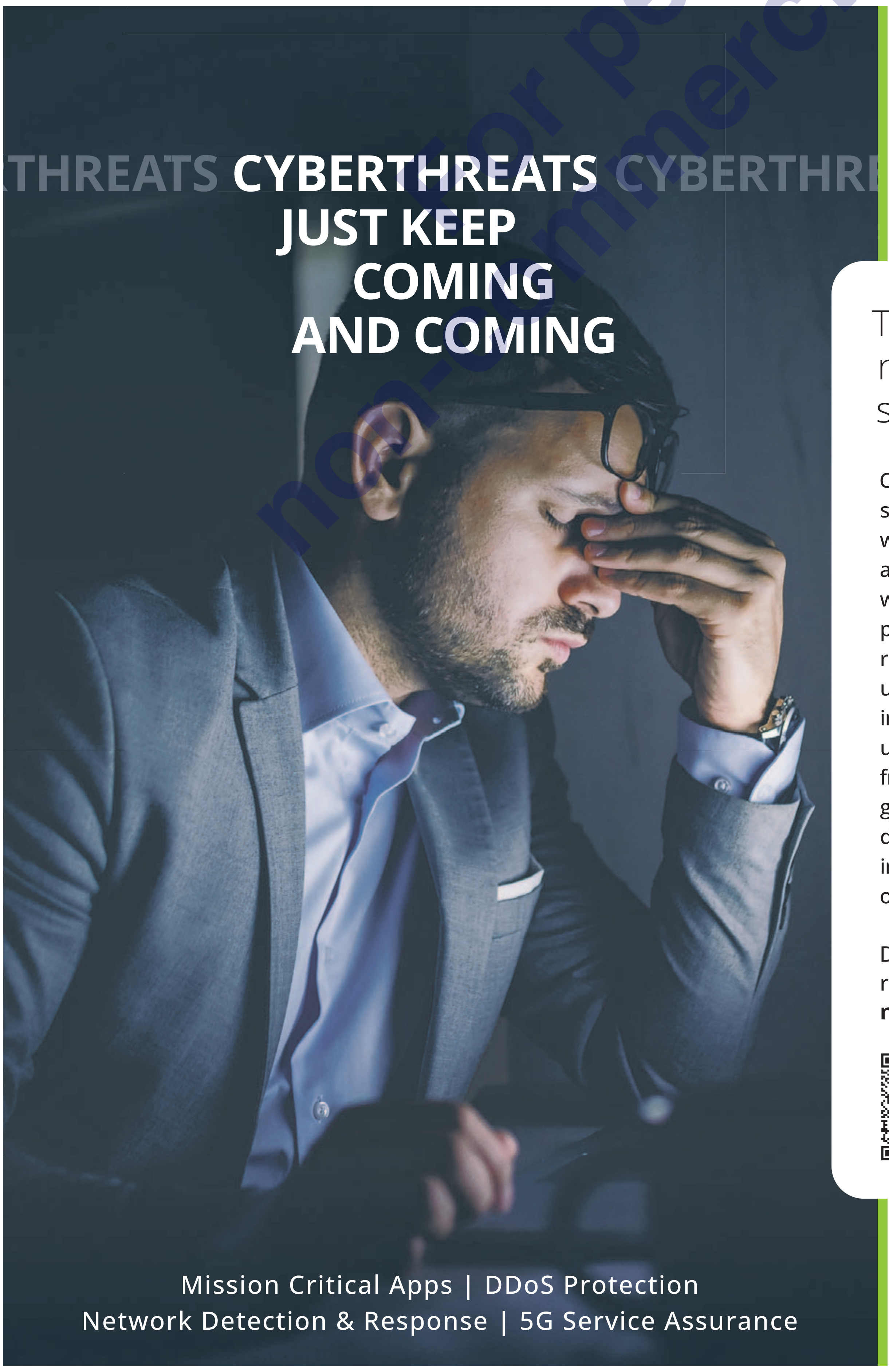
At some cybersecurity companies, key staff are deploying. More than 10 Ironscales employees have been recalled to active service in the Israeli military, Benishti said. The company has around 70 employees in Israel.

At **CYE**, based in Herzliya, Israel, the vice president of engineering and several other employees of have been called to duty, said Ira Winkler, field chief information security officer, who works near Washington, D.C. But, with 200 employees, the company is large enough to cover for their absence, he said. Software development, penetration testing and other services won't be affected, Winkler said.

CYE has restocked the safe rooms in its facilities in Israel and has let employees work remotely, he said. The company is contacting customers to assure them of continued service, he said.

"At the same time, customers are coming to us and offering understanding and support if something slips," Winkler said.

WSJ PRO
CYBERSECURITY
wsj.com/pro/cybersecurity



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MARKETS DIGEST

EQUITIES

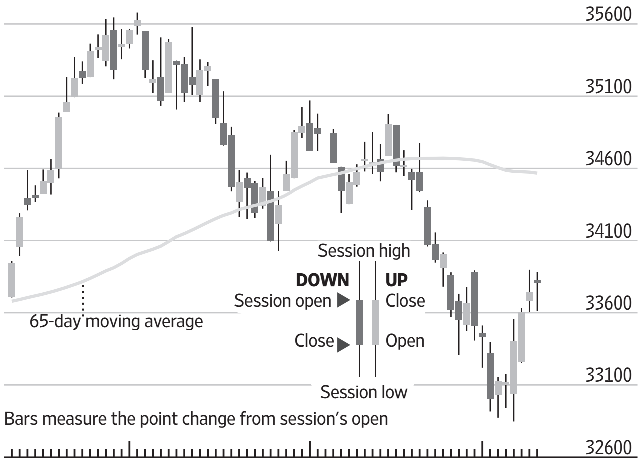
Dow Jones Industrial Average

33804.87 ▲65.57, or 0.19%

High, low, open and close for each trading day of the past three months.

	Last	Year ago
Trailing P/E ratio	24.47	17.21
P/E estimate *	18.01	15.91
Dividend yield	2.15	2.43
All-time high	36799.65, 01/04/22	

Current divisor 0.15172752595384

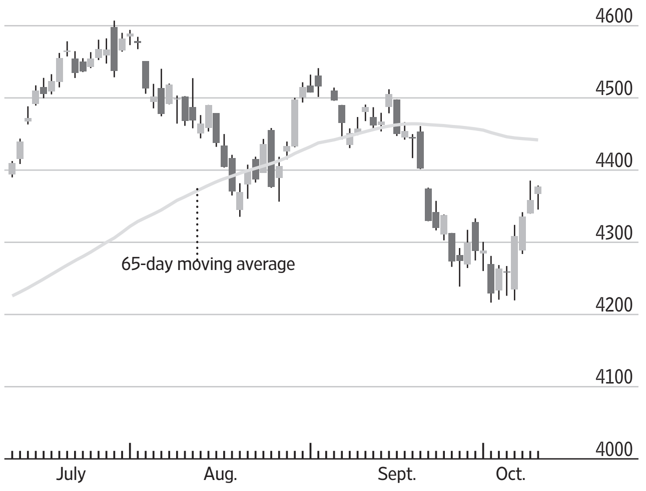


S&P 500 Index

4376.95 ▲18.71, or 0.43%

High, low, open and close for each trading day of the past three months.

	Last	Year ago
Trailing P/E ratio *	20.14	18.05
P/E estimate *	19.17	16.30
Dividend yield *	1.68	1.79
All-time high	4796.56, 01/03/22	

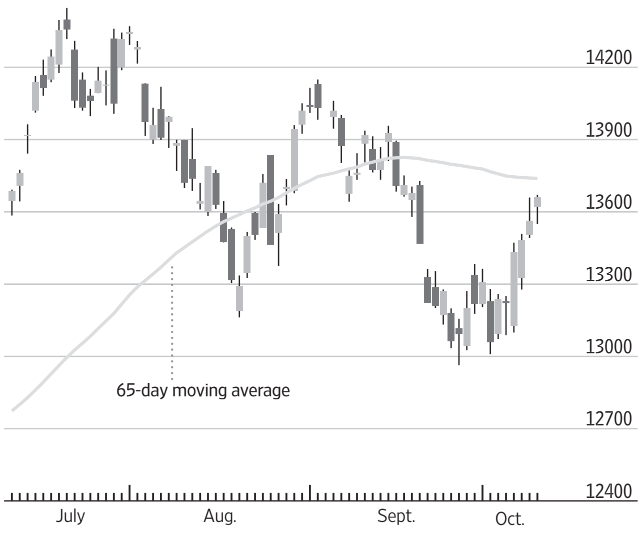


Nasdaq Composite Index

13659.68 ▲96.83, or 0.71%

High, low, open and close for each trading day of the past three months.

	Last	Year ago
Trailing P/E ratio *†	29.27	23.99
P/E estimate *†	26.12	20.79
Dividend yield *†	0.89	0.99
All-time high:	16057.44, 11/19/21	



* Weekly P/E data based on as-reported earnings from Birinyi Associates Inc.; † Based on Nasdaq-100 Index

Major U.S. Stock-Market Indexes

	Latest High	Latest Low	Latest Close	Net chg	% chg	52-Week High	52-Week Low	52-Week % chg	% chg YTD	% chg 3-yr. ann.
Dow Jones										
Industrial Average	33882.55	33612.25	**33804.87**	65.57	**0.19**	35630.68	29210.85	**15.7**	2.0	**5.7**
Transportation Avg	15161.56	14990.03	**15124.98**	50.51	**0.34**	16695.32	12429.60	**19.9**	12.9	**8.4**
Utility Average	830.70	817.29	**829.75**	10.93	**1.33**	1002.11	783.08	**-1.1**	-14.2	**-1.8**
Total Stock Market	43604.22	43257.36	**43570.22**	168.74	**0.39**	45969.67	36056.21	**20.8**	13.1	**6.9**
Barron's 400	975.50	966.79	**972.96**	2.57	**0.27**	1036.97	862.18	**12.5**	5.7	**8.6**
Nasdaq Stock Market										
Nasdaq Composite	13671.11	13549.29	**13659.68**	96.83	**0.71**	14358.02	10213.29	**31.1**	30.5	**5.7**
Nasdaq-100	15248.22	15119.62	**15241.12**	109.60	**0.72**	15841.35	10679.34	**41.3**	39.3	**9.1**
S&P										
500 Index	4378.64	4345.34	**4376.95**	18.71	**0.43**	4588.96	3577.03	**22.4**	14.0	**8.0**
MidCap 400	2514.84	2487.71	**2505.33**	7.96	**0.32**	2728.44	2245.21	**11.2**	3.1	**7.9**
SmallCap 600	1154.59	1140.05	**1147.79**	1.87	**0.16**	1315.82	1089.14	**5.4**	-0.8	**7.4**
Other Indexes										
Russell 2000	1786.64	1761.81	**1773.30**	-2.65	**-0.15**	2003.18	1682.40	**5.1**	0.7	**2.7**
NYSE Composite	15521.58	15390.07	**15487.78**	37.54	**0.24**	16427.29	13546.80	**14.3**	2.0	**5.3**
Value Line	538.62	532.85	**536.30**	0.26	**0.05**	606.49	495.91	**7.7**	-0.01	**3.1**
NYSE Arca Biotech	5092.40	5049.80	**5076.62**	18.38	**0.36**	5644.50	4566.17	**11.2**	-3.9	**-3.1**
NYSE Arca Pharma	916.38	901.37	**915.03**	13.66	**1.52**	925.61	748.27	**22.3**	5.4	**11.1**
KBW Bank	78.25	76.79	**77.25**	-0.10	**-0.13**	115.10	71.96	**-18.4**	-23.4	**-1.0**
PHLX§ Gold/Silver	112.10	110.50	**112.08**	2.23	**2.03**	144.37	96.42	**10.1**	-7.3	**-9.3**
PHLX§ Oil Service	94.00	92.21	**93.89**	0.59	**0.63**	98.76	66.59	**41.0**	12.0	**47.1**
PHLX§ Semiconductor	3544.28	3497.88	**3537.82**	25.75	**0.73**	3861.63	2162.32	**60.9**	39.7	**13.8**
Cboe Volatility	17.78	16.09	**16.09**	-0.94	**-5.52**	33.57	12.82	**-52.1**	-25.7	**-13.7**

§ Nasdaq PHLX

Sources: FactSet; Dow Jones Market Data

Late Trading

Most-active and biggest movers among NYSE, NYSE Arca, NYSE Amer. and Nasdaq issues from 4 p.m. to 6 p.m. ET as reported by electronic trading services, securities dealers and regional exchanges. Minimum share price of $2 and minimum after-hours volume of 50,000 shares.

Most-active issues in late trading

Company	Symbol	Volume (000)	After Hours Last	Net chg	% chg	High	Low
Schwab U.S. REIT	SCHH	9,281.2	18.21	0.17	**0.94**	18.21	17.93
SPDR S&P 500 ETF Trust	SPY	4,185.8	437.16	0.84	**0.19**	437.34	432.85
SPDR Ptf Interm Treasury	SPTI	4,000.0	27.53	0.01	**0.04**	27.53	27.53
Pfizer	PFE	2,682.0	33.08	-0.03	**-0.09**	33.13	33.02
Immunogen	IMGN	2,571.6	14.16	0.01	**0.08**	14.23	13.59
Apple	AAPL	2,542.1	180.23	0.43	**0.24**	180.39	179.73
iSh Natl Muni Bd	MUB	2,398.6	102.96	...	**unch.**	102.96	102.58
TAL Education Group ADR	TAL	2,191.9	9.37	...	**unch.**	9.40	9.32

Percentage gainers...

Company	Symbol	Volume (000)	Last	Net chg	% chg	High	Low
Vestis	VSTS	319.7	16.16	0.76	**4.94**	16.16	15.40
Apartment Invt & Mgmt	AIV	673.5	6.30	0.26	**4.30**	6.30	6.01
Dana	DAN	53.9	14.40	0.58	**4.20**	14.40	13.44
Neogen	NEOG	85.7	15.55	0.58	**3.87**	15.59	14.86
Scotts Miracle-Gro	SMG	68.0	50.48	1.84	**3.78**	50.48	48.51

...And losers

Company	Symbol	Volume (000)	Last	Net chg	% chg	High	Low
Builders FirstSource	BLDR	59.3	120.05	-5.64	**-4.49**	126.48	120.05
Envista Holdings	NVST	79.9	24.50	-1.05	**-4.11**	25.55	24.50
Knife River	KNF	190.8	51.05	-1.84	**-3.48**	52.89	51.05
Hudson Pacific Properties	HPP	122.6	6.00	-0.15	**-2.44**	6.15	6.00
PBF Energy	PBF	71.5	46.50	-1.10	**-2.31**	47.60	46.50

Trading Diary

Volume, Advancers, Decliners

	NYSE	NYSE Amer.
Total volume*	800,395,391	17,086,394
Adv. volume*	447,902,593	10,761,535
Decl. volume*	342,100,905	5,768,898
Issues traded	2,964	319
Advances	1,759	142
Declines	1,113	156
Unchanged	92	21
New highs	35	4
New lows	52	11
Closing Arms†	1.27	0.22
Block trades*	3,847	155

	Nasdaq	NYSE Arca
Total volume*	4,160,445,382	289,866,802
Adv. volume*	2,340,669,133	192,092,944
Decl. volume*	1,766,579,909	91,930,101
Issues traded	4,448	1,814
Advances	1,882	1,313
Declines	2,338	470
Unchanged	228	31
New highs	50	17
New lows	210	13
Closing Arms†	0.61	1.59
Block trades*	27,988	1,346

* Primary market NYSE, NYSE American NYSE Arca only.

† (TRIN) A comparison of the number of advancing and declining issues with the volume of shares rising and falling. An Arms of less than 1 indicates buying demand; above 1 indicates selling pressure.

International Stock Indexes

Region/Country	Index	Close	Latest Net chg	Latest % chg	YTD % chg
World	**MSCI ACWI**	**666.63**	3.29	**0.50**	10.1
	MSCI ACWI ex-USA	**290.98**	1.77	**0.61**	3.4
	MSCI World	**2899.50**	11.61	**0.40**	11.4
	MSCI Emerging Markets	**956.84**	12.29	**1.30**	0.05
Americas	**MSCI AC Americas**	**1658.41**	7.52	**0.46**	13.8
Canada	**S&P/TSX Comp**	**19663.84**	162.64	**0.83**	1.4
Latin Amer.	**MSCI EM Latin America**	**2264.38**	20.62	**0.92**	6.4
Brazil	**BOVESPA**	**117050.74**	313.79	**0.27**	6.7
Chile	**S&P IPSA**	**3259.70**	−0.25	**−0.01**	2.7
Mexico	**S&P/BMV IPC**	**50344.74**	54.88	**0.11**	3.9
EMEA	**STOXX Europe 600**	**453.16**	0.68	**0.15**	6.7
Eurozone	**Euro STOXX**	**441.46**	−0.57	**−0.13**	7.7
Belgium	**Bel-20**	**3548.89**	7.95	**0.22**	−4.1
Denmark	**OMX Copenhagen 20**	**2194.18**	57.07	**2.67**	19.6
France	**CAC 40**	**7131.21**	−31.22	**−0.44**	10.2
Germany	**DAX**	**15460.01**	36.49	**0.24**	11.0
Israel	**Tel Aviv**	**1725.84**	−23.43	**−1.34**	−4.0
Italy	**FTSE MIB**	**28419.06**	100.84	**0.36**	19.9
Netherlands	**AEX**	**737.78**	−1.11	**−0.15**	7.1
Norway	**Oslo Bors All-Share**	**1503.93**	−5.35	**−0.35**	10.4
South Africa	**FTSE/JSE All-Share**	**73849.53**	9.03	**0.01**	1.1
Spain	**IBEX 35**	**9360.40**	8.30	**0.09**	13.7
Sweden	**OMX Stockholm**	**806.38**	0.15	**0.02**	3.1
Switzerland	**Swiss Market**	**11038.30**	36.61	**0.33**	2.9
Turkey	**BIST 100**	**8330.64**	−112.15	**−1.33**	51.2
U.K.	**FTSE 100**	**7620.03**	−8.18	**−0.11**	2.3
U.K.	**FTSE 250**	**17876.24**	−91.43	**−0.51**	−5.2
Asia-Pacific	**MSCI AC Asia Pacific**	**157.93**	1.19	**0.76**	1.4
Australia	**S&P/ASX 200**	**7088.40**	47.76	**0.68**	0.7
China	**Shanghai Composite**	**3078.96**	3.72	**0.12**	−0.3
Hong Kong	**Hang Seng**	**17893.10**	228.37	**1.29**	−9.5
India	**S&P BSE Sensex**	**66473.05**	393.69	**0.60**	9.3
Japan	**NIKKEI 225**	**31936.51**	189.98	**0.60**	22.4
Singapore	**Straits Times**	**3192.87**	−6.20	**−0.19**	−1.8
South Korea	**KOSPI**	**2450.08**	47.50	**1.98**	9.6
Taiwan	**TAIEX**	**16672.03**	151.46	**0.92**	17.9
Thailand	**SET**	**1455.99**	21.54	**1.50**	−12.7

Sources: FactSet; Dow Jones Market Data

Percentage Gainers...

Company	Symbol	Latest Session Close	Net chg	% chg	52-Week High	Low	% chg
Athena Consumer Acqn	ACAQ	9.73	3.43	**54.44**	12.80	4.28	**-3.5**
Golden Heaven Group Hldgs	GDHG	9.88	1.90	**23.81**	9.98	2.94	**...**
VOXX International Cl A	VOXX	9.43	1.64	**21.05**	14.75	6.23	**44.0**
Vor Biopharma	VOR	2.52	0.42	**20.00**	7.57	1.89	**-35.5**
5E Advanced Materials	FEAM	3.26	0.48	**17.27**	14.37	2.17	**-67.9**
SOPHiA GENETICS	SOPH	2.99	0.42	**16.34**	5.77	1.69	**22.0**
Werewolf Therapeutics	HOWL	2.34	0.29	**14.15**	4.57	1.39	**-41.5**
Exscientia ADR	EXAI	5.29	0.63	**13.52**	11.52	4.09	**-27.4**
Predictive Oncology	POAI	3.97	0.47	**13.43**	13.88	2.47	**-35.3**
Coya Therapeutics	COYA	4.65	0.55	**13.41**	8.00	3.21	**...**
WeWork	WE	2.48	0.28	**12.73**	130.80	2.01	**-97.4**
CF Acqn VIII Cl A	CFFE	16.87	1.90	**12.69**	32.90	9.85	**63.5**
Portage Biotech	PRTG	2.65	0.29	**12.29**	7.76	1.64	**-61.3**
SuRo Capital	SSSS	4.05	0.43	**11.88**	4.86	2.90	**8.0**
CervoMed	CRVO	7.30	0.77	**11.79**	14.37	4.14	**-9.5**

Percentage Losers

Company	Symbol	Latest Session Close	Net chg	% chg	52-Week High	Low	% chg
AgapeATP	ATPC	1.82	-6.18	**-77.25**	18.00	1.51	**-54.6**
E2open Parent	ETWO	2.19	-2.20	**-50.11**	7.21	2.15	**-61.4**
Silk Road Medical	SILK	7.13	-6.86	**-49.04**	58.04	6.36	**-83.3**
Hall of Fame Resort & Ent	HOFV	2.99	-1.51	**-33.56**	16.50	2.75	**-75.3**
ParaZero Technologies	PRZO	1.64	-0.79	**-32.51**	4.15	0.56	**...**
Real Good Food	RGF	2.21	-0.89	**-28.71**	7.69	2.11	**-64.9**
PMV Pharmaceuticals	PMVP	4.75	-1.67	**-26.01**	13.02	3.84	**-59.3**
Falcon's Beyond Global	FBYD	12.32	-4.08	**-24.88**	40.04	7.17	**25.2**
Bitdeer Techs	BTDR	5.75	-1.62	**-21.98**	14.75	4.60	**-44.1**
AgriFORCE Growing Sys	AGRI	3.05	-0.85	**-21.79**	84.00	2.85	**-95.3**
SCWorx	WORX	2.36	-0.64	**-21.25**	14.40	2.34	**-75.6**
Outset Medical	OM	7.64	-2.06	**-21.21**	30.55	7.40	**-47.1**
iCoreConnect	ICCT	2.40	-0.62	**-20.53**	20.70	0.91	**-4.8**
PSQ Holdings Cl A	PSQH	5.06	-1.24	**-19.68**	35.57	5.05	**-48.0**
Bridgetown Holdings Cl A	BTWN	6.41	-1.48	**-18.76**	10.43	5.38	**-35.8**

Most Active Stocks

Company	Symbol	Volume (000)	% chg from 65-day avg	Latest Session Close	% chg	52-Week High	Low
Matinas BioPharma Hldgs	MTNB	**360,953**	31065.3	0.64	**313.55**	0.89	0.11
Avalo Therapeutics	AVTX	**180,129**	207.8	0.16	**13.95**	7.00	0.08
Tempest Therapeutics	TPST	**165,955**	28600.7	9.77	**3972.53**	9.77	0.17
ProSh UltraPro Shrt QQQ	SQQQ	**116,868**	-8.2	18.37	**-2.08**	69.55	16.38
Tesla	TSLA	**103,420**	-11.0	262.99	**-0.24**	299.29	101.81
ChargePoint Holdings	CHPT	**101,803**	855.3	3.78	**-15.81**	14.62	3.75
ProShares UltraPro QQQ	TQQQ	**95,104**	-2.8	39.34	**2.13**	47.14	16.10
Plug Power	PLUG	**69,189**	233.4	7.54	**5.31**	19.84	6.17
Direx 20+ YrTr Bull	TMF	**62,208**	107.8	4.79	**6.21**	10.30	4.12
micromobility.com	MCOM	**62,175**	113.1	0.04	**-7.83**	27.70	0.04

* Volumes of 100,000 shares or more are rounded to the nearest thousand

Volume Movers

Ranked by change from 65-day average*

Company	Symbol	Volume (000)	% chg from 65-day avg	Latest Session Close	% chg	52-Week High	Low
DP Cap Acquisition I A	DPCS	173	**3132**	10.73	**-0.09**	11.24	10.07
IQ U.S. Large Cap ETF	CLRG	443	**2882**	32.41	**0.02**	34.16	28.52
Athena Consumer Acqn	ACAQ	718	**2421**	9.73	**54.44**	12.80	4.28
A SPAC I Acquisition A	ASCA	204	**2062**	10.95	**0.46**	11.44	9.55
Silk Road Medical	SILK	18,646	**1987**	7.13	**-49.04**	58.04	6.36
First Tr Growth Strength	FTGS	146	**1557**	24.21	**0.41**	24.65	19.90
EVe Mobility Acqn Cl A	EVE	300	**1419**	10.72	**0.19**	11.40	10.04
iSh iBds Dec 2030 Corp	IBDV	1,986	**1410**	20.34	**0.30**	21.92	19.71
C5 Acquisition Cl A	CXAC	756	**1407**	10.73	**-1.20**	11.85	10.00
Hartford TR Bd	HTRB	2,486	**1382**	32.11	**0.56**	34.71	31.51

* Common stocks priced at $2 a share or more with an average volume over 65 trading days of at least 5,000 shares †Has traded fewer than 65 days

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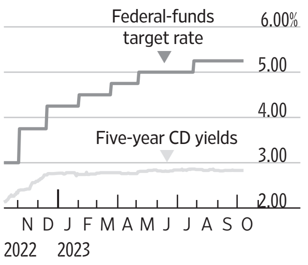
CREDIT MARKETS

Consumer Rates and Returns to Investor

U.S. consumer rates

A consumer rate against its benchmark over the past year



Selected rates

5-year CDs

Bankrate.com avg†:	**2.83%**
Barclays Bank	**4.50%**
Wilmington, DE	888-720-8756
First Internet Bank of Indiana	**4.59%**
Indianapolis, IN	888-873-3424
Popular Direct	**4.65%**
Miami Lakes, FL	800-274-5696
First National Bank of America	**4.75%**
East Lansing, MI	800-968-3626
Merrick Bank	**4.85%**
South Jordan, UT	866-638-6851

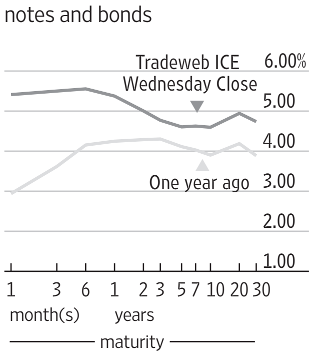
Interest rate	Yield/Rate (%) Last (●)	Week ago	52-Week Range (%) Low	High	3-yr chg (pct pts)
Federal-funds rate target	**5.25-5.50**	5.25-5.50	3.00	5.50	**5.25**
Prime rate*	**8.50**	8.50	6.25	8.50	**5.25**
SOFR	**5.31**	5.33	3.01	5.33	**5.22**
Money market, annual yield	**0.62**	0.61	0.23	0.62	**0.40**
Five-year CD, annual yield	**2.83**	2.83	2.13	2.86	**2.21**
30-year mortgage, fixed†	**7.97**	8.05	6.36	8.08	**4.94**
15-year mortgage, fixed†	**7.20**	7.13	5.54	7.20	**4.67**
Jumbo mortgages, $726,200-plus†	**8.02**	8.14	6.35	8.16	**4.90**
Five-year adj mortgage (ARM)†	**6.79**	6.70	5.33	6.79	**3.54**
New-car loan, 48-month	**7.48**	7.48	5.99	7.64	**3.34**

Bankrate.com rates based on survey of over 4,800 online banks. *Base rate posted by 70% of the nation's largest banks.† Excludes closing costs.

Sources: FactSet; Dow Jones Market Data; Bankrate.com

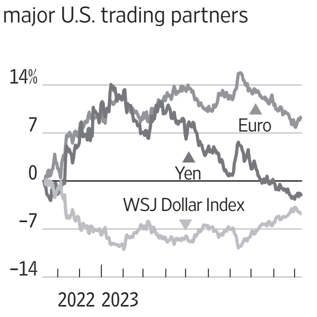
Treasury yield curve

Yield to maturity of current bills, notes and bonds



Forex Race

Yen, euro vs. dollar; dollar vs. major U.S. trading partners



Sources: Tradeweb ICE U.S. Treasury Close; Tullett Prebon; Dow Jones Market Data

Corporate Borrowing Rates and Yields

Bond total return index	Close	Yield (%) Last	Week ago	52-Week High	Low	Total Return (%) 52-wk	3-yr
U.S. Treasury, Bloomberg*	2059.480	**4.840**	4.930	5.020	3.610	**0.067**	−5.564
U.S. Treasury Long, Bloomberg*	2877.276	**4.980**	5.010	5.110	3.610	**−7.062**	−15.126
Aggregate, Bloomberg*	1927.146	**5.410**	5.500	5.610	4.180	**1.462**	−5.086
Fixed-Rate MBS, Bloomberg*	1883.429	**5.630**	5.720	5.870	4.140	**0.255**	−5.157
High Yield 100, ICE BofA	3287.278	**8.604**	8.902	8.902	7.022	**9.740**	0.997
Muni Master, ICE BofA	552.506	**4.021**	4.185	4.221	2.757	**1.882**	−1.879
EMBI Global, J.P. Morgan	772.219	**8.479**	8.665	9.159	7.102	**8.709**	−4.877

Sources: J.P. Morgan; Bloomberg Fixed Income Indices; ICE Data Services *Bloomberg Yield Data as of 10/10

CURRENCIES & COMMODITIES

Currencies

U.S.-dollar foreign-exchange rates in late New York trading

Country/currency	Wed in US$	Wed per US$	US$ vs, YTD chg (%)
Americas			
Argentina peso	.00293	50.0767	**98.1**
Brazil real	.1980	5.0507	**−4.4**
Canada dollar	.7356	1.3594	**0.3**
Chile peso	.001080	925.55	**9.1**
Colombia peso	.000237	4214.00	**−13.1**
Ecuador US dollar	1	1	**unch**
Mexico peso	.0561	17.8359	**−8.5**
Uruguay peso	.02514	39.7750	**−0.5**
Asia-Pacific			
Australia dollar	.6414	1.5591	**6.3**
China yuan	.1370	7.3001	**5.8**
Hong Kong dollar	.1279	7.8202	**0.2**
India rupee	.01201	83.235	**0.6**
Indonesia rupiah	.0000637	15701	**0.9**
Japan yen	.006704	149.17	**13.8**
Kazakhstan tenge	.002095	477.36	**3.1**
Macau pataca	.1241	8.0585	**0.1**
Malaysia ringgit	.2119	4.7185	**7.1**
New Zealand dollar	.6020	1.6611	**5.5**
Pakistan rupee	.00358	279.500	**23.3**
Philippines peso	.0176	56.775	**2.0**
Singapore dollar	.7336	1.3631	**1.7**
South Korea won	.0007469	1338.88	**6.1**
Sri Lanka rupee	.0030811	324.56	**−11.7**
Taiwan dollar	.03118	32.073	**4.7**
Thailand baht	.02745	36.430	**5.2**

Country/currency	Wed in US$	Wed per US$	US$ vs, YTD chg (%)
Vietnam dong	.00004090	24450	**3.5**
Europe			
Czech Rep. koruna	.04329	23.103	**2.4**
Denmark krone	.1424	7.0221	**1.1**
Euro area euro	1.0619	.9418	**0.8**
Hungary forint	.002749	363.75	**−2.6**
Iceland krona	.007249	137.95	**−2.5**
Norway krone	.0921	10.8546	**10.7**
Poland zloty	.2347	4.2608	**−2.7**
Russia ruble	.01010	99.024	**34.3**
Sweden krona	.0917	10.9055	**4.5**
Switzerland franc	1.1086	.9020	**−2.5**
Turkey lira	.0361	27.7029	**48.2**
Ukraine hryvnia	.0274	36.5500	**−0.8**
UK pound	1.2314	.8121	**−1.8**
Middle East/Africa			
Bahrain dinar	2.6529	.3770	**−0.03**
Egypt pound	.0323	30.9234	**24.9**
Israel shekel	.2527	3.9565	**12.2**
Kuwait dinar	3.2354	.3091	**1.0**
Oman sul rial	2.5974	.3850	**unch**
Qatar rial	.2746	3.641	**−0.7**
Saudi Arabia riyal	.2666	3.7511	**−0.2**
South Africa rand	.0531	18.8270	**10.6**

	Close	Net Chg	% Chg	YTD % Chg
WSJ Dollar Index	99.87	0.02	0.02	**3.43**

Sources: Tullett Prebon, Dow Jones Market Data

Commodities

	Close	Wednesday Net chg	% Chg	52-Week High	Low	% Chg	YTD % chg
DJ Commodity	**983.06**	-6.42	**-0.65**	1071.61	930.59	**-5.21**	-6.26
Refinitiv/CC CRB Index	**277.38**	-2.49	**-0.89**	290.29	253.85	**-0.67**	-0.13
Crude oil, $ per barrel	**83.49**	-2.48	**-2.88**	93.68	66.74	**-4.33**	4.02
Natural gas, $/MMBtu	**3.377**	-0.005	**-0.15**	7.308	1.991	**-47.52**	-24.54
Gold, $ per troy oz.	**1872.80**	11.80	**0.63**	2048.00	1627.30	**12.12**	2.92

COMMODITIES

wsj.com/market-data/commodities

Futures Contracts

Metal & Petroleum Futures

	Open	Contract High	hi lo	Low	Settle	Chg	Open interest
Copper-High (CMX)-25,000 lbs.; $ per lb.							
Oct					**3.6140**	–0.0180	1,127
Dec	3.6310	3.6640		3.5985	**3.6120**	–0.0220	129,612
Gold (CMX)-100 troy oz.; $ per troy oz.							
Oct	1869.50	1874.60		1869.10	**1872.80**	11.80	583
Nov	1864.60	1881.50		1863.20	**1878.40**	11.70	1,531
Dec	1873.70	1890.90		1871.70	**1887.30**	12.00	364,399
Feb'24	1892.80	1910.20		1891.20	**1906.80**	12.20	35,430
April	1912.20	1928.40		1909.60	**1925.50**	12.40	17,721
June	1930.60	1946.80		1929.10	**1944.50**	12.70	9,548
Palladium (NYM) - 50 troy oz.; $ per troy oz.							
Oct					**1173.90**	11.50	1
Dec	1171.50	1189.50		1150.50	**1170.30**	–1.10	19,118
Platinum (NYM)-50 troy oz.; $ per troy oz.							
Oct					**881.60**	1.10	67
Jan'24	887.90	896.00		879.00	**893.00**	2.80	78,661
Silver (CMX)-5,000 troy oz.; $ per troy oz.							
Oct					**21.957**	0.181	30
Dec	22.015	22.275		21.955	**22.133**	0.180	104,646
Crude Oil, Light Sweet (NYM)-1,000 bbls.; $ per bbl.							
Nov	85.96	86.51		83.11	**83.49**	–2.48	194,140
Dec	84.16	84.72		81.63	**82.07**	–2.06	316,881
Jan'24	82.58	83.17		80.39	**80.92**	–1.65	170,919
March	80.44	80.90		78.59	**79.21**	–1.10	99,113
June	78.38	78.86		76.93	**77.62**	–0.74	167,982
Dec	75.65	76.03		74.49	**75.29**	–0.36	147,565
NY Harbor ULSD (NYM)-42,000 gal.; $ per gal.							
Nov	3.0207	3.0555		2.9335	**2.9985**	–.0216	67,880
Dec	2.9242	2.9583		2.8518	**2.9118**	–.0128	62,881
Gasoline-NY RBOB (NYM)-42,000 gal.; $ per gal.							
Nov	2.2585	2.2820		2.1920	**2.2101**	–.0483	79,214
Dec	2.2351	2.2531		2.1762	**2.1937**	–.0375	71,746
Natural Gas (NYM)-10,000 MMBtu.; $ per MMBtu.							
Nov	3.405	3.454		3.225	**3.377**	–.005	167,913
Dec	3.679	3.725		3.525	**3.658**	–.001	111,686
Jan'24	3.896	3.947		3.762	**3.889**	.002	161,022
March	3.531	3.571		3.404	**3.524**	.009	140,449
April	3.278	3.313		3.177	**3.279**	.013	86,448
May	3.300	3.323		3.197	**3.288**	.009	55,221

Agriculture Futures

	Open	Contract High	hi lo	Low	Settle	Chg	Open interest
Corn (CBT)-5,000 bu.; cents per bu.							
Dec	485.50	488.50		483.50	**488.00**	2.50	696,227
March'24	501.25	504.00		499.25	**503.75**	2.50	281,200
Oats (CBT)-5,000 bu.; cents per bu.							
Dec	409.25	410.75		395.50	**395.75**	–13.50	2,961
March'24	427.50	428.75		417.50	**415.50**	–13.00	849
Soybeans (CBT)-5,000 bu.; cents per bu.							
Nov	1271.50	1274.25		1251.00	**1252.50**	–19.00	282,989
Jan'24	1289.50	1292.00		1270.25	**1272.25**	–17.00	169,998
Soybean Meal (CBT)-100 tons; $ per ton.							
Oct	377.50	377.50		369.00	**374.30**	2.30	169
Dec	377.50	379.30		374.20	**377.10**	–.40	185,251
Soybean Oil (CBT)-60,000 lbs.; cents per lb.							
Oct	53.98	54.05		53.98	**53.52**	–.47	84
Dec	53.30	53.60		52.49	**52.72**	–.51	154,086
Rough Rice (CBT)-2,000 cwt.; $ per cwt.							
Nov	15.90	15.96		15.79	**15.93**	.06	6,544
Jan'24	16.29	16.30		16.19	**16.26**	.03	3,206
Wheat (CBT)-5,000 bu.; cents per bu.							
Dec	559.00	560.75		551.00	**556.00**	–2.50	238,496
March'24	590.00	592.00		582.75	**587.25**	–2.75	89,046
Wheat (KC)-5,000 bu.; cents per bu.							
Dec	671.50	674.00		662.50	**667.25**	–4.00	123,748
March'24	681.00	682.75		671.50	**676.25**	–4.00	53,141
Cattle-Feeder (CME)-50,000 lbs.; cents per lb.							
Oct	248.025	250.750		247.000	**250.175**	2.225	4,667
Jan'24	251.875	253.600		249.950	**253.300**	1.450	16,357
Cattle-Live (CME)-40,000 lbs.; cents per lb.							
Oct	182.700	184.875		182.375	**184.500**	1.925	12,816
Dec	185.050	187.300		184.250	**186.975**	1.975	127,696
Hogs-Lean (CME)-40,000 lbs.; cents per lb.							
Oct	81.850	82.425		81.850	**82.150**	.200	10,724
Dec	71.225	71.875		69.850	**69.975**	–1.450	86,814
Lumber (CME)-27,500 bd. ft., $ per 1,000 bd. ft.							
Nov	501.00	508.00		501.00	**507.50**	6.50	5,857
Milk (CME)-200,000 lbs., cents per lb.							
Oct	16.85	16.88		16.81	**16.84**	–.01	3,692
Nov	17.26	17.33		17.11	**17.23**	–.10	6,164
Cocoa (ICE-US)-10 metric tons; $ per ton.							
Dec	3,485	3,490		3,426	**3,432**	–42	122,051
March'24	3,500	3,508		3,451	**3,458**	–36	83,323
Coffee (ICE-US)-37,500 lbs.; cents per lb.							
Dec	147.65	149.40		146.10	**147.70**	.20	102,559
March'24	148.90	150.25		147.15	**148.65**	.20	56,329
Sugar-World (ICE-US)-112,000 lbs.; cents per lb.							
March	27.05	27.18		26.30	**26.40**	–.65	432,564
May	25.81	25.94		25.13	**25.21**	–.60	133,248
Sugar-Domestic (ICE-US)-112,000 lbs.; cents per lb.							
Jan	44.24	44.24		44.24	**44.24**	...	1,641
March	43.81	43.81		43.81	**43.81**	...	2,691
Cotton (ICE-US)-50,000 lbs.; cents per lb.							
Dec	85.50	86.15		84.38	**85.05**	–.40	125,574
March'24	88.10	88.10		86.01	**86.69**	–.57	65,150
Orange Juice (ICE-US)-15,000 lbs.; cents per lb.							
Nov	377.30	384.15		376.60	**378.05**	–3.10	6,619
Jan'24	358.95	365.30		358.00	**359.45**	–3.70	2,279

Interest Rate Futures

	Open	Contract High	hi lo	Low	Settle	Chg	Open interest
Ultra Treasury Bonds (CBT) - $100,000; pts 32nds of 100%							
Dec	116-070	118-280		116-070	**118-030**	1-22.0	1,550,305
March'24	118-270	119-140		118-150	**118-280**	1-22.0	29
Treasury Bonds (CBT)-$100,000; pts 32nds of 100%							
Dec	112-000	113-290		111-310	**113-120**	1-10.0	1,389,148
March'24	112-060	113-300		112-020	**113-140**	1-10.0	1,721
Treasury Notes (CBT)-$100,000; pts 32nds of 100%							
Dec	107-230	108-110		107-210	**107-300**	7.0	4,743,524
March'24	108-030	108-215		108-015	**108-095**	7.0	1,790
5 Yr. Treasury Notes (CBT)-$100,000; pts 32nds of 100%							
Dec	105-110	105-197		105-072	**105-112**	.5	5,746,169
March'24	105-210	105-295		105-192	**105-240**	1.7	261
2 Yr. Treasury Notes (CBT)-$200,000; pts 32nds of 100%							
Dec	101-156	101-170		101-123	**101-135**	–1.5	4,009,426
March'24	101-277	101-291		101-247	**101-257**	–1.5	3,360
30 Day Federal Funds (CBT)-$5,000,000; 100 - daily avg.							
Oct	94.6700	94.6725		94.6700	**94.6700**	–.0025	390,040
Nov	94.6400	94.6550		94.6350	**94.6450**	.0050	677,041
Three-Month SOFR (CME)-$1,000,000; 100 - daily avg.							
July	94.6825	94.6825		94.6825	**94.6825**		15,167
Dec	94.5750	94.5800		94.5600	**94.5700**	–.0100	1,426,219

Currency Futures

	Open	Contract High	hi lo	Low	Settle	Chg	Open interest
Japanese Yen (CME)-¥12,500,000; $ per 100¥							
Oct	.6738	.6743		.6703	**.6705**	–.0026	1,439
Dec	.6800	.6811		.6770	**.6773**	–.0025	256,358
Canadian Dollar (CME)-CAD 100,000; $ per CAD							
Oct	.7363	.7369		.7342	**.7353**	–.0008	180
Dec	.7369	.7376		.7348	**.7359**	–.0007	176,359
British Pound (CME)-£62,500; $ per £							
Oct	1.2301	1.2338		1.2271	**1.2305**	.0025	840
Dec	1.2292	1.2342		1.2271	**1.2309**	.0025	226,500
Swiss Franc (CME)-CHF 125,000; $ per CHF							
Dec	1.1135	1.1189		1.1125	**1.1157**	.0025	60,900
March'24	1.1280	1.1303		1.1242	**1.1274**	.0025	577
Australian Dollar (CME)-AUD 100,000; $ per AUD							
Oct	.6416	.6446		.6390	**.6407**	–.0018	251
Dec	.6447	.6461		.6404	**.6422**	–.0018	189,251
Mexican Peso (CME)-MXN 500,000; $ per MXN							
Oct					**.05605**	.00055	1,157
Dec	.05503	.05555		.05502	**.05544**	.00053	200,752
Euro (CME)-€125,000; $ per €							
Oct	1.0606	1.0636		1.0585	**1.0609**	.0008	6,659
Dec	1.0635	1.0665		1.0611	**1.0637**	.0007	666,193

Index Futures

	Open	Contract High	hi lo	Low	Settle	Chg	Open interest
Mini DJ Industrial Average (CBT)-$5 x index							
Dec	33929	34078		33799	**33992**	56	94,290
March'24	34236	34386		34129	**34316**	57	308
Mini S&P 500 (CME)-$50 x index							
Dec	4392.00	4419.75		4377.25	**4409.75**	18.25	2,051,008
March'24	4441.00	4468.00		4426.50	**4458.75**	18.25	16,403
Mini S&P Midcap 400 (CME)-$100 x index							
Dec	2513.60	2533.10		2503.50	**2522.30**	7.50	38,970
March'24					**2538.30**	6.10	1
Mini Nasdaq 100 (CME)-$20 x index							
Dec	15282.25	15416.75		15253.00	**15380.00**	109.25	254,629
March'24	15478.50	15609.75		15449.00	**15575.50**	109.50	1,757
Mini Russell 2000 (CME)-$50 x index							
Dec	1789.80	1802.70		1773.20	**1786.00**	–4.00	480,313
March'24	1808.50	1821.80		1792.80	**1805.20**	–4.40	1,105
June					**1822.30**	–3.40	2
Mini Russell 1000 (CME)-$50 x index							
Dec	2408.50	2417.40		2398.90	**2416.20**	9.70	6,342
U.S. Dollar Index (ICE-US)-$1,000 x index							
Dec	105.51	105.77		105.31	**105.57**	.01	40,831
March'24	105.09	105.33		104.95	**105.18**	.01	453

Source: FactSet

Cash Prices | wsj.com/market-data/commodities

Wednesday, October 11, 2023

These prices reflect buying and selling of a variety of actual or "physical" commodities in the marketplace—separate from the futures price on an exchange, which reflects what the commodity might be worth in future months.

	Wednesday
Energy	
Coal,C.Aplc.,12500Btu,1.2SO2-r,w	74.350
Coal,PwdrRvrBsn,8800Btu,0.8SO2-r,w	14.150
Metals	
Gold, per troy oz	
Engelhard industrial	1874.00
Handy & Harman base	1871.25
Handy & Harman fabricated	2077.09
LBMA Gold Price AM	*1859.70
LBMA Gold Price PM	*1857.00
Krugerrand,wholesale-e	1958.33
Maple Leaf-e	2005.18
American Eagle-e	2005.18
Mexican peso-e	2417.65
Austria crown-e	1839.89
Austria phil-e	1967.70
Silver, troy oz.	
Engelhard industrial	22.1500
Handy & Harman base	22.0070
Handy & Harman fabricated	27.5090
LBMA spot price	*£17.7200
(U.S.$ equivalent)	*21.7150
Coins,wholesale $1,000 face-a	18887
Other metals	
LBMA Platinum Price PM	*886.0
Platinum,Engelhard industrial	885.0
Palladium,Engelhard industrial	1175.0
Aluminum, LME, $ per metric ton	*2199.0
Copper,Comex spot	3.6140

	Wednesday
Iron Ore, 62% Fe CFR China-s	*114.1
Steel, HRC USA, FOB Midwest Mill-s	*715.0
Battery/EV metals	
BMI Lithium Carbonate, EXW China, =99.2%-v,w	22950
BMI Lithium Hydroxide, EXW China, =56.5% -v,w	21575
BMI Cobalt sulphate, EXW China, >20.5% -v,m	5069
BMI Nickel Sulphate, EXW China, >22%-v,m	4247
BMI Flake Graphite, FOB China, -100 Mesh, 94-95% -v,m	563
Fibers and Textiles	
Burlap,10-oz,40-inch NY yd-n,w	0.7125
Cotton,1 1/16 std lw-mdMphs-u	0.8280
Cotlook 'A' Index-t	*97.25
Hides,hvy native steers piece fob-u	n.a.
Wool,64s,staple,Terr del-u,w	n.a.
Grains and Feeds	
Bran,wheat middlings, KC-u,w	146
Corn,No. 2 yellow,Cent IL-bp,u	4.5500
Corn gluten feed,Midwest-u,w	159.2
Corn gluten meal,Midwest-u,w	565.3
Cottonseed meal-u,w	350
Hominy feed,Cent IL-u,w	142
Meat-bonemeal,50% pro Mnpls-u,w	443
Oats,No.2 milling,Mnpls-u	4.3575
Rice, Long Grain Milled, No. 2 AR-u,w	35.88
Sorghum,(Milo) No.2 Gulf-u	n.a.
SoybeanMeal,Cent IL,rail,ton48%-u,w	378.35
Soybeans,No.1 yllw IL-bp,u	12.1000
Wheat,Spring14%-pro Mnpls-u	8.6825
Wheat,No.2 soft red,St.Louis-u	5.3400

	Wednesday
Wheat - Hard - KC (USDA) $ per bu-u	7.0025
Wheat,No.1soft white,Portld,OR-u	6.9500
Food	
Beef,carcass equiv. index	
choice 1-3,600-900 lbs.-u	282.08
select 1-3,600-900 lbs.-u	257.81
Broilers, National comp wtd. avg.-u,w	1.1391
Butter,AA Chicago-d	3.4800
Cheddar cheese,bbl,Chicago-d	161.75
Cheddar cheese,blk,Chicago-d	170.25
Milk,Nonfat dry,Chicago lb.-d	121.50
Coffee,Brazilian,Comp-y	1.4911
Coffee,Colombian, NY-y	1.8019
Eggs,large white,Chicago-u	1.1650
Flour,hard winter KC-p	17.25
Hams,17-20 lbs,Mid-US fob-u	n.a.
Hogs,Iowa-So. Minnesota-u	81.37
Pork bellies,12-14 lb MidUS-u	n.a.
Pork loins,13-19 lb MidUS-u	1.1310
Steers,Tex.-Okla. Choice-u	n.a.
Steers,feeder,Okla. City-u,w	270.25
Fats and Oils	
Degummed corn oil, crude wtd. avg.-u,w	n.a.
Grease,choice white,Chicago-h	0.6100
Lard,Chicago-u	n.a.
Soybean oil,crude;Centl IL-u,w	0.5785
Tallow,bleach;Chicago-h	0.6600
Tallow,edible,Chicago-u	n.a.

KEY TO CODES: A=ask; B=bid; BP=country elevator bids to producers; C=corrected; D=CME; E=Manfra,Tordella & Brookes; H=American Commodities Brokerage Co; K=bi-weekly; M=monthly; N=nominal; n.a.=not quoted or not available; P=Sosland Publishing; R=SNL Energy; S=Platts-TSI; T=Cotlook Limited; U=USDA; V=Benchmark Mineral Intelligence; W=weekly; Y=International Coffee Organization; Z=not quoted. *Data as of 10/10

Source: Dow Jones Market Data

Borrowing Benchmarks | wsj.com/market-data/bonds/benchmarks

Money Rates

October 11, 2023

Key annual interest rates paid to borrow or lend money in U.S. and international markets. Rates below are a guide to general levels but don't always represent actual transactions.

Inflation

	Aug. index level	Chg From (%) July '23	Aug. '22
U.S. consumer price index			
All items	**307.026**	0.44	3.7
Core	**310.103**	0.23	4.3

International rates

	Latest	Week ago	52-Week High	Low
Prime rates				
U.S.	**8.50**	8.50	8.50	6.25
Canada	**7.20**	7.20	7.20	5.45
Japan	**1.475**	1.475	1.475	1.475
Policy Rates				
Euro zone	**4.50**	4.50	4.50	1.25
Switzerland	**2.25**	2.25	2.25	1.00
Britain	**5.25**	5.25	5.25	2.25
Australia	**4.10**	4.10	4.10	2.60
Overnight repurchase				
U.S.	**5.38**	5.38	5.40	3.00
U.S. government rates				
Discount				
	5.50	5.50	5.50	3.25

	Latest	Week ago	52-WEEK High	Low
Federal funds				
Effective rate	**5.3400**	5.3400	5.3500	3.0800
High	**5.6500**	5.6500	5.6500	3.2500
Low	**5.3000**	5.3100	5.3300	3.0500
Bid	**5.3300**	5.3300	5.3300	3.0700
Offer	**5.3600**	5.3500	5.3700	3.0900
Treasury bill auction				
4 weeks	**5.310**	5.290	5.840	2.920
13 weeks	**5.340**	5.345	5.345	3.510
26 weeks	**5.320**	5.340	5.350	4.030
Secondary market				
Fannie Mae				
30-year mortgage yields				
30 days	**6.995**	7.166	7.207	5.244
60 days	**7.018**	7.194	7.235	5.250

Other short-term rates

	Latest	Week ago	52-Week high	low
Call money				
	7.25	7.25	7.25	5.00

	Latest	Week ago	52-WEEK High	Low
Commercial paper (AA financial)				
90 days	**5.43**	5.45	5.54	3.56
Secured Overnight Financing Rate				
	5.31	5.33	5.33	3.01

	Latest	Value Traded	52-Week High	Low
DTCC GCF Repo Index				
Treasury	**5.371**	21.356	5.399	3.024
MBS	**5.408**	58.760	5.418	3.068

Notes on data:

U.S. prime rate is the base rate on corporate loans posted by at least 70% of the 10 largest U.S. banks, and is effective July 27, 2023. **Other prime rates** aren't directly comparable; lending practices vary widely by location; **Discount rate** is effective July 27, 2023. **Secured Overnight Financing Rate** is as of October 10, 2023. **DTCC GCF Repo Index** is Depository Trust & Clearing Corp.'s weighted average for overnight trades in applicable CUSIPs. Value traded is in billions of U.S. dollars. **Federal-funds rates** are Tullett Prebon rates as of 5:30 p.m. ET.

Sources: Federal Reserve; Bureau of Labor Statistics; DTCC; FactSet; Tullett Prebon Information, Ltd.

Exchange-Traded Portfolios | WSJ.com/ETFresearch

Largest 100 exchange-traded funds, latest session

Wednesday, October 11, 2023

ETF	Symbol	Closing Price	Chg (%)	YTD (%)
CnsmrDiscSelSector	**XLY**	163.12	**0.36**	26.3
CnsStapleSelSector	**XLP**	66.95	**–0.68**	–10.2
DimenUSCoreEq2	**DFAC**	26.51	**0.19**	9.2
EnSelSectorSPDR	**XLE**	87.56	**–1.29**	0.1
FinSelSectorSPDR	**XLF**	33.35	**0.15**	–2.5
HealthCareSelSect	**XLV**	130.50	**–0.44**	–3.9
IndSelSectorSPDR	**XLI**	103.60	**0.60**	5.5
InvscNasd100	**QQQM**	152.71	**0.73**	39.4
InvscQQQI	**QQQ**	371.22	**0.71**	39.4
InvscS&P500EW	**RSP**	142.38	**0.21**	0.8
iShCoreDivGrowth	**DGRO**	49.62	**–0.08**	–0.8
iShCoreMSCIEAFE	**IEFA**	64.92	**0.32**	5.3
iShCoreMSCIEM	**IEMG**	48.10	**0.50**	3.0
iShCoreMSCITotInt	**IXUS**	60.50	**0.45**	4.5
iShCoreS&P500	**IVV**	438.33	**0.42**	14.1
iShCoreS&P MC	**IJH**	249.76	**0.31**	3.3
iShCoreS&P SC	**IJR**	94.06	**0.13**	–0.6
iShCoreS&PTotUS	**ITOT**	95.94	**0.36**	13.1
iShCoreTotalUSDBd	**IUSB**	43.65	**0.39**	–2.8
iShCoreUSAggBd	**AGG**	94.05	**0.46**	–3.0
iShEdgeMSCIMinUSA	**USMV**	73.26	**0.18**	1.6
iShEdgeMSCIUSAQual	**QUAL**	135.91	**0.71**	19.3
iShGoldTr	**IAU**	35.48	**0.74**	2.6
iShiBoxx$HYCpBd	**HYG**	73.20	**–0.01**	–0.6
iShiBoxx$IGCpBd	**LQD**	101.88	**0.61**	–3.4
iShMBS	**MBB**	88.56	**0.33**	–4.5
iShMSCIACWI	**ACWI**	94.02	**0.46**	10.8
iShMSCI EAFE	**EFA**	69.65	**0.42**	6.1
iSh MSCI EM	**EEM**	38.43	**0.63**	1.4
iShMSCIEAFEValue	**EFV**	49.21	**0.31**	7.3
iShNatlMuniBd	**MUB**	102.96	**0.48**	–2.4
iSh1-5YIGCorpBd	**IGSB**	49.79	**–0.06**	–0.1
iSh1-3YTreaBd	**SHY**	80.98	**–0.02**	–0.2
iShRussMC	**IWR**	69.87	**0.39**	3.6
iShRuss1000	**IWB**	239.82	**0.41**	13.9
iShRuss1000Grw	**IWF**	276.32	**0.81**	29.0
iShRuss1000Val	**IWD**	151.75	**–0.09**	0.1
iShRussell2000	**IWM**	175.67	**–0.17**	0.8
iShS&P500Grw	**IVW**	70.35	**0.47**	20.3
iShS&P500Value	**IVE**	155.62	**0.36**	7.3
iShSelectDiv	**DVY**	107.91	**0.51**	–10.5
iSh7-10YTreaBd	**IEF**	91.54	**0.55**	–4.4
iShShortTreaBd	**SHV**	110.18	**0.01**	0.2
iShTIPSBondETF	**TIP**	103.63	**0.45**	–2.6
iSh20+YTreaBd	**TLT**	88.47	**2.09**	–11.1
iShUSTreasuryBd	**GOVT**	22.05	**0.43**	–3.0
iSh0-3MTreaBd	**SGOV**	100.40	**0.02**	0.3
JPMEquityPrem	**JEPI**	53.76	**0.32**	–1.3
JPM UltShIncm	**JPST**	50.07	**...**	–0.1
PacerUSCashCows100	**COWZ**	49.53	**0.04**	7.1
ProShUltPrQQQ	**TQQQ**	39.34	**2.13**	127.4
SPDRBbg1-3MTB	**BIL**	91.56	**0.02**	0.1
SPDR DJIA Tr	**DIA**	338.03	**0.17**	2.0
SPDR Gold	**GLD**	173.79	**0.73**	2.4
SPDRPtfDevxUS	**SPDW**	31.28	**0.45**	5.4
SPDRS&P500Value	**SPYV**	41.77	**0.34**	7.4
SPDRPtfS&P500	**SPLG**	51.30	**0.39**	14.1
SPDRS&P500Growth	**SPYG**	60.94	**0.48**	20.3
SPDR S&P 500	**SPY**	436.32	**0.41**	14.1
SchwabIntEquity	**SCHF**	34.29	**0.47**	6.5
SchwabUS BrdMkt	**SCHB**	50.78	**0.44**	13.3
SchwabUS Div	**SCHD**	70.86	**0.16**	–6.2
SchwabUS LC	**SCHX**	51.64	**0.41**	14.4
SchwabUS LC Grw	**SCHG**	75.74	**0.85**	36.3
SPDR S&PMdCpTr	**MDY**	457.38	**0.30**	3.3
SPDR S&P Div	**SDY**	114.89	**0.03**	–8.2
TechSelectSector	**XLK**	170.92	**0.93**	37.4
VangdInfoTech	**VGT**	430.95	**0.79**	34.9
VangdSC Val	**VBR**	159.39	**0.47**	0.4
VangdExtMkt	**VXF**	143.93	**0.13**	8.3
VangdDivApp	**VIG**	156.65	**–0.05**	3.2
VangdFTSEAWxUS	**VEU**	52.41	**0.44**	4.5
VangdFTSEDevMk	**VEA**	44.07	**0.43**	5.0
VangdFTSE EM	**VWO**	39.60	**0.30**	1.6
VangdFTSE Europe	**VGK**	58.79	**0.67**	6.0
VangdGrowth	**VUG**	282.71	**0.79**	32.7
VangdHlthCr	**VHT**	237.26	**–0.57**	–4.3
VangdHiDiv	**VYM**	102.87	**–0.12**	–4.9
VangdIntermBd	**BIV**	72.27	**0.35**	–2.8
VangdIntrCorpBd	**VCIT**	75.83	**0.34**	–2.2
VangdIntermTrea	**VGIT**	57.14	**0.23**	–2.3
VangdLC	**VV**	200.08	**0.41**	14.9
VangdMC	**VO**	210.28	**0.28**	3.2
VangdMC Val	**VOE**	131.52	**0.34**	–2.8
VangdMBS	**VMBS**	43.66	**0.46**	–4.1
VangdRealEst	**VNQ**	76.80	**1.74**	–6.9
VangdS&P500ETF	**VOO**	400.93	**0.42**	14.1
VangdST Bond	**BSV**	75.16	**–0.01**	–0.2
VangdSTCpBd	**VCSH**	75.08	**–0.05**	–0.2
VangdShtTmInfltn	**VTIP**	47.00	**0.09**	0.6
VangdShortTrea	**VGSH**	57.57	**–0.03**	–0.4
VangdSC	**VB**	189.36	**0.21**	3.2
VangdTaxExemptBd	**VTEB**	48.21	**0.73**	–2.6
VangdTotalBd	**BND**	69.73	**0.46**	–2.9
VangdTotIntlBd	**BNDX**	48.01	**0.61**	1.2
VangdTotIntlStk	**VXUS**	53.99	**0.41**	4.4
VangdTotalStk	**VTI**	216.48	**0.39**	13.2
VangdTotWrldStk	**VT**	94.58	**0.46**	9.7
VangdValue	**VTV**	137.99	**–0.07**	–1.7
WisdTrFRTrea	**USFR**	50.39	**0.02**	0.2

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Tracking Bond Benchmarks

Return on investment and spreads over Treasurys and/or yields paid to investors compared with 52-week highs and lows for different types of bonds

Total return close	YTD total return (%)	Index	Yield (%) Latest	Low	High
Broad Market Bloomberg Fixed Income Indices***					
1927.15	-1.1	U.S. Aggregate	5.410	4.180	5.610
U.S. Corporate Indexes Bloomberg Fixed Income Indices***					
2873.30	0.2	U.S. Corporate	6.090	4.830	6.270
2826.13	1.5	Intermediate	6.010	4.730	6.210
3693.61	-2.6	Long term	6.250	5.010	6.400
548.73	-0.9	Double-A-rated	5.450	4.320	5.630
765.36	0.8	Triple-B-rated	6.340	5.080	6.530
High Yield Bonds ICE BofA					
489.03	5.5	High Yield Constrained	9.127	7.781	9.623
471.61	12.2	Triple-C-rated	14.395	13.413	16.916
3287.28	5.6	High Yield 100	8.604	7.022	8.902
426.45	5.1	Global High Yield Constrained	9.070	7.868	9.945
327.05	5.9	Europe High Yield Constrained	7.691	6.646	8.508
U.S Agency Bloomberg Fixed Income Indices***					
1718.35	1.6	U.S Agency	5.150	4.130	5.320
1525.79	1.9	10-20 years	5.130	4.120	5.300
3115.13	-2.2	20-plus years	5.440	4.300	5.570
2554.25	0.9	Yankee	5.820	4.670	5.990

Total return close	YTD total return (%)	Index	Yield (%) Latest	Low	High
Mortgage-Backed Bloomberg Fixed Income Indices***					
1883.43	-2.5	Mortgage-Backed	5.630	4.140	5.870
1871.84	-1.6	Ginnie Mae (GNMA)	5.640	4.170	5.860
1108.61	-2.4	Fannie mae (FNMA)	5.630	4.140	5.870
1718.97	-1.4	Freddie Mac (FHLMC)	5.770	4.090	6.050
552.51	-0.7	Muni Master	4.021	2.757	4.221
393.51	-1.2	7-12 year	3.785	2.392	3.995
439.33	-0.8	12-22 year	4.391	3.257	4.608
410.54	-0.4	22-plus year	4.935	4.020	5.135
Global Government J.P. Morgan†					
518.19	-0.7	Global Government	3.570	2.680	3.730
757.97	-0.8	Canada	3.970	2.880	4.260
335.40	0.7	EMU§	3.562	2.461	3.790
621.14	0.2	France	3.400	2.290	3.630
443.68	0.04	Germany	2.800	1.730	3.030
275.79	-0.7	Japan	1.140	0.710	1.170
478.37	-0.3	Netherlands	3.090	1.970	3.320
756.12	-3.4	U.K.	4.560	3.120	4.840
772.22	0.5	Emerging Markets **	8.479	7.102	9.159

*Constrained indexes limit individual issuer concentrations to 2%; the High Yield 100 are the 100 largest bonds † In local currency § Euro-zone bonds

** EMBI Global Index *** Bloomberg Yield Data as of 10/10

Sources: ICE Data Services; Bloomberg Fixed Income Indices; J.P.Morgan

Global Government Bonds: Mapping Yields

Yields and spreads over or under U.S. Treasurys on benchmark two-year and 10-year government bonds in selected other countries; arrows indicate whether the yield rose(▲) or fell (▼) in the latest session

Coupon (%)	Country/ Maturity, in years	Yield (%) Latest	Previous	Month ago	Year ago	Spread Under/Over U.S. Treasurys, in basis points Latest	Prev	Year ago
5.000	**U.S.** 2	**5.003** ▲	4.982	4.993	4.314			
3.875	10	**4.596** ▼	4.654	4.287	3.938			
0.250	**Australia** 2	**4.005** ▲	3.959	3.872	3.383	**-100.2**	-101.5	**-91.3**
3.000	10	**4.440** ▼	4.467	4.173	4.047	**-16.0**	-19.8	**10.2**
0.000	**France** 2	**3.431** ▲	3.380	3.343	1.859	**-157.7**	-159.5	**-243.6**
3.500	10	**3.332** ▼	3.350	3.171	2.898	**-126.9**	-131.5	**-104.7**
3.100	**Germany** 2	**3.107** ▲	3.073	3.102	1.838	**-190**	-190.1	**-245.7**
2.600	10	**2.726** ▼	2.781	2.641	2.303	**-187**	-188.4	**-164.2**
3.600	**Italy** 2	**3.914** ▲	3.892	3.803	2.894	**-109.4**	-108.2	**-140.2**
4.350	10	**4.664** ▼	4.739	4.392	4.696	**6.3**	7.5	**75.2**
0.005	**Japan** 2	**0.062** ▲	0.057	0.046	-0.053	**-494.6**	-491.7	**-434.8**
0.800	10	**0.779** ▲	0.774	0.705	0.255	**-382.2**	-389.0	**-369.0**
0.000	**Spain** 2	**3.488** ▼	3.504	3.486	2.133	**-152.0**	-147.0	**-216.2**
3.550	10	**3.813** ▼	3.905	3.685	3.475	**-78.7**	-76.0	**-47.0**
0.625	**U.K.** 2	**4.556** ▼	4.559	4.840	4.224	**-45.1**	-41.5	**-7.2**
4.250	10	**4.338** ▼	4.436	4.475	4.439	**-26.2**	-22.9	**49.4**

Source: Tullett Prebon, Tradeweb ICE U.S. Treasury Close

Corporate Debt

Prices of firms' bonds reflect factors including investors' economic, sectoral and company-specific expectations

Investment-grade spreads that tightened the most...

Issuer	Symbol	Coupon (%)	Yield (%)	Maturity	Spread*, in basis points Current	One-day change	Last week
Halliburton	HAL	7.450	6.29	Sept. 15, '39	133	–299	n.a.
McDonald's	MCD	3.625	6.02	May 1, '43	108	–236	n.a.
Sumitomo Mitsui Financial	SUMIBK	2.142	6.24	Sept. 23, '30	165	–214	173
Pioneer Natural Resources	PXD	5.100	5.37	March 29, '26	61	–16	95
Metropolitan Life Global Funding I	...	5.000	5.35	Jan. 6, '26	60	–13	n.a.
Trustees of Dartmouth College	DARMTH	4.000	5.71	June 1, '42	77	–11	n.a.
HSBC Holdings	HSBC	6.500	6.85	May 2, '36	223	–11	226
Pacific Life Global Funding II	PACLIF	5.500	5.55	Aug. 28, '26	79	–10	90

...And spreads that widened the most

Issuer	Symbol	Coupon (%)	Yield (%)	Maturity	Spread*, in basis points Current	One-day change	Last week
American Water Capital	AWK	6.593	5.91	Oct. 15, '37	132	204	n.a.
American Honda Finance	HNDA	4.700	5.42	Jan. 12, '28	85	50	82
Royal Bank of Canada	RY	5.200	5.87	Aug. 1, '28	125	14	112
Bank of America	BAC	6.110	6.40	Jan. 29, '37	178	7	180
Citigroup	C	6.625	6.53	June 15, '32	193	7	206
United Airlines	UAL	5.875	6.23	April 15, '29	123	7	89
Guardian Life Global Funding	GUARDN	5.737	5.67	Oct. 2, '28	106	6	107
Principal Life Global Funding II	PFG	1.500	5.80	Nov. 17, '26	101	6	n.a.

High-yield issues with the biggest price increases...

Issuer	Symbol	Coupon (%)	Yield (%)	Maturity	Bond Price as % of face value Current	One-day change	Last week
Murphy Oil	MUR	7.050	7.24	May 1, '29	99.125	1.38	98.387
Transocean	RIG	6.800	10.22	March 15, '38	74.500	1.00	73.500
Genworth Financial	GNW	6.500	8.36	June 15, '34	87.034	0.53	85.500
Telecom Italia Capital	TITIM	7.721	9.06	June 4, '38	89.250	0.53	89.130
Bath & Body Works	BBWI	5.250	7.09	Feb. 1, '28	93.260	0.51	92.750
Occidental Petroleum	OXY	7.875	6.57	Sept. 15, '31	107.953	0.39	n.a.
Belo	...	7.250	8.51	Sept. 15, '27	95.871	0.37	96.445
Intesa Sanpaolo	ISPIM	5.017	8.04	June 26, '24	97.960	0.34	97.650

...And with the biggest price decreases

Issuer	Symbol	Coupon (%)	Yield (%)	Maturity	Bond Price as % of face value Current	One-day change	Last week
Sealed Air	SEE	6.875	7.63	July 15, '33	94.833	–0.54	95.250
Intesa Sanpaolo	ISPIM	5.710	7.98	Jan. 15, '26	95.390	–0.36	94.733
Owens–Brockway Glass Container	...	6.375	6.73	Aug. 15, '25	99.391	–0.30	100.375
Ford Motor Credit	...	3.664	7.59	Sept. 8, '24	96.625	–0.25	96.625
Bath & Body Works	BBWI	6.950	8.48	March 1, '33	90.250	–0.25	87.395
Dish DBS	...	7.750	22.26	July 1, '26	71.500	–0.25	69.750
OneMain Finance	OMF	7.125	8.11	March 15, '26	97.875	–0.25	97.500
Graphic Packaging	GPK	3.500	6.93	March 15, '28	87.136	–0.19	88.480

*Estimated spread over 2-year, 3-year, 5-year, 10-year or 30-year hot-run Treasury; 100 basis points=one percentage pt.; change in spread shown is for Z-spread.

Note: Data are for the most active issue of bonds with maturities of two years or more

Source: MarketAxess

BIGGEST 1,000 STOCKS

How to Read the Stock Tables

The following explanations apply to NYSE, NYSE Arca, NYSE American and Nasdaq Stock Market listed securities. Prices are composite quotations that include primary market trades as well as trades reported by Nasdaq BX (formerly Boston), Chicago Stock Exchange, Cboe, NYSE National and Nasdaq ISE.

The list comprises the 1,000 largest companies based on market capitalization.

Underlined quotations are those stocks with large changes in volume compared with the issue's average trading volume.

Boldfaced quotations highlight those issues whose price changed by 5% or more if their previous closing price was $2 or higher.

Footnotes:

▲-New 52-week high.
▼-New 52-week low.
dd-Indicates loss in the most recent four quarters.
FD-First day of trading.
h-Does not meet continued listing standards
lf-Late filing
q-Temporary exemption from Nasdaq requirements.
t-NYSE bankruptcy
v-Trading halted on primary market.
vj-In bankruptcy or receivership or being reorganized under the Bankruptcy Code, or securities assumed by such companies.

Wall Street Journal stock tables reflect composite regular trading as of 4 p.m. and changes in the closing prices from 4 p.m. the previous day.

Wednesday, October 11, 2023

A B C

Stock	Sym	Close	Net Chg
AECOM	ACM	83.78	0.91
AES	AES	13.39	0.39
▲ Aflac	AFL	79.80	0.98
AGCO	AGCO	124.06	1.78
Ansys	ANSS	304.88	1.60
APA	APA	38.93	0.04
ASE Tech	ASX	7.89	0.14
ASML	ASML	606.19	4.04
AT&T	T	14.77	-0.19
▼ AbbottLabs	**ABT**	**92.64**	**-4.92**
AbbVie	ABBV	149.34	0.45
AcadiaHealthcare	ACHC	72.13	0.05
Accenture	ACN	312.54	1.51
▲ ActivisionBliz	ATVI	94.47	0.13
Adobe	ADBE	549.91	17.19
AdvDrainageSys	WMS	123.25	4.22
AdvMicroDevices	AMD	108.31	-0.70
Aegon	AEG	4.91	0.04
AerCap	AER	61.84	0.03
AgilentTechs	A	113.38	0.09
agilon health	AGL	18.51	-0.27
AgnicoEagleMines	AEM	47.55	0.80
AirProducts	APD	290.89	2.98
Airbnb	ABNB	130.00	-1.59
▲ AkamaiTech	AKAM	108.37	0.18
Albemarle	ALB	164.80	2.72
Albertsons	ACI	22.72	-0.17
Alcon	ALC	75.96	-0.66
AlexandriaRlEst	ARE	101.46	1.01
Alibaba	BABA	87.78	0.61
AlignTech	ALGN	277.52	-8.99
Allegion	ALLE	105.97	0.50
AlliantEnergy	LNT	49.69	0.54
Allstate	ALL	114.77	0.05
AllyFinancial	ALLY	25.41	-0.55
AlnylamPharm	ALNY	167.82	-1.24
▲ Alphabet A	GOOGL	140.55	2.49
▲ Alphabet C	GOOG	141.70	2.50
Altria	MO	42.56	0.07
Amazon.com	AMZN	131.83	2.35
Ambev	ABEV	2.60	...
Amcor	AMCR	8.95	-0.04
Amdocs	DOX	82.44	-1.57
Ameren	AEE	77.39	1.22
AmericaMovil	AMX	17.03	0.07
AmerAirlines	AAL	12.48	0.22
AEP	AEP	75.28	1.05
AmerExpress	AXP	151.51	0.58
AmericanFin	AFG	110.65	-0.11
AmHomes4Rent	AMH	35.14	0.76
AIG	AIG	61.53	0.36
AmerTowerREIT	AMT	165.62	7.06
AmerWaterWorks	AWK	122.22	0.36
AmericoldRealty	COLD	29.28	-0.52
Ameriprise	AMP	329.34	0.43
Ametek	AME	152.25	0.97
Amgen	AMGN	283.60	12.35
Amphenol	APH	84.64	1.18
AnalogDevices	ADI	174.92	-1.05
AB InBev	BUD	54.55	0.91
AnnalyCap	NLY	18.09	0.11
AnteroResources	AR	27.15	0.02
Aon	AON	327.32	1.83
ApolloGlbMgmt	APO	89.29	-0.50
AppFolio	APPF	189.27	-3.00
Apple	AAPL	179.80	1.41
ApplMaterials	AMAT	142.18	0.78
Applovin	APP	40.28	-0.25
Aptargroup	ATR	127.53	0.99
Aptiv	APTV	98.92	0.80
Aramark	ARMK	26.32	0.53
ArcelorMittal	MT	24.53	0.20
ArchCapital	ACGL	83.02	1.16
ADM	ADM	73.70	-0.45
▲ AresMgmt	ARES	111.14	0.86
argenx	ARGX	506.01	5.71
AristaNetworks	ANET	191.86	-2.87
Arm	ARM	54.68	-1.03
ArrowElec	ARW	119.01	-0.81
AspenTech	AZPN	204.83	2.34
Assurant	AIZ	146.80	0.86
AstraZeneca	AZN	68.01	...
Atlassian	TEAM	199.45	-6.55
AtmosEnergy	ATO	111.79	0.99
Autodesk	ADSK	213.20	0.73
Autoliv	ALV	97.23	0.46
ADP	ADP	249.46	0.31
AutoZone	AZO	2571.86	-5.72
Avalonbay	AVB	177.42	3.43
Avangrid	AGR	31.73	0.35
Avantor	AVTR	20.95	0.19
AveryDennison	AVY	186.51	2.20
AvisBudget	CAR	184.33	3.20
AxonEnterprise	AXON	220.00	4.71
BCE	BCE	38.40	0.38
BHP Group	BHP	57.43	0.33
BILL	BILL	114.61	0.52
BJ'sWholesale	BJ	70.18	-0.50
BP	BP	38.65	0.03
BWX Tech	BWXT	77.38	0.37
Baidu	BIDU	134.12	-0.52
BakerHughes	BKR	34.90	...
Ball	BALL	45.99	-0.26
▲ BancoBilbaoViz	BBVA	8.24	0.15
BancoBradesco	BBDO	2.58	-0.12
BancodeChile	BCH	20.00	0.01
BancSanBrasil	BSBR	5.47	0.02
BcoSantChile	BSAC	17.97	-0.11
BancoSantander	SAN	3.81	0.03
BanColombia	CIB	25.56	-0.37
BankofAmerica	BAC	27.02	0.01
BankMontreal	BMO	82.44	0.53
BankNY Mellon	BK	42.15	-0.15
BankNovaScotia	BNS	44.51	0.20
Barclays	BCS	7.82	0.06
BarrickGold	GOLD	15.22	0.26
Bath&BodyWks	BBWI	31.11	-0.34
▼ BaxterIntl	**BAX**	**32.74**	**-4.58**
BectonDicknsn	BDX	261.30	-5.93
BeiGene	BGNE	182.20	5.53
BentleySystems	BSY	53.71	0.82
Berkley	WRB	64.14	0.95
BerkHathwy B	BRK.B	348.43	-0.13
BerkHathwy A	BRK.A	528820	290.00
BerryGlobal	BERY	57.22	-0.53
BestBuy	BBY	70.95	0.57
Bio-Techne	TECH	69.29	-0.12
Bio-RadLab A	BIO	357.00	-8.04
Biogen	BIIB	266.52	2.38
BioMarinPharm	BMRN	88.58	0.25
BioNTech	BNTX	110.94	-0.23
BlackRock	BLK	642.67	0.72
Blackstone	BX	107.27	1.98
Block	SQ	46.69	0.69
BlueOwlCapital	OWL	13.84	0.25
Boeing	BA	196.07	2.54
Booking	BKNG	3071.95	11.55
▲ BoozAllen	BAH	126.65	2.16
BorgWarner	BWA	39.97	0.21
BostonProps	BXP	56.99	1.99
BostonSci	**BSX**	**50.91**	**-2.89**
BristolMyers	BMY	56.65	0.26
BritishAmTob	BTI	31.28	0.25
Broadcom	AVGO	874.56	16.15
BroadridgeFinl	BR	182.39	0.92
BrookfieldAsset	BAM	33.52	0.54
Brookfield	BN	33.31	1.09
BrookfieldInfr	BIP	29.25	0.40
BrookfieldRenew	BEPC	24.00	0.13
Brown&Brown	BRO	71.46	0.52
Brown-Forman A	BF.A	56.97	-0.37
Brown-Forman B	BF.B	56.19	-0.44
Bruker	BRKR	63.99	-0.18
BuildersFirst	BLDR	125.69	2.55
Bunge	BG	101.99	-2.50
BurlingtonStrs	BURL	123.61	-0.11
CACI Intl	CACI	338.98	3.26
CBRE Group	CBRE	73.85	0.68
CCC Intelligent	CCCS	12.74	-0.08
CDW	CDW	213.82	3.67
CF Industries	CF	84.00	-1.41
CGI A	GIB	101.51	2.41
CH Robinson	CHRW	85.99	-0.51
CME Group	CME	217.10	1.01
CMS Energy	CMS	54.18	0.64
CNA Fin	CNA	40.27	0.69
CNH Indl	CNHI	12.15	-0.02
CRH	CRH	59.22	1.72
CSX	CSX	31.61	0.07
CVS Health	CVS	71.73	...
▲ CadenceDesign	CDNS	252.98	3.23
CAE	CAE	23.34	0.09
CaesarsEnt	CZR	47.01	1.25
CamdenProperty	CPT	97.42	1.11
Cameco	CCJ	37.22	-0.53
CampbellSoup	CPB	39.43	-0.13
CIBC	CM	38.17	0.10
CanNtlRlwy	CNI	109.16	0.40
CanadianNatRscs	CNQ	65.20	-0.03
CdnPacKC	CP	73.37	0.49
CapitalOne	COF	97.12	0.14
CardinalHealth	CAH	91.68	0.07
Carlisle	CSL	267.57	4.20
Carlyle	CG	30.41	0.17
CarMax	KMX	69.10	-0.94
Carnival	CCL	12.65	-0.25
Carnival	CUK	11.37	-0.20
CarrierGlobal	CARR	56.04	0.62
Carvana	CVNA	37.87	-1.17
CaseysGenStores	CASY	271.89	-4.54
Catalent	**CTLT**	**46.57**	**2.46**
Caterpillar	CAT	272.83	-0.38
Celanese	CE	124.09	1.04
CelsiusHldg	CELH	165.75	-1.28
Cemex	**CX**	**6.41**	**0.34**
Cencora	COR	188.03	0.06
CenovusEnergy	CVE	20.49	0.16
Centene	CNC	70.98	-0.19
CenterPointEner	CNP	27.75	0.28
CentraisElBras	EBR	7.18	0.02
CeridianHCM	CDAY	75.11	0.76
ChampionX	CHX	34.33	-0.08
CharlesRiverLabs	CRL	197.08	1.45
ChartIndustries	GTLS	164.62	6.61
CharterComms	CHTR	449.82	5.10
CheckPoint	CHKP	134.37	-1.08
Chemed	CHE	516.29	-3.68
ChenierEnergy	LNG	172.39	1.39
ChenierEnerPtrs	CQP	53.78	-0.96
ChesapeakeEner	CHK	88.20	-0.54
Chevron	CVX	161.10	-5.44
Chewy	CHWY	18.79	0.05
Chipotle	CMG	1823.48	-8.64
ChordEnergy	CHRD	163.21	0.26
Chubb	CB	210.18	0.51
ChunghwaTel	CHT	36.63	0.20
Church&Dwight	CHD	87.65	-0.50
ChurchillDowns	CHDN	113.69	0.89
Ciena	CIEN	44.41	-0.28
Cigna	CI	294.45	2.69
CincinnatiFinl	CINF	102.27	0.88
Cintas	CTAS	512.51	5.87
CiscoSystems	CSCO	53.66	-0.21
Citigroup	C	41.53	0.09
CitizensFin	CFG	26.75	-0.06
CivitasRscs	CIVI	74.64	-0.52
CleanHarbors	CLH	167.54	2.23
Cleveland-Cliffs	CLF	15.74	0.09
Clorox	CLX	122.36	-1.62
Cloudflare	NET	65.29	-0.27
Coca-Cola	KO	53.71	-0.32
Coca-ColaEuro	CCEP	58.43	-0.30
Cognex	CGNX	40.93	-0.58
CognizantTech	CTSH	68.34	0.48
CoinbaseGlbl	COIN	77.35	-2.27
ColgatePalm	CL	68.87	-0.62
Comcast A	CMCSA	44.24	-0.23
SABESP	SBS	12.26	-0.03
ConagraBrands	CAG	27.36	-0.17
Confluent	CFLT	31.50	0.13
ConocoPhillips	COP	120.04	-0.35
ConEd	ED	88.45	0.33
ConstBrands A	STZ	239.00	1.10
▲ ConstellationEner	CEG	115.07	2.07
Cooper	COO	310.75	-5.37
Copart	CPRT	46.15	0.54
Core&Main	CNM	31.18	0.67
CorebridgeFin	CRBG	20.74	0.11
Corning	GLW	29.10	-0.15
▼ Corteva	CTVA	49.88	-0.64
CoStar	CSGP	81.87	-0.13
Costco	COST	565.52	3.43
CoterraEnergy	CTRA	28.25	0.16
Coty	COTY	9.91	-0.48
Coupang	CPNG	17.73	0.20
Credicorp	BAP	128.31	1.50
▲ CrowdStrike	CRWD	188.22	4.37
CrownCastle	CCI	94.54	1.43
CrownHoldings	CCK	83.87	-0.64
CubeSmart	CUBE	38.43	0.29
Cummins	CMI	230.05	0.85
Curtiss-Wright	CW	205.78	3.02
CyberArkSoftware	CYBR	163.77	-3.17

D E F

Stock	Sym	Close	Net Chg
DTE Energy	DTE	97.84	0.48
Danaher	DHR	216.43	-2.01
Darden	DRI	137.52	-0.69
▼ DarlingIngred	DAR	46.46	-0.62
Datadog	DDOG	89.44	-2.19
DaVita	**DVA**	**75.89**	**-15.39**
DeckersOutdoor	DECK	509.07	0.52
Deere	DE	389.36	-1.48
DellTechC	DELL	70.34	2.36
DeltaAir	DAL	35.98	0.25
DentsplySirona	XRAY	31.80	-0.60
DeutscheBank	DB	10.82	0.04
DevonEnergy	DVN	46.75	0.68
▼ DexCom	**DXCM**	**78.97**	**-6.24**
Diageo	DEO	154.65	2.15
DiamondbkEner	FANG	158.85	2.47
Dick's	DKS	108.71	1.80
DigitalRealty	DLR	124.42	3.97
DiscoverFinSvcs	DFS	90.76	-0.58
Disney	DIS	84.85	-0.14
DocuSign	DOCU	42.23	-0.12
DolbyLab	DLB	81.81	0.15
DollarGeneral	DG	103.66	-1.70
DollarTree	DLTR	107.03	-1.09
DominionEner	D	42.96	0.37
Domino's	DPZ	354.05	-1.55
Donaldson	DCI	61.32	0.65
DoorDash	DASH	80.80	-0.63
Dover	DOV	142.18	1.15
Dow	DOW	50.89	-0.42
DrReddy'sLab	RDY	67.39	0.63
DraftKings	DKNG	30.74	0.47
Dropbox	DBX	28.22	0.29
DukeEnergy	DUK	89.87	0.93
▲ Duolingo	DUOL	173.00	-2.59
DuPont	DD	76.42	0.19
Dynatrace	DT	48.18	-0.47
EMCOR	EME	209.98	2.78
ENI	E	32.14	0.10
EOG Rscs	EOG	127.37	0.66
EPAM Systems	EPAM	248.92	3.30
EQT	EQT	43.55	-0.54
EastWestBncp	EWBC	51.70	-0.14
EastGroup	EGP	170.42	0.55
EastmanChem	EMN	74.23	0.06
Eaton	ETN	215.87	2.63
eBay	EBAY	43.05	-0.47
Ecolab	ECL	169.75	0.62
Ecopetrol	EC	11.86	0.10
EdisonIntl	EIX	64.93	1.66
EdwardsLife	EW	71.14	-1.77
Elastic	ESTC	82.00	1.62
ElbitSystems	ESLT	214.65	8.63
ElectronicArts	EA	129.69	1.61
ElevanceHealth	ELV	453.57	-1.56
EmersonElec	EMR	97.09	0.72
Enbridge	ENB	32.81	0.39
EncompassHealth	EHC	64.25	-1.61
Endeavor	EDR	20.27	-0.25
EnergyTransfer	ET	13.76	-0.05
EnphaseEnergy	ENPH	128.61	2.86
Entegris	ENTG	97.61	0.52
Entergy	ETR	94.96	1.35
EnterpriseProd	EPD	27.37	0.14
Equifax	EFX	186.60	-0.66
Equinix	EQIX	754.46	15.67
Equinor	EQNR	33.47	-0.42
Equitable	EQH	28.29	0.51
EquityLife	ELS	65.38	1.20
EquityResdntl	EQR	60.74	0.97
ErieIndemnity	ERIE	305.30	1.07
EssentialUtil	WTRG	34.23	0.15
EssexProp	ESS	222.30	5.05
EsteeLauder	EL	140.43	-0.24
Etsy	ETSY	64.84	1.13
Everest	EG	392.50	7.19
Evergy	EVRG	50.30	0.60
EversourceEner	ES	58.97	0.69
ExactSciences	EXAS	66.89	0.79
Exelixis	EXEL	21.50	-0.11
Exelon	EXC	40.04	0.76
Expedia	EXPE	103.61	2.12
ExpeditorsIntl	EXPD	117.00	-0.71
ExtraSpaceSt	EXR	122.25	1.02
ExxonMobil	XOM	106.49	-3.96
F5	FFIV	157.33	-0.56
FMC	FMC	62.76	-1.86
FTI Consulting	FCN	188.46	-1.17
Fabrinet	FN	181.96	4.15
FactSet	FDS	456.87	3.53
FairIsaac	FICO	904.68	15.53
Fastenal	FAST	56.01	0.16
FederalRealty	FRT	91.01	1.80
FedEx	FDX	255.46	-1.33
Ferguson	FERG	169.57	2.73
Ferrari	RACE	309.82	4.61
FidNatlFinl	FNF	39.89	0.84
FidNatlInfo	FIS	53.12	0.02
FifthThirdBncp	FITB	24.99	...
FirstCitizBcshA	FCNCA	1390.13	5.13
FirstSolar	FSLR	151.50	-0.06
FirstEnergy	FE	35.46	0.44
FirstService	FSV	147.93	1.92
Fiserv	FI	113.55	-1.10
FiveBelow	FIVE	165.26	-0.22
FleetCorTech	FLT	256.24	-5.21
Flex	FLEX	26.96	0.07
Floor&Decor	FND	87.45	-1.92
FomentoEconMex	FMX	108.03	1.43
FordMotor	F	12.25	0.05
Fortinet	FTNT	58.97	-0.43
Fortis	FTS	40.76	0.88
Fortive	FTV	77.16	0.69
FortuneBrands	FBIN	62.47	1.38
FoxA	FOXA	31.19	-0.08
FoxB	FOX	28.81	-0.11
Franco-Nevada	FNV	136.80	2.61
FranklinRscs	BEN	23.70	-0.39
FreeportMcM	FCX	37.15	-0.14
FreseniusMed	**FMS**	**17.27**	**-3.68**
FullTruck	**YMM**	**6.98**	**-0.43**
Futu	FUTU	63.95	1.19

G H I

Stock	Sym	Close	Net Chg
GE HealthCare	GEHC	67.78	-0.41
GFLEnvironmental	GFL	32.37	-0.73
GSK	GSK	37.56	0.22
GXO Logistics	GXO	56.99	0.40
Gallagher	AJG	234.90	1.41
Gaming&Leisure	GLPI	47.21	0.73
Garmin	GRMN	108.73	0.92
Gartner	IT	360.82	5.00
GenDigital	GEN	17.73	0.04
Generac	GNRC	107.78	0.37
GeneralDynamics	GD	237.78	1.11
GeneralElec	GE	113.26	1.78
GeneralMills	GIS	62.73	-0.53
GeneralMotors	GM	30.98	-0.50
Genmab	GMAB	35.26	-0.16
Genpact	G	36.87	0.15
Gentex	GNTX	31.88	-0.05
GenuineParts	GPC	146.77	-0.87
Gerdau	GGB	4.44	-0.01
GileadSciences	GILD	76.96	0.99
GitLab	GTLB	48.34	0.65
GlobalPayments	GPN	115.18	-0.04
GlobalFoundries	GFS	57.23	-0.79
Globant	GLOB	196.02	-3.37
GlobeLife	GL	113.30	0.42
GlobusMedical	GMED	53.02	...
GoDaddy	GDDY	76.40	0.75
GoldFields	**GFI**	**13.11**	**0.84**
GoldmanSachs	GS	313.02	-1.75
Grab	GRAB	3.49	-0.04
Graco	GGG	75.88	1.03
Grainger	GWW	714.29	3.41
GraphicPkg	GPK	21.32	-0.46
Grifols	GRFS	8.82	0.06
GpoAeroportuar	PAC	141.66	1.81
GpoAeroportSur	ASR	221.52	-0.12
Guidewire	GWRE	92.24	0.68
HCA Healthcare	HCA	244.07	-9.00
HDFC Bank	HDB	59.12	0.10
HF Sinclair	DINO	54.09	-0.17
HP	HPQ	26.83	0.40
HSBC	HSBC	40.83	0.30
H World	HTHT	37.19	-0.31
Haleon	HLN	8.48	0.02
Halliburton	HAL	41.64	0.49
HartfordFinl	HIG	70.94	-0.06
Hasbro	HAS	58.24	-1.32
HealthpeakProp	PEAK	18.14	0.22
Heico	HEI	168.63	1.44
Heico A	HEI.A	133.91	0.51
HenrySchein	HSIC	73.44	-0.76
Hershey	HSY	191.77	-2.57
Hess	HES	154.98	1.33
HessMidstream	HESM	29.57	0.18
HewlettPackard	HPE	17.16	0.23
Hilton	HLT	153.69	0.62
Hologic	HOLX	69.41	-1.36
HomeDepot	HD	298.05	-1.17
HondaMotor	HMC	33.81	0.26
Honeywell	HON	187.40	1.06
HormelFoods	HRL	36.23	-0.58
DR Horton	DHI	108.67	1.47
HostHotels	HST	16.17	-0.09
HoulihanLokey	HLI	109.03	1.42
HowmetAerospace	HWM	46.47	0.01
Hubbell	HUBB	310.63	2.85
HubSpot	HUBS	455.45	-12.35
Humana	HUM	493.42	-6.98
JBHunt	JBHT	193.76	2.23
HuntingtonBcshs	HBAN	10.16	-0.08
HuntingtonIngalls	HII	220.30	0.96
HyattHotels	H	108.29	-2.42
ICICI Bank	IBN	22.78	-0.14
ICL Group	ICL	5.22	-0.26
IdexxLab	IDXX	445.88	-4.82
IDEX	IEX	209.03	0.74
IllinoisToolWks	ITW	236.61	1.63
Illumina	ILMN	137.92	-0.87
ImperialOil	IMO	60.28	-0.09
Incyte	INCY	56.96	-0.28
Informatica	INFA	21.64	0.09
Infosys	INFY	17.61	-0.24
IngersollRand	IR	65.99	1.30
▼ Insulet	**PODD**	**133.45**	**-12.68**
Intel	INTC	36.88	0.45
InteractiveBrkrs	IBKR	87.42	-0.91
ICE	ICE	111.45	-0.31
InterContinentl	IHG	75.28	0.11
IBM	IBM	143.23	1.12
IntlFlavors	IFF	65.55	-0.22
IntlPaper	IP	35.43	0.06
Interpublic	IPG	29.14	-0.28
Intuit	INTU	541.58	1.47
IntuitiveSurgical	**ISRG**	**281.79**	**-16.04**
InvitatHomes	INVH	32.93	0.98
IonisPharm	IONS	46.91	0.26
IronMountain	IRM	60.83	1.15
ItauUnibanco	ITUB	5.51	0.10

J K L

Stock	Sym	Close	Net Chg
JD.com	JD	30.34	0.07
JPMorganChase	JPM	146.15	0.50
▲ Jabil	JBL	138.50	4.17
JackHenry	JKHY	147.18	-1.64
JacobsSolns	J	140.35	1.12
JamesHardie	JHX	26.74	0.34
JazzPharm	JAZZ	129.99	-0.35
JefferiesFinl	JEF	34.91	-0.34
J&J	JNJ	156.18	-2.18
JohnsonControls	JCI	53.41	0.78
JonesLang	JLL	139.09	2.49
JuniperNetworks	JNPR	26.20	-0.27
KB Financial	KB	42.00	-0.64
KBR	KBR	62.02	0.68
KKR	KKR	63.10	1.03
KLA	KLAC	482.63	8.49
Kanzhun	BZ	16.55	0.21
KarunaTherap	KRTX	179.49	3.55
Kellanova	K	49.53	-1.18
▼ Kenvue	KVUE	19.57	-0.12
▼ KeurigDrPepper	KDP	29.29	-1.00
KeyCorp	KEY	10.56	0.10
KeysightTech	KEYS	132.92	0.61
KimberlyClark	KMB	119.35	-0.36
KimcoRealty	KIM	17.40	0.36
KinderMorgan	KMI	16.85	0.03
KinsaleCapital	KNSL	442.52	7.49
Klaviyo	KVYO	33.54	-1.16
Knight-Swift	KNX	48.95	-0.51
Philips	PHG	19.14	0.06
KoreaElecPwr	KEP	6.52	-0.01
KraftHeinz	KHC	32.44	-0.03
Kroger	KR	44.19	-0.65
LKQ	LKQ	50.92	-0.28
LPL Financial	LPLA	233.38	-3.79
L3HarrisTech	LHX	176.82	-0.75
LabCorp.ofAmerica	LH	199.89	-2.69
LamResearch	LRCX	641.73	7.35
LamarAdv	LAMR	82.35	1.03
LambWeston	LW	91.84	-4.53
LandstarSystem	LSTR	179.36	-0.69
LasVegasSands	LVS	46.52	0.20
LatticeSemi	LSCC	80.92	-1.17
Lear	LEA	139.25	2.49
LegendBiotech	LEGN	66.67	-0.19
Leidos	LDOS	95.64	1.35
Lennar B	LEN.B	105.60	0.46
Lennar A	LEN	114.27	1.58
LennoxIntl	LII	390.20	8.19
LiAuto	LI	35.42	0.57
LibertyBroadbandC	LBRDK	93.07	0.96
LibertyBroadbandA	LBRDA	92.97	1.06
LibertyGlobal A	LBTYA	16.63	0.24
LibertyGlobal B	LBTYB	16.60	0.36
LibertyGlobal C	LBTYK	18.02	0.23
LibertyFormOne C	FWONK	68.59	-0.02
LibertyFormOne A	FWONA	61.70	-0.10
LibertySirius C	LSXMK	25.98	0.32
LibertySirius A	LSXMA	25.91	0.35
Light&Wonder	LNW	72.92	0.50
▲ EliLilly	LLY	605.28	25.97
LincolnElectric	LECO	187.69	2.22
Linde	LIN	378.67	-0.29
LithiaMotors	LAD	275.81	-3.19
LiveNationEnt	LYV	87.61	1.06
LloydsBanking	LYG	2.11	0.01
LockheedMartin	LMT	436.65	1.55
Loews	L	64.29	0.77
LogitechIntl	LOGI	71.33	-0.03
Lowe's	LOW	203.29	0.54
Lucid	LCID	5.34	-0.10
lululemon	LULU	373.36	0.33
LyondellBasell	LYB	93.54	-0.42

M N

Stock	Sym	Close	Net Chg
M&T Bank	MTB	125.71	-1.22
MGM Resorts	MGM	38.01	0.62
MinisoGroup	MNSO	26.00	0.01
MPLX	MPLX	35.54	-0.14
MSCI	MSCI	523.17	2.39
MagnaIntl	MGA	54.59	0.50
▲ ManhattanAssoc	MANH	209.49	-0.20
ManulifeFinl	MFC	18.79	0.29
Maplebear	**CART**	**24.94**	**-1.98**
MarathonOil	MRO	26.49	0.26
MarathonPetrol	MPC	148.52	-0.39
Markel	MKL	1487.33	24.01
MarketAxess	MKTX	236.59	2.92
Marriott	MAR	198.27	-0.19
Marsh&McLen	MMC	192.90	0.28
MartinMarietta	MLM	436.69	8.93
MarvellTech	MRVL	55.14	0.09
Masco	MAS	53.63	1.00
Mastercard	MA	399.81	-0.56
MatadorRscs	MTDR	59.32	-0.40
MatchGroup	MTCH	38.32	0.55
Mattel	MAT	20.91	-0.07
▼ McCormickVtg	**MKC.V**	**61.76**	**-3.62**
▼ McCormick	MKC	62.02	-1.19
McDonald's	MCD	250.92	-0.60
▲ McKesson	MCK	456.66	2.15
Medpace	MEDP	245.43	-1.05
▼ Medtronic	MDT	72.89	-3.29
MercadoLibre	MELI	1243.95	-14.36
Merck	MRK	103.46	-0.15
▲ MetaData	AIU	1.01	0.03
▲ MetaPlatforms	META	327.82	5.98
MetLife	MET	62.85	0.67
Mettler-Toledo	MTD	1107.08	10.06
MicrochipTech	MCHP	81.23	0.45
MicronTech	MU	70.21	1.14
Microsoft	MSFT	332.42	4.03
MidAmApt	MAA	134.02	1.60
Middleby	MIDD	125.60	-2.19
MitsubishiUFJ	MUFG	8.38	-0.05
MizuhoFin	MFG	3.41	-0.03
Mobileye	**MBLY**	**36.98**	**-2.81**
Moderna	MRNA	102.76	-1.67
MolinaHealthcare	MOH	340.48	0.37
MolsonCoorsB	TAP	60.05	-0.11
monday.com	MNDY	148.07	-1.57
Mondelez	MDLZ	62.90	-0.73
MongoDB	MDB	365.22	6.75
MonolithicPower	MPWR	502.04	12.04
MonsterBev	MNST	49.60	-0.80
Moody's	MCO	325.52	3.65
MorganStanley	MS	78.90	-1.23
Morningstar	MORN	234.03	-1.69
Mosaic	MOS	36.13	-0.35
MotorolaSol	MSI	287.60	2.55
MurphyOil	MUR	44.60	-0.13
MurphyUSA	MUSA	362.96	-2.14
▲ NICE	NICE	163.84	0.44
NIO	NIO	8.97	0.14
NNN REIT	NNN	35.76	0.56
NOV	NOV	20.15	0.17
NRG Energy	NRG	41.27	1.41
NVR	NVR	6178.66	65.83
NXP Semicon	NXPI	203.46	1.71
Nasdaq	NDAQ	49.66	-0.21
NationalGrid	NGG	60.79	0.54
NatWest	NWG	5.76	0.06
NetApp	NTAP	77.05	1.05
NetEase	NTES	108.78	2.36
Netflix	NFLX	365.93	-7.39
Neurocrine	NBIX	113.61	-0.66
NewFortressEner	NFE	33.56	1.08
▲ NewOrientalEduc	EDU	64.43	1.81
NY CmntyBcp	NYCB	10.92	-0.02
NYTimes A	NYT	43.10	0.66
Newmont	NEM	39.11	0.67
NewsCorp A	NWSA	20.90	0.26
NewsCorp B	NWS	21.70	0.19
NextEraEnergy	NEE	53.54	1.96
Nike	NKE	98.65	1.03
NiSource	NI	26.05	0.59
Noble	NE	48.48	0.03
Nokia	NOK	3.57	-0.03
Nomura	NMR	4.10	...
Nordson	NDSN	227.90	1.19
NorfolkSouthern	NSC	202.00	1.19
NorthernTrust	NTRS	68.35	0.62
NorthropGrum	NOC	473.37	8.25
NorwegCruise	**NCLH**	**15.66**	**-0.95**
Novartis	NVS	99.41	0.94
NovoNordisk	**NVO**	**98.84**	**5.83**
NuHoldings	NU	7.84	0.24
Nucor	NUE	154.86	-1.04
▲ Nutanix	**NTNX**	**38.92**	**2.30**
Nutrien	NTR	60.74	-1.20
nVentElectric	NVT	54.39	1.31
NVIDIA	NVDA	468.06	10.08

O P Q

Stock	Sym	Close	Net Chg
OGE Energy	OGE	34.02	0.59
ONEOK	OKE	67.46	0.60
ON Semi	ON	95.14	1.82
OReillyAuto	ORLY	916.41	-1.72
OccidentalPetrol	OXY	63.35	-0.63
Okta	OKTA	87.97	2.95
OldDomFreight	ODFL	425.76	0.65
OldRepublic	ORI	26.81	0.17
▲ OmegaHealthcare	OHI	34.32	0.54
Omnicom	OMC	74.84	-0.44
OnHolding	ONON	24.66	-0.45
▲ OntoInnovation	ONTO	142.53	2.75
OpenText	OTEX	36.03	0.47
Oracle	ORCL	109.64	0.33
Orange	ORAN	11.71	0.02
Orix	IX	92.80	-0.05
OtisWorldwide	OTIS	81.04	0.74
Ovintiv	OVV	48.62	0.41
OwensCorning	OC	136.56	2.91
▲ PDD	PDD	110.07	0.52
PG&E	PCG	16.04	0.23
PNC Finl	PNC	122.74	0.51
POSCO	PKX	95.32	2.71
PPG Ind	PPG	132.52	2.24
PPL	PPL	24.11	0.25
PTC	PTC	143.52	1.18
Paccar	PCAR	86.68	-0.09
PackagingCpAm	PKG	154.31	-0.32
PalantirTech	PLTR	17.92	0.12
▲ PaloAltoNtwks	PANW	259.21	2.43
ParamountA	PARAA	15.17	-0.20
ParamountB	PARA	12.14	-0.29
ParkerHannifin	PH	407.29	10.03
Paychex	PAYX	118.66	0.23
PaycomSoftware	PAYC	278.09	3.09
Paylocity	PCTY	205.05	2.78
PayPal	PYPL	58.07	0.35
Pearson	PSO	11.06	0.12
PembinaPipeline	PBA	30.42	0.31
PenskeAuto	PAG	156.30	-1.95
Pentair	PNR	65.60	1.12
Penumbra	**PEN**	**215.56**	**-17.34**
PepsiCo	PEP	162.62	-1.78
PerformanceFood	PFGC	55.94	-0.32
PermianRscs	PR	14.07	0.16
PetroleoBrasil	PBR	15.07	-0.01
PetroleoBrasilA	PBR.A	13.90	-0.08
Pfizer	PFE	33.11	-0.06
PhilipMorris	PM	93.15	-0.90
Phillips66	PSX	112.13	-0.26
PinnacleWest	PNW	75.44	1.27
Pinterest	PINS	28.46	-0.14
PioneerNatRscs	PXD	240.82	3.41
PlainsAllAmPipe	PAA	15.13	0.31
PlainsGP	PAGP	15.89	0.41
Pool	POOL	351.37	0.82
Primerica	PRI	202.91	2.54
PrincipalFinl	PFG	70.65	0.24
ProcoreTech	PCOR	69.17	0.67
Procter&Gamble	PG	143.00	-1.78
Progressive	PGR	143.86	1.61
Prologis	PLD	112.40	2.07
PrudentialFinl	PRU	94.86	0.87
Prudential	PUK	22.56	0.45
PublicServiceEnt	PEG	60.77	1.72
PublicStorage	PSA	275.78	4.29
PulteGroup	PHM	75.59	1.66
PureStorage	PSTG	36.58	0.49
Qiagen	QGEN	40.00	-0.42
Qorvo	QRVO	93.42	0.16
Qualcomm	QCOM	111.12	-1.19
QuantaServices	PWR	179.32	1.69
QuestDiag	DGX	122.73	-1.04

R S

Stock	Sym	Close	Net Chg
RBC Bearings	RBC	244.25	3.57
▲ RB Global	RBA	67.30	0.09
▲ RELX	RELX	35.83	0.26
RPM	RPM	99.61	1.14
RTX	RTX	73.31	-0.04
RalphLauren	RL	111.82	-0.41
Rambus	RMBS	60.87	0.02
RangeResources	RRC	34.40	0.25
RaymondJames	RJF	100.15	-0.18
RealtyIncome	O	50.95	0.75
RegalRexnord	RRX	137.83	0.08
RegencyCtrs	REG	59.97	1.04
RegenPharm	REGN	836.07	1.11
RegionsFinl	RF	16.49	-0.08
ReinsGrp	RGA	145.93	0.90
RelianceSteel	RS	263.25	-1.14
RenaissanceRe	RNR	213.20	7.25
RentokilInit	RTO	37.06	0.27
Repligen	RGEN	156.35	1.13
RepublicSvcs	RSG	146.47	0.08
ResMed	RMD	144.23	-6.18
RestaurantBrands	QSR	64.51	0.66
Revvity	RVTY	108.98	-1.09
RexfordIndlRealty	REXR	49.56	0.96
RioTinto	RIO	62.96	0.44
Rivian	RIVN	19.37	-0.27
RobertHalf	RHI	77.00	0.35
Robinhood	HOOD	9.72	-0.32
Roblox	RBLX	31.76	0.85
RocketCos.	RKT	8.19	0.09
Rockwell	ROK	299.92	8.22
RogersComm B	RCI	39.88	0.65
RoivantSciences	**ROIV**	**10.14**	**-0.56**
Roku	ROKU	71.36	-1.57
Rollins	ROL	36.32	-0.30
RoperTech	ROP	502.03	4.84
RossStores	ROST	113.67	0.57
RoyalBkCanada	RY	85.59	0.50
RoyalCaribbean	RCL	89.20	-0.13
RoyalGold	RGLD	107.04	1.03
RoyaltyPharma	RPRX	27.14	0.21
RyanSpecialty	RYAN	48.16	0.01
Ryanair	RYAAY	96.87	-1.63
SAP	SAP	132.39	1.19
S&P Global	SPGI	371.90	2.32
SBA Comm	SBAC	201.60	6.59
SEI Investments	SEIC	57.86	-0.01
SK Telecom	SKM	20.40	0.04
SS&C Tech	SSNC	52.76	0.13
STAG Indl	STAG	35.33	0.43
Saia	SAIA	418.55	2.22
Salesforce	CRM	206.85	-0.03
Samsara	IOT	25.43	0.39
Sanofi	SNY	54.79	0.34
SareptaTherap	SRPT	124.76	1.90
Sasol	SSL	13.62	0.18
Schlumberger	SLB	58.76	0.14
SchwabC	SCHW	51.91	0.13
Sea	SE	44.39	0.34
Seagate	STX	69.56	2.98
Seagen	SGEN	214.50	0.11
Sempra	SRE	69.27	0.72
ServiceIntl	SCI	55.01	-0.65
ServiceNow	NOW	558.67	0.37
▲ Shell	SHEL	66.35	-0.13
SherwinWilliams	SHW	255.54	2.34
ShinhanFin	SHG	26.56	-0.16
ShockwaveMed	SWAV	200.93	-9.99
Shopify	SHOP	54.24	-0.84
SimonProperty	SPG	108.33	2.18
SiriusXM	SIRI	4.59	0.12
SiteOneLandscape	SITE	162.20	0.75
SkechersUSA	SKX	48.48	-0.19
Skyworks	SWKS	97.88	-0.42
SmithAO	AOS	71.09	1.83
Smith&Nephew	SNN	23.12	-0.84
Smucker	SJM	114.73	-1.23
Snap	SNAP	9.11	0.29
Snap-On	SNA	261.21	0.47
Snowflake	SNOW	163.54	0.41
SOQUIMICH	SQM	56.95	0.15
SoFiTech	SOFI	8.59	0.23
SolarEdgeTech	SEDG	124.54	-0.45
Sony	SONY	85.46	0.85
Southern	SO	67.10	0.66
SoCopper	SCCO	74.33	-0.88
SouthwestAir	LUV	26.20	-0.45
SouthwesternEner	SWN	6.58	-0.10
Splunk	SPLK	147.18	0.65
Spotify	SPOT	156.57	-1.03
StanleyBlackDck	SWK	84.07	2.46
Stantec	STN	67.00	0.58
Starbucks	SBUX	91.95	-1.23
StateStreet	STT	65.30	-0.14
SteelDynamics	STLD	110.49	0.73
Stellantis	STLA	20.25	0.67
Steris	STE	225.00	-2.52
Stevanato	STVN	33.89	0.99
StifelFinancial	SF	60.01	-0.25
STMicroelec	STM	45.15	0.17
Stryker	**SYK**	**260.05**	**-14.39**
SumitomoMits	SMFG	9.89	-0.08
▼ SunComms	SUI	108.90	-4.49
SunLifeFinancial	SLF	49.72	0.96
SuncorEnergy	SU	33.74	-0.18
SuperMicroComp	SMCI	308.86	-1.45
Suzano	SUZ	11.20	0.03
SynchronyFinl	SYF	29.66	-0.18
▲ Synopsys	SNPS	494.95	4.84
Sysco	SYY	64.08	-0.19

T U V

Stock	Sym	Close	Net Chg
TC Energy	TRP	35.05	0.51
TD Synnex	SNX	96.12	-3.42
TE Connectivity	TEL	125.43	1.10
Telus	TU	16.87	0.18
Ternium	TX	38.20	0.63
TFI Intl	TFII	125.94	-2.25
TIM	TIMB	15.10	-0.04
TJX	TJX	89.25	0.60
TKO	TKO	80.23	-1.83
T-MobileUS	TMUS	143.12	0.71
TPG	TPG	31.13	0.39
T.RowePrice	TROW	104.15	-0.72
TaiwanSemi	TSM	92.00	1.39
TakeTwoSoftware	TTWO	144.75	-0.49
TakedaPharm	TAK	15.32	-0.11
TargaResources	TRGP	85.50	2.30
Target	TGT	108.99	-0.64
TechnipFMC	FTI	20.10	0.10
TeckResourcesB	TECK	41.14	-0.35
TeledyneTech	TDY	412.59	1.57
Teleflex	TFX	192.23	-7.01
Ericsson	ERIC	4.70	-0.15
TelefonicaBras	VIV	9.16	0.08
Telefonica	TEF	4.11	...
TelekmIndonesia	TLK	24.23	-0.09
TempurSealy	TPX	41.52	-0.24
Tenaris	TS	32.89	0.30
TencentMusic	TME	6.79	0.11
Teradyne	TER	99.56	-0.03
Tesla	TSLA	262.99	-0.63
TetraTech	TTEK	165.56	4.39
TevaPharm	TEVA	9.04	-0.21
TexasInstruments	TXN	157.33	-0.33
TexasPacLand	TPL	1847.55	12.26
TexasRoadhouse	TXRH	94.62	-1.84
Textron	TXT	79.76	0.69
ThermoFisher	TMO	492.63	-3.52
ThomsonReuters	TRI	127.72	0.79
3M	MMM	90.39	-0.25
Toast	TOST	18.81	0.76
Toll Bros	TOL	75.40	1.26
TopBuild	BLD	255.57	2.20
Toro	TTC	86.09	0.80
TorontoDomBk	TD	59.88	0.57
TotalEnergies	TTE	65.72	0.21
ToyotaMotor	TM	178.03	0.88
TractorSupply	TSCO	204.31	-0.72
TradeDesk	TTD	84.77	-0.39
Tradeweb	TW	83.14	-0.06
TraneTech	TT	211.30	2.75
TransDigm	TDG	869.00	2.82
TransUnion	TRU	71.72	-0.29
Travelers	TRV	162.41	0.18
Trex	TREX	59.81	0.73
Trimble	TRMB	52.53	0.46
TriNet	TNET	119.41	-0.20
Trip.com	TCOM	34.46	0.22
TruistFinl	TFC	29.61	0.36
Twilio	TWLO	57.42	-0.72
TylerTech	TYL	392.42	0.42
TysonFoods	TSN	48.21	-0.14
UBS Group	UBS	25.23	0.52
UDR	UDR	36.81	0.65
U-Haul	UHAL	54.19	-0.20
U-Haul N	UHAL/B	52.25	0.14
US Foods	USFD	37.42	-0.28
UWM	UWMC	5.17	0.02
Uber	UBER	46.64	0.01
Ubiquiti	**UI**	**119.47**	**-7.06**
UiPath	PATH	17.02	-0.13
UltaBeauty	ULTA	391.30	-1.72
Unilever	UL	48.34	-0.16
UnionPacific	UNP	209.48	3.13
UnitedAirlines	UAL	41.00	0.61
UnitedMicro	UMC	7.25	0.08
UPS B	UPS	155.30	-0.25
UnitedRentals	URI	454.07	5.20
US Bancorp	USB	32.51	-0.08
▲ US Steel	X	33.53	0.45
UnitedTherap	UTHR	234.58	4.25
UnitedHealth	UNH	524.13	-0.11
UnitySoftware	U	30.27	0.25
UnivDisplay	OLED	163.92	2.85
UniversalHealthB	UHS	127.02	-4.70
UnumGroup	UNM	50.19	0.08
VICI Prop	VICI	29.36	0.13
VailResorts	MTN	215.87	3.11
Vale	VALE	13.37	0.17
ValeroEnergy	VLO	129.60	-0.61
VeevaSystems	VEEV	216.72	2.84
Ventas	VTR	43.11	1.17
VeriSign	VRSN	210.09	1.80
VeriskAnalytics	VRSK	245.51	1.06
Verizon	VZ	31.46	-0.30
VertexPharm	VRTX	365.25	4.68
Vertiv	VRT	41.73	1.15
Viatris	VTRS	9.69	0.07
VinFastAuto	**VFS**	**8.12**	**0.63**
Vipshop	VIPS	16.39	0.10
Visa	V	235.68	-0.92
Vistra	VST	32.77	0.67
▲ VMware	VMW	171.48	1.68
Vodafone	VOD	9.68	0.05
VoyaFinancial	VOYA	66.89	0.37
VulcanMatls	VMC	214.76	3.76

W X Y Z

Stock	Sym	Close	Net Chg
WEC Energy	WEC	82.95	0.71
WEX	WEX	190.89	-1.04
W.P.Carey	WPC	54.42	0.72
WPP	WPP	46.15	0.55
Wabtec	WAB	105.74	0.80
WalgreensBoots	WBA	22.60	0.22
Walmart	WMT	158.23	0.63
WarnerBrosA	WBD	10.96	0.29
WarnerMusic	WMG	32.56	-0.27
WasteConnections	WCN	138.03	0.07
WasteMgt	WM	156.68	-0.17
Waters	WAT	266.20	-2.60
Watsco	WSO	402.72	3.49
Wayfair	W	54.47	-0.97
WeatherfordIntl	WFRD	94.22	0.91
WebsterFin	WBS	39.99	-0.07
WellsFargo	WFC	39.69	-0.13
Welltower	WELL	85.81	2.14
WescoIntl	WCC	147.80	1.08
WestPharmSvcs	WST	392.21	4.93
WesternDigital	WDC	46.39	1.04
WesternMidstrm	WES	27.43	-1.23
Westlake	WLK	125.13	-1.76
WestRock	WRK	37.28	0.30
Weyerhaeuser	WY	30.65	0.54
WheatonPrecMet	WPM	41.51	0.79
Whirlpool	WHR	128.16	0.27
Williams	WMB	34.69	0.27
▲ Williams-Sonoma	WSM	162.43	3.18
WillisTowers	WTW	210.60	2.14
WillScotMobile	WSC	43.01	0.51
Wipro	WIT	5.02	0.12
WoodsideEnergy	WDS	22.82	-0.01
Woodward	WWD	130.53	2.18
WooriFinl	WF	28.21	0.15
Workday	WDAY	222.00	1.08
WynnResorts	WYNN	94.73	0.74
XP	XP	21.93	-0.38
XPO	XPO	79.22	1.01
XcelEnergy	XEL	58.81	0.75
XPeng	XPEV	17.01	0.07
Xylem	XYL	92.37	0.42
YPF	YPF	12.50	0.42
Yum!Brands	YUM	118.38	-1.99
YumChina	YUMC	55.00	0.22
ZTO Express	ZTO	24.45	-0.18
▼ ZebraTech	ZBRA	217.16	-5.24
Zillow C	Z	45.04	-0.27
Zillow A	ZG	43.72	-0.27
ZimmerBiomet	**ZBH**	**105.35**	**-6.84**
Zoetis	ZTS	176.95	1.32
ZoomVideo	ZM	64.82	-2.46
ZoomInfoTech	ZI	17.50	0.33
▲ Zscaler	ZS	173.05	1.17

Dividend Changes

Company	Symbol	Yld %	Amount New/Old	Frq	Payable / Record
Increased					
AO Smith	AOS	1.8	.32 /.30	Q	Nov15 /Oct31
Maximus	MMS	1.6	.30 /.28	Q	Nov30 /Nov15
MV Oil Trust	MVO	13.3	.38 /.325	Q	Oct25 /Oct16
Stocks					
AgriFORCE Growing Sys	AGRI		1:50		/Oct11
Edesa Biotech	EDSA		1:7		/Oct11
SCWorx	WORX		1:15		/Oct11
Foreign					
Corp. Inmob Vesta ADR	VTMX	0.9	.18029		Oct12 /

Sources: FactSet; Dow Jones Market Data

KEY: A: annual; M: monthly; Q: quarterly; r: revised; SA: semiannual; S2:1: stock split and ratio; SO: spin-off.

IPO Scorecard

Performance of IPOs, most-recent listed first

Company SYMBOL IPO date/Offer price	Wed's close ($)	% Chg From Offer price	% Chg From 1st-day close
Birkenstock Holding **BIRK** Oct. 11/$46.00	40.20	**–12.6**	...
Global Mofy Metaverse **GMM** Oct. 10/$5.00	5.20	**4.0**	2.0
La Rosa Holdings **LRHC** Oct. 10/$5.00	3.38	**–32.4**	–3.4
Primech Holdings **PMEC** Oct. 10/$4.00	1.12	**–72.0**	–24.3
Quetta Acquisition **QETAU** Oct. 6/$10.00	10.11	**1.1**	0.2
Spark I Acquisition **SPKLU** Oct. 6/$10.00	10.10	**1.0**	0.1
Maison Solutions **MSS** Oct. 5/$4.00	4.76	**19.0**	–46.9
VS Media **VSME** Sept. 28/$5.00	1.10	**–78.0**	–95.2
Klaviyo **KVYO** Sept. 20/$30.00	33.54	**11.8**	2.4
Davis Commodities **DTCK** Sept. 19/$4.00	2.88	**–28.0**	–43.0

Sources: Dow Jones Market Data; FactSet

New Highs and Lows

The following explanations apply to the New York Stock Exchange, NYSE Arca, NYSE American and Nasdaq Stock Market stocks that hit a new 52-week intraday high or low in the latest session. **% CHG**-Daily percentage change from the previous trading session.

Wednesday, October 11, 2023

Highs

Stock	Sym	52-Wk Hi/Lo	% Chg
ACM Research	ACMR	20.87	2.0
Aflac	AFL	79.85	1.2
Abercrombie&Fitch	ANF	61.59	2.9
ActivisionBliz	ATVI	94.57	0.1
AkamaiTech	AKAM	109.24	0.2
Alphabet C	GOOG	142.22	1.8
Alphabet A	GOOGL	141.11	1.8
AresMgmt	ARES	112.04	0.8
AtlCoastalAcqn	ACAHU	10.91	5.4
Augmedix	AUGX	5.97	7.5
AvePoint	AVPT	7.58	0.4
BGC	BGC	6.12	-1.3
BancoBilbaoViz	BBVA	8.28	1.9
BellRing	BRBR	42.88	2.3
Biohaven	BHVN	27.70	6.0
BoozAllen	BAH	126.80	1.7
CadenceDesign	CDNS	253.97	1.3
CareTrustREIT	CTRE	21.78	1.3
Celestica	CLS	26.99	1.7
ClearwaterAnalytic	CWAN	20.74	0.7
ConstellationEner	CEG	115.18	1.8
CostamarePfdB	CMREpB	25.18	1.2
Coursera	COUR	19.36	1.2
CrowdStrike	CRWD	188.66	2.4
DLH Holdings	DLHC	14.87	2.3
DistributionSoln	DSGR	32.87	0.4
Duolingo	DUOL	179.84	-1.5
EVI Industries	EVI	28.62	0.1
EmeraldHldg	EEX	5.67	5.5
EnerTransferPfdE	ETpE	25.04	0.5
EnphysAcqn	NFYS.U	10.92	-0.1
Escalade	ESCA	17.06	-0.5
Frontline	FRO	20.21	2.5
GenieEnergy	GNE	18.25	4.3
GoldenHeaven	GDHG	9.98	23.8
GoldenstoneAcqn	GDST	11.83	...
HNI	HNI	36.72	1.6
HollysysAuto	HOLI	22.00	0.2
HudsonTech	HDSN	14.14	0.1
Joyy	YY	42.25	...
Jabil	JBL	139.17	3.1
JourneyMed	DERM	3.30	-5.1
KnifeRiver	KNF	54.02	2.3
KratosDefense	KTOS	17.73	-1.3
LSI Inds	LYTS	16.97	1.0
LaureateEduc	LAUR	14.81	1.1
EliLilly	LLY	608.79	4.5
LiquiditySvcs	LQDT	20.64	1.0
M-tronInds	MPTI	26.06	9.1
ManhattanAssoc	MANH	211.81	-0.1
McKesson	MCK	457.62	0.5
MetaPlatforms	META	328.84	1.9
MillerKnoll	MLKN	25.63	1.1
ModineMfg	MOD	51.76	4.1
NewOrientalEduc	EDU	65.92	2.9
99Acqn	NNAGU	10.60	0.3
Nutanix	NTNX	38.98	6.3
OmegaHealthcare	OHI	34.36	1.6
OntoInnovation	ONTO	144.16	2.0
PDD	PDD	111.68	0.5
PaloAltoNtwks	PANW	261.88	0.9
Park-Ohio	PKOH	22.29	3.7
Parsons	PSN	57.82	2.3
PerdoceoEduc	PRDO	18.04	1.1
PetIQ	PETQ	22.98	-1.0
PowellIndustries	POWL	90.33	3.9
Qualys	QLYS	165.03	-0.9
RB Global	RBA	67.75	0.1
RELX	RELX	35.84	0.7
REV	REVG	16.49	2.6
SWK9%Nts2027	SWKHL	24.84	0.6
SabraHealthcare	SBRA	14.50	1.6
Shell	SHEL	66.66	-0.2
SifcoInd	SIF	4.95	9.8
SparkIAcqn	SPKLU	10.14	...
Steelcase	SCS	11.85	2.1
Synopsys	SNPS	495.44	1.0
TabulaRasaHlth	TRHC	10.41	0.2
TempestTherap	TPST	9.77	3972.5
UnitedHomesWt	UHGWW	1.50	2.6
US Steel	X	33.63	1.4
VMware	VMW	171.81	1.0
WaldencastWt	WALDW	1.24	53.1
WheelerReitNts	WHLRL	58.04	5.5
WilliamsRowland	WRAC.U	10.82	1.1
Williams-Sonoma	WSM	163.09	2.0
Zscaler	ZS	175.19	0.7

Lows

Stock	Sym	52-Wk Hi/Lo	% Chg
AMN Healthcare	AMN	76.14	-3.9
AST Space Wt	ASTSW	0.80	-4.6
ATIF	ATIF	1.02	3.6
AbbottLabs	ABT	92.05	-5.0
AdaptHealth	AHCO	7.39	-10.4
AerovateTherap	AVTE	11.94	-5.5
AEternaZentaris	AEZS	1.77	-4.2
AethlonMedical	AEMD	1.54	-9.3
AgapeATP	ATPC	1.51	-77.3
AgEagleAerial	UAVS	0.15	-10.4
Agriforce	AGRI	2.85	-21.8
AkeroTherap	AKRO	14.08	-17.1
AllianceEntWt	AENTW	0.01	-26.7
Amarin	AMRN	0.78	-4.7
AmbowEduc	AMBO	0.13	-7.2
AmericanRebel	AREB	0.51	-3.3
Annexon	ANNX	1.85	-4.1
AnnovisBio	ANVS	7.60	-4.3
ApartmtInv	AIV	6.03	-6.9
ApollomicsA	APLM	2.13	-4.0
Appreciate	SFR	0.14	0.2
AptevoTherap	APVO	0.30	5.8
ArdaghMetalPkg	AMBP	2.70	-2.8
AstraSpace	ASTR	0.98	-24.4
AstriaTherap	ATXS	6.28	-4.2
AuroraMobile	JG	0.12	-3.8
Axogen	AXGN	4.09	-6.9
BRC	BRCC	2.61	-5.8
Baijiayun	RTC	3.05	0.6
Barnes&NobleEduc	BNED	0.83	-4.5
BaxterIntl	BAX	32.30	-12.3
BayFirstFinancial	BAFN	9.90	-3.8
BelpointePrep	OZ	80.85	-0.8
BeneficientWt	BENFW	0.02	-38.8
BensonHill	BHIL	0.27	-1.3
BioNexusGene	BGLC	0.62	-5.7
BioraTherap	BIOR	1.88	-2.6
Birkenstock	BIRK	40.04	-12.6
BorqsTechs	BRQS	0.70	-4.3
Boxlight	BOXL	1.76	-1.1
BrainstormCell	BCLI	0.14	2.8
BridgelineDigital	BLIN	0.70	-3.0
BridgetownUn	BTWNU	5.56	-17.0
BridgetownA	BTWN	5.38	-18.8
BrookfieldPropPfd	BPYPP	12.99	-2.2
BruushOralCare	BRSH	0.86	-2.2
CBL&Assoc	CBL	20.54	-1.9
C5AcqnWt	CXAC.WS	0.00	-90.3
CompassPath	CMPS	6.07	-7.7
Canoo	GOEV	0.37	-5.7
CapitalworksEM Wt	CMCAW	0.02	-3.5
CardioDiag	CDIO	0.26	-7.3
CareDx	CDNA	5.79	-10.0
CarterBkshrs	CARE	11.48	-1.4
CasaSystems	CASA	0.58	-8.3
CeptonWt	CPTNW	0.01	-4.7
ChargeEnt	CRGE	0.39	-8.8
ChargePoint	CHPT	3.75	-15.8
Cheche	CCG	6.23	-10.2
ChoiceOneFinl	COFS	17.24	-5.7
Clarus	CLAR	6.04	-2.8
Clearfield	CLFD	26.11	-2.9
ColorStarTech	ADD	0.47	-3.3
ComeraLifeSci	CMRA	0.22	-7.8
COMSovereign	COMS	0.75	-8.4
ConduitPharm	CDT	1.90	-12.0
ConnexaSports	CNXA	1.75	-2.8
Corteva	CTVA	48.59	-1.3
CustomTruckWt	CTOS.WS	0.04	-29.4
Cutera	CUTR	4.01	-11.9
Cyngn	CYN	0.37	-8.9
DarlingIngred	DAR	45.71	-1.3
DefinitiveHlthcr	DH	6.96	-4.6
DermataTherap	DRMA	0.85	-6.2
Deswell	DSWL	2.25	-5.4
DexCom	DXCM	77.91	-7.3
DigitalBrands	DBGI	6.71	-8.6
DineBrands	DIN	46.17	-4.3
DragonflyEnergyWt	DFLIW	0.08	-15.9
Dynatronics	DYNT	0.56	-20.0
ENDRA LifeSci	NDRA	0.91	-8.3
E2openWt	ETWO.WS	0.15	-38.1
E2open	ETWO	2.15	-50.1
EdesaBiotech	EDSA	2.46	-6.1
ElectraBatteryMtls	ELBM	0.44	-8.4
Electrovaya	ELVA	2.40	-2.0
Envela	ELA	4.27	-3.4
Envista	NVST	25.13	-1.9
EnvoyMedical	COCH	2.10	-17.8
EsperionTherap	ESPR	0.80	-11.9
EsportsEnt	GMBL	0.08	-11.3
EstablishLabs	ESTA	38.15	-5.2
EstrellaImmuno	ESLA	1.56	-2.4
Evogene	EVGN	0.50	-5.5
Eyenovia	EYEN	1.45	-3.3
FalconsBeyondPfdA	FBYDP	8.00	-34.3
Farfetch	FTCH	1.69	-4.4
FathomDigital	FATH	4.24	-3.4
FaZeWt	FAZEW	0.01	-17.6
FinanceofAm	FOA	1.10	-1.7
FirstGuarBcshs	FGBI	10.67	-2.1
FirsthandTechVal	SVVC	0.24	-6.7
Fitell	FTEL	1.22	-13.5
ForteBiosci	FBRX	0.60	-4.5
FortressBiotech	FBIO	3.75	-14.5
Fresh2	FRES	0.75	3.3
FulgentGenetics	FLGT	25.21	-3.7
GAMCO PfdA	GNTpA	21.84	-0.2
GamerPakistan	GPAK	1.35	-3.0
GlobalNetLease	GNL	8.26	0.4
HallofFameResort	HOFV	2.75	-33.6
HealthcareSvcs	HCSG	10.01	-2.0
Heartbeam	BEAT	1.73	-6.6
HeronTherap	HRTX	0.83	-8.9
Hongli	HLP	1.25	-20.8
HycroftMiningWt	HYMCL	0.02	...
Hyliion	HYLN	0.52	-45.0
ICU Medical	ICUI	113.24	-3.6
IGM Biosci	IGMS	4.62	-4.5
InvoBioScience	INVO	0.61	-10.2
IO Biotech	IOBT	1.15	...
ImmunoPrecise	IPA	1.33	-10.4
InMedPharm	INM	0.60	1.5
InnovativeEyewr	LUCY	0.36	-2.2
InspiratoWt	ISPOW	0.02	-31.8
InspireMedical	INSP	157.62	-11.1
Insulet	PODD	132.54	-8.7
Intergroup	INTG	27.53	-8.4
IovanceBiotherap	IOVA	3.78	-4.6
IridiumComm	IRDM	42.14	-3.8
iTeosTherap	ITOS	9.08	-6.7
Jet.AI	JTAI	2.33	-0.8
Jiuzi	JZXN	0.76	-1.2
KVH Inds	KVHI	4.91	-2.4
Kenvue	KVUE	19.36	-0.6
KerosTherap	KROS	29.34	-2.8
KeurigDrPepper	KDP	29.14	-3.3
KornitDigital	KRNT	16.01	0.8
LQR House	LQR	0.22	-10.5
LaRosa	LRHC	3.00	-3.4
Lanvin	LANV	3.99	-0.7
LocalBounti	LOCL	1.83	-4.2
LogicMark	LGMK	1.50	-1.3
LumiraDx	LMDX	0.12	-12.5
Luxfer	LXFR	11.26	-12.4
MBIA	MBI	6.42	-3.1
MGO Global	MGOL	0.65	-9.3
Mytheresa	MYTE	3.00	-2.5
MaravaiLifeSci	MRVI	8.25	-1.9
Marpai	MRAI	0.52	-6.6
Masimo	MASI	80.19	-4.8
McCormickVtg	MKC.V	61.76	-5.5
McCormick	MKC	61.69	-1.9
Medtronic	MDT	72.41	-4.3
MetaData	AIU	0.80	2.9
MicroCloudHologram	HOLO	0.81	-11.5
micromobility.com	MCOM	0.04	-7.8
Molekule	MKUL	0.09	-13.1
Monro	MNRO	26.21	-2.4
MovellaWt	MVLAW	0.02	46.5
Movella	MVLA	0.46	-10.1
MustangBio	MBIO	1.81	-5.1
MySize	MYSZ	0.72	-5.2
NICE	NICE	158.29	0.3
NaborsEnerIIWt	NETDW	0.14	4.9
NanoVibronix	NAOV	1.27	-8.6
NationalVision	EYE	14.20	-1.8
Nevro	NVRO	17.21	-8.2
NewellBrands	NWL	6.99	-1.5
NightHawkBio	NHWK	0.43	-3.5
noco-nocoWt	NCNCW	0.02	-4.3
Nogin	NOGN	0.46	-10.7
NortechSystems	NSYS	7.76	-3.6
NovaBayPharm	NBY	0.34	-4.4
Nxu	NXU	0.10	-8.2
OMNIQ	OMQS	0.64	7.8
OceanBiomedical	OCEA	2.10	-9.0
Ondas	ONDS	0.45	-1.7
OpticalCable	OCC	2.26	-11.9
OrientalCulture	OCG	0.32	-17.9
OrthofixMed	OFIX	10.54	1.3
OrthoPediatrics	KIDS	24.72	-9.1
OutsetMedical	OM	7.40	-21.2
PSQ	PSQH	5.05	-19.7
PainReform	PRFX	2.76	-5.7
Paragon28	FNA	10.57	-8.8
Peraso	PRSO	0.16	1.0
PerceptionCapII	PCCT	9.70	-0.3
PerimeterSolns	PRM	3.35	-10.9
Personalis	PSNL	1.07	-10.8
PetcoHealth	WOOF	3.39	-6.6
PhibroAnimal	PAHC	11.68	-4.2
PlanetLabs	PL	2.45	-5.4
Playstudios	MYPS	2.96	-3.2
Pluri	PLUR	0.50	-1.7
Polished.com	POL	0.07	-4.9
Portillo's	PTLO	14.53	-6.2
PresidioPropWtA	SQFTW	0.03	-16.6
PrimeMedicine	PRME	7.34	-12.8
Primech	PMEC	1.01	-24.3
Pro-Dex	PDEX	14.65	-0.8
ProKidney	PROK	3.68	-17.5
ProSomnus	OSA	0.83	0.2
ProtagenicTherap	PTIX	0.75	-8.7
Psychemedics	PMD	2.38	-8.2
QuoinPharm	QNRX	3.66	-13.1
RaptTherap	RAPT	13.57	-6.9
RCI Hospitality	RICK	54.70	-4.1
RealGoodFood	RGF	2.11	-28.7
RedHillBio	RDHL	0.32	5.7
Regis	RGS	0.54	-7.3
RenttheRunway	RENT	0.63	-1.2
RepareTherap	RPTX	6.23	-7.4
Replimune	REPL	14.70	-0.3
RevanceTherap	RVNC	9.62	-3.9
Rezolute	RZLT	0.91	-6.0
SellasLifeSci	SLS	1.14	-15.5
SR Bancorp	SRBK	8.05	-3.5
SchultzeSpecIIWt	SAMAW	0.00	-44.0
ScullyRoyalty	SRL	5.01	-3.0
SCWorx	WORX	2.34	-21.3
Seer	SEER	1.85	-9.1
SelinaHospWt	SLNAW	0.01	-9.1
SenmiaoTech	AIHS	0.42	-6.6
SensientTech	SXT	54.45	-3.1
ShiftTech	SFT	0.15	-8.1
SigmaAdditive	SASI	2.60	0.8
Silicom	SILC	23.50	-2.1
SilkRoadMed	SILK	6.36	-49.0
SingingMachine	MICS	0.85	-3.3
SkyHarbourWt	SKYH.WS	0.18	-14.3
SomaLogic	SLGC	1.83	-3.7
SonnetBio	SONN	2.35	-5.5
SonomaPharm	SNOA	0.70	-2.1
Sonos	SONO	11.85	-2.1
StandardMotor	SMP	32.25	-0.8
Stepan	SCL	66.22	-2.2
StryveFoodsWt	SNAXW	0.00	-31.1
SunComms	SUI	108.82	-4.0
Sunworks	SUNW	0.46	-3.7
SurrozenWt	SRZNW	0.01	-25.0
SyraHealth	SYRA	2.12	-6.4
TCBioPharmWt	TCBPW	0.00	66.7
TPG RE FinPfdC	TRTXpC	14.27	1.0
TTEC	TTEC	24.85	-2.2
TandemDiabetes	TNDM	16.97	-8.2
Taoping	TAOP	1.88	-4.3
TaskUs	TASK	8.74	-2.3
TerranOrbitalWt	LLAP.WS	0.08	-2.0
TheseusPharm	THRX	2.38	0.8
TigoEnergy	TYGO	4.00	-14.3
TowerSemi	TSEM	22.55	-1.6
TreaceMed	TMCI	11.29	-10.3
TrioPetroleum	TPET	0.46	-13.9
TurboEnergy	TURB	1.52	-16.2
VS Media	VSME	0.81	-21.4
ValueLine	VALU	33.34	-14.9
VentyxBiosciences	VTYX	20.06	-8.9
VerticalAeroWt	EVTL.WS	0.07	-28.0
View	VIEW	4.21	-0.9
ViraxBiolabs	VRAX	0.26	-0.9
ViridianTherap	VRDN	13.01	-5.7
VolitionRX	VNRX	0.61	-11.6
WestportFuelSys	WPRT	5.51	-2.6
WestwaterRscs	WWR	0.50	-10.9
WillametteValley	WVVI	5.55	-1.1
WiSA Tech	WISA	0.39	-7.4
Xencor	XNCR	18.79	-2.5
ZappEVWt	ZAPPW	0.01	-34.0
ZebraTech	ZBRA	215.32	-2.4

Mutual Funds

Data provided by LIPPER

Top 250 mutual-funds listings for Nasdaq-published share classes by net assets.

e-Ex-distribution. **f**-Previous day's quotation. **g**-Footnotes x and s apply. **j**-Footnotes e and s apply. **k**-Recalculated by Lipper, using updated data. **p**-Distribution costs apply, 12b-1. **r**-Redemption charge may apply. **s**-Stock split or dividend. **t**-Footnotes p and r apply. **v**-Footnotes x and e apply. **x**-Ex-dividend. **z**-Footnote x, e and s apply. **NA**-Not available due to incomplete price, performance or cost data. **NE**-Not released by Lipper; data under review. **NN**-Fund not tracked. **NS**-Fund didn't exist at start of period.

Wednesday, October 11, 2023

Fund	NAV	Net Chg	YTD % Ret
AB Funds			
MuniIncmShares	NA	...	-1.0
AB Funds - ADV			
LgCpGrAdv	85.44	+0.41	22.2
American Century Inv			
Ultra	71.64	+0.42	29.9
American Funds Cl A			
AmcpA	35.01	+0.10	16.7
AMutlA	48.15	+0.06	0.7
BalA	29.95	+0.14	5.2
BondA	10.88	+0.04	-1.8
CapIBA	61.95	+0.20	0.4
CapWGrA	55.82	+0.17	9.7
EupacA	51.82	+0.17	6.0
FdInvA	67.08	+0.34	13.3
GwthA	60.74	+0.28	22.7
HI TrA	8.97	...	4.2
ICAA	47.00	+0.22	15.1
IncoA	22.04	+0.05	-0.4
N PerA	53.89	+0.27	13.9
NEcoA	50.63	+0.25	16.4
NwWrldA	71.31	+0.40	7.3
SmCpA	58.78	-0.03	4.8
TxExA	11.77	+0.09	-0.2
WshA	53.84	+0.22	7.4
Artisan Funds			
IntlVal Inst	43.43	+0.22	12.5
Baird Funds			
AggBdInst	9.31	+0.04	-0.6
CorBdInst	9.61	+0.04	-0.1
BlackRock Funds			
HiYldBd Inst	6.67	...	5.9
BlackRock Funds III			
iShS&P500IdxK	513.36	+2.21	15.4
BlackRock Funds Inst			
EqtyDivd	18.25	-0.02	2.5
StratIncOpptyIns	9.04	+0.01	1.8
TotRet	9.48	+0.04	NA
Calamos Funds			
MktNeutI	14.60	...	7.1
Columbia Class I			
DivIncom I	29.15	...	2.3
Dimensional Fds			
5GlbFxdInc	10.09	...	3.7
EmgMktVa	27.93	+0.16	8.5
EmMktCorEq	21.17	+0.14	7.4
IntlCoreEq	14.11	+0.02	7.0
IntSmCo	17.57	-0.01	2.9
IntSmVa	19.76	-0.01	7.3
LgCo	29.86	+0.13	15.5
US CoreEq1	32.94	+0.10	11.8
US CoreEq2	29.69	+0.10	10.6
US Small	39.69	+0.04	3.5
US SmCpVal	40.11	+0.17	3.4
US TgdVal	28.09	+0.07	3.8
USLgVa	41.61	-0.09	1.9
Dodge & Cox			
Balanced	96.21	+0.22	5.8
GblStock	14.14	+0.02	12.1
Income	11.89	+0.06	0.4
Intl Stk	47.46	+0.11	10.1
Stock	227.40	+0.79	7.5
DoubleLine Funds			
TotRetBdI	8.42	+0.05	NA
Edgewood Growth Instituti			
EdgewoodGrInst	38.27	+0.10	22.3
Federated Hermes Int			
TtlRtnBdI	9.08	+0.04	-1.2
Fidelity			
500IdxInstPrem	151.97	+0.66	15.5
Contrafund K6	21.47	+0.17	27.7
ExtMktIdxInstPre	68.80	+0.10	9.3
FidSerInt	8.40	+0.04	1.8
FidSerToMarket	14.43	+0.05	14.6
GrowthCompanyK6	20.17	+0.14	31.1
IntlIdxInstPrem	44.42	+0.11	7.8
LgCpGwId InstPre	26.98	+0.22	29.8
MidCpInxInstPrem	27.08	+0.10	4.8
SAIUSLgCpIndxFd	18.18	+0.08	15.4
SeriesBondFd	NA	...	-0.9
SeriesOverseas	11.83	+0.03	8.9
SerLTTreBdIdx	NA	...	-8.1
SmCpIdxInstPrem	22.06	-0.04	2.0
TMktIdxInstPrem	121.18	+0.48	14.6
TotalMarketIndex	15.31	+0.06	14.7
TtlIntIdxInstPr	12.38	+0.05	5.7
USBdIdxInstPrem	NA	...	-0.9
Fidelity Freedom			
FF2030	15.51	+0.09	6.0
FF2040	9.69	+0.05	9.4
Freedom2025 K	12.29	+0.07	5.1
Freedom2030 K	15.51	+0.09	6.1
Freedom2035 K	13.51	+0.07	7.8
Freedom2040 K	9.70	+0.05	9.4
Idx2030InsPre	17.78	+0.09	6.0
Idx2035InsPre	20.12	+0.10	7.6
Idx2040InsPre	20.68	+0.10	9.1
Idx2045InsPre	21.55	+0.11	9.5
Fidelity Invest			
Balanc	25.50	+0.13	12.2
BluCh	156.17	+1.40	39.8
BluChpGr K6	24.22	+0.20	40.2
Contra	15.39	+0.12	29.1
CpInc	NA	...	6.1
GroCo	29.90	+0.24	32.8
InvGrBd	NA	...	...
LowP	41.51	+0.01	3.5
Magin	11.47	+0.11	20.1
NASDAQ	173.74	+1.23	31.7
OTC	16.65	+0.14	29.8
Puritn	22.61	+0.12	11.2
SAIUSQtyIdx	18.14	+0.14	19.6
SrsEmrgMkt	16.54	+0.12	5.9
SrsGlobal	13.10	+0.06	6.1
SrsGroCoRetail	18.09	+0.14	31.4
SrsIntlGrw	15.40	+0.09	8.0
SrsIntlVal	11.09	+0.03	10.6
TotalBond	NA	...	0.4
Fidelity SAI			
TotalBd	NA	...	0.5
U.S.TreBdIdx	NA	...	-1.1
Fidelity Selects			
Semiconductors r	23.61	+0.25	62.0
Softwr	25.87	+0.19	31.7
Tech	26.16	+0.22	46.7
First Eagle Funds			
GlbA	61.39	+0.07	5.9
Franklin A1			
IncomeA1	2.18	...	0.6
FrankTemp/Frank Adv			
IncomeAdv	2.16	...	0.7
FrankTemp/Franklin A			
Growth A	118.29	+0.80	15.8
RisDv A	84.75	-0.19	3.2
Guggenheim Funds Tru			
TotRtnBdFdClInst	22.50	+0.10	0.3
Harbor Funds			
CapApInst	86.23	+0.75	37.4
Harding Loevner			
IntlEq	24.38	+0.10	4.1
Invesco Funds A			
EqIncA	9.88	+0.02	2.1
Invesco Funds Y			
DevMktY	36.60	+0.24	4.7
JHF III DispVal			
DispValMCI	25.77	+0.13	5.5
John Hancock			
BondR6	12.83	+0.06	-0.5
JPMorgan I Class			
CoreBond	NA	...	NA
EqInc	NA	...	NA
LgCpGwth	NA	...	NA
JPMorgan R Class			
CoreBond	NA	...	NA
CorePlusBd	NA	...	NA
Lord Abbett I			
ShtDurInc p	3.79	-0.01	2.6
Metropolitan West			
TotRetBdI	8.64	+0.04	NA
TRBdPlan	8.10	+0.03	NA
MFS Funds			
IIE	30.39	+0.08	8.0
MFS Funds Class I			
GrowthI	166.27	+1.43	25.7
ValueI	47.16	+0.12	...
Natixis Funds			
LSGrowthY	22.33	+0.12	37.2
Northern Funds			
StkIdx	NA	...	NA
Old Westbury Fds			
LrgCpStr	15.97	+0.05	9.5
Parnassus Fds			
ParnEqFd	53.36	+0.20	14.2
PGIM Funds Cl Z			
TotalReturnBond	11.36	+0.04	NA
PIMCO Fds Instl			
AllAsset	NA	...	NA
TotRt	8.16	+0.04	NA
PIMCO Funds A			
IncomeFd	10.16	+0.02	NA
PIMCO Funds I2			
Income	10.16	+0.02	NA
PIMCO Funds Instl			
IncomeFd	10.16	+0.02	NA
Price Funds			
BlChip	141.43	+1.14	36.6
DivGro	66.30	+0.20	4.4
Growth	82.80	+0.63	34.4
HelSci	86.61	-0.34	-3.6
LgCapGow I	60.94	+0.36	32.7
MidCap	96.75	+0.16	9.1
NHoriz	52.13	+0.09	12.5
R2025	15.56	+0.06	6.4
R2030	23.49	+0.09	7.5
R2040	26.81	+0.12	9.8
Schwab Funds			
1000 Inv r	94.64	+0.40	NA
S&P Sel	67.83	+0.29	NA
TSM Sel r	74.63	+0.29	NA
TIAA/CREF Funds			
EqIdxInst	31.07	+0.12	14.4
IntlEqIdxInst	20.61	+0.07	7.9
LrgCpGrIdxInst	48.07	+0.39	29.7
VANGUARD ADMIRAL			
500Adml	403.98	+1.74	15.4
BalAdml	42.08	+0.18	8.2
CAITAdml	10.89	+0.06	-0.2
CapOpAdml r	172.17	+1.59	17.8
DivAppIdxAdm	42.51	-0.02	4.7
EMAdmr	32.98	+0.19	3.2
EqIncAdml	82.05	+0.08	-1.0
ExplrAdml	91.85	-0.02	5.7
ExtndAdml	109.16	+0.16	9.3
GNMAAdml	8.81	+0.04	-1.6
GrwthAdml	145.58	+1.17	33.3
HlthCareAdml r	87.28	-0.15	0.4
HYCorAdml r	5.11	...	3.9
InfProAd	22.47	+0.11	-0.7
IntlGrAdml	94.97	+0.41	5.1
ITBondAdml	9.79	+0.04	-0.5
ITIGradeAdml	8.11	+0.03	0.5
LarCapAd	101.02	+0.43	16.1
LTGradeAdml	7.28	+0.10	-3.2
MidCpAdml	260.51	+0.83	4.3
MuHYAdml	9.98	+0.10	0.2
MuIntAdml	13.05	+0.08	-0.2
MuLTAdml	10.24	+0.10	-0.6
MuLtdAdml	10.56	+0.03	0.8
MuShtAdml	15.54	+0.02	1.7
PrmcpAdml r	157.04	+1.67	20.0
RealEstatAdml	108.86	+1.85	-3.9
SmCapAdml	90.73	+0.21	4.4
SmGthAdml	75.68	...	7.8
STBondAdml	9.85	...	1.6
STIGradeAdml	9.94	+0.01	2.3
STIPSIxAdm	23.57	+0.01	2.2
TotBdAdml	9.18	+0.04	-0.8
TotIntBdIdxAdm	19.21	+0.07	2.8
TotIntlAdmIdx r	28.97	+0.13	5.9
TotStAdml	105.36	+0.42	14.5
TxMCapAdml	226.18	+0.96	15.5
TxMIn r	14.16	+0.06	6.8
USGroAdml	132.15	+0.83	30.4
ValAdml	53.85	-0.02	0.2
WdsrIIAdml	72.07	+0.23	9.9
WellsIAdml	57.36	+0.22	-0.7
WelltnAdml	69.22	+0.34	6.1
WndsrAdml	70.42	+0.11	4.0
VANGUARD FDS			
DivdGro	34.46	-0.06	-1.4
IntlVal	38.29	+0.10	7.1
LifeCon	19.60	+0.08	NA
LifeGro	38.80	+0.16	NA
LifeMod	28.96	+0.12	NA
PrmcpCor	31.10	+0.26	14.4
STAR	25.72	+0.13	NA
TgtRe2020	26.61	+0.10	NA
TgtRe2025	17.70	+0.07	NA
TgtRe2030	33.57	+0.14	NA
TgtRe2035	20.86	+0.08	NA
TgtRe2040	36.94	+0.16	NA
TgtRe2045	24.98	+0.10	NA
TgtRe2050	41.55	+0.18	NA
TgtRe2060	42.68	+0.18	NA
TgtRet2055	46.35	+0.20	NA
TgtRetInc	12.50	+0.04	NA
WellsI	23.68	+0.09	-0.8
Welltn	40.09	+0.20	6.1
WndsrII	40.62	+0.13	9.8
VANGUARD INDEX FDS			
ExtndIstPl	269.36	+0.39	9.3
IdxIntl	17.32	+0.08	5.8
MdCpGrAdml	85.16	+0.20	10.6
MdCpVlAdml	68.15	+0.27	-1.1
SmValAdml	68.47	+0.28	2.0
TotBd2	9.07	+0.04	-0.9
TotIntlInstIdx r	115.86	+0.51	5.9
TotItlInstPlId r	115.89	+0.51	5.9
TotSt	105.34	+0.41	14.4
VANGUARD INSTL FDS			
DevMktsIndInst	14.18	+0.06	6.9
DevMktsInxInst	22.16	+0.09	6.9
ExtndInst	109.15	+0.16	9.3
GrwthInst	145.59	+1.17	33.3
InPrSeIn	9.15	+0.04	-0.6
InstIdx	365.50	+1.58	15.4
InstPlus	365.49	+1.57	15.5
InstTStPlus	75.75	+0.30	14.5
MidCpInst	57.55	+0.19	4.4
MidCpIstPl	283.81	+0.90	4.4
RealEstaInstl	16.85	+0.29	-3.9
SmCapInst	90.73	+0.22	4.4
SmCapIstPl	261.88	+0.63	4.4
STIGradeInst	9.94	+0.01	2.4
STIPSIxins	23.59	+0.01	2.2
TotBdInst	9.18	+0.04	-0.8
TotBdInst2	9.07	+0.04	-0.8
TotBdInstPl	9.18	+0.04	-0.8
TotIntBdIdxInst	28.82	+0.10	2.8
TotStInst	105.38	+0.42	14.5
ValueInst	53.85	-0.01	0.2
WCM Focus Funds			
WCMFocIntlGrwIns	20.83	+0.07	6.0
Western Asset			
CoreBondI	NA	...	NA
CorePlusBdI	NA	...	NA

Private-Equity Exits Decline

Depressed deal-making, prospect of government freeze delay a recovery

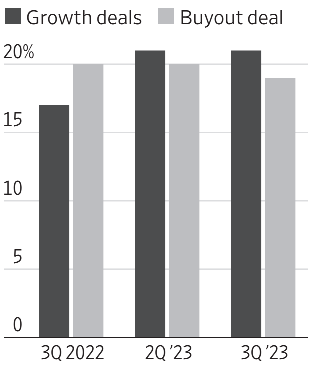
By Maria Armental

The steady growth trajectory the private-equity industry enjoyed for many years continues to reverse course this year as sustained higher interest rates, inflation and the threat of a government shutdown damped deal and exit activity.

During the third quarter, this downward pressure translated into a continuation of several trends that characterized U.S. private-equity deals in the first half of the year, according to research from PitchBook Data.

The leveraged loan market, which typically fuels larger acquisitions by private-equity firms, had come to a virtual standstill around the start of this year. But lately it has shown signs of reviving, said Tim Clarke, PitchBook's lead private-equity analyst. For example, he said, the recently ended quarter included Chicago-based buyout shop **GTCR**'s $11.7 billion leveraged acquisition of Worldpay and the sale of debt tied to **Apollo Global Management**'s $7 billion-plus buyout of Tenneco through transactions that had been hung up since last year.

Percentage of U.S. private equity deals



Note: Data as of Sept. 30. Second and third quarter figures for 2023 are likely to be revised upward.

Source: PitchBook

The value of exit deals in the U.S. during the third quarter tumbled to the second-lowest amount since the same period in 2010, excepting the pandemic-struck second quarter of 2020, according to PitchBook.

"It looks like we hit an air pocket," Clarke said, noting that exit value reversed a gain made from the first quarter to the second of this year and remains well below average pre-pandemic levels. Overall, the value of exits in the third quarter fell almost 41% to $44.1 billion from the second quarter and was more than 80% lower than the peak reached in the second quarter of 2021, Clarke said.

Overall, the number of U.S. exit deals fell about 46% in the third quarter from the comparable period a year earlier after showing some signs of life in the previous quarter, when **Thoma Bravo** announced the sale of Adenza to Nasdaq and **Vista Equity Partners** sold Apptio to **International Business Machines**.

In addition, **EQT** AB-backed **Kodiak Gas Services** and **Ares Management**'s **Savers Value Village** held initial public offerings during the spring quarter. In July, **L Catterton**'s beauty-products retailer **Oddity Tech** went public, producing a windfall gain for the firm.

Private-equity deals in the U.S. fell in the recently ended period, with the aggregate value of deals dropping about 18% compared with the second quarter. The total value of U.S. private-equity deals was almost 55% lower than the peak reached in the fourth quarter of 2021.

The value of larger so-called platform deals in the U.S. tumbled 21% from the second quarter. These bigger transactions typically rely on borrowing by the buyer, and the leveraged loan market they usually turn to has been listless.

With entry deals and exits declining, the gap between the levels of both has narrowed by $104.2 billion since the beginning of the year, according to PitchBook. But the gap remained wide, totaling $475.1 billion at the end of September.

The sizable imbalance can disrupt industry growth, PitchBook said. It also spotlights the need for buyout firms to find ways to offer their fund investors liquidity as capital pools near their predetermined termination dates.

The growing need for liquidity options will likely drive an explosion in continuation funds that provide cash-out opportunities and secondary sales by fund investors, Clarke said. For example, energy technology-focused GEC closed a continuation fund during the third quarter that allowed it to extend its ownership of Estis Compression, a provider of high-pressure artificial-lift services to oil-and-gas companies, while also giving investors a chance to exit.

Goldman Unloads Lender

Continued from page B1

cards, had lost about $4 billion from 2020 to the end of the second quarter, on a pre-tax basis.

The retreat is being welcomed by many of Goldman's partners who have been against Goldman straying from its Wall Street roots and expanding beyond lending to the wealthiest individuals. Goldman senior executives have also been concerned about the impact the bank's consumer-lending expansion was having on its stock. The shares have lost about $100 each in the past two years, closing Wednesday at $313.02.

Watch a Video

Scan this code for a video on Goldman's consumer lending retreat.

Disney Lifts Theme Park Prices

Continued from page B1

and entertainment to our parks and, with our broad array of pricing options, the value of a theme park visit is reflected in the unique experiences that only Disney can offer," a spokesperson said.

Last week, Disney rolled out limited-time promotions for children's tickets at both Disneyland and Disney World. Those deals were unlike promotions Disney has offered in the past, industry analysts said.

"Disney has generally resisted ticket discounts in the past," said Don Munsil, the president of travel website MouseSavers.com.

The recent pricing adjustments come as Disney plans to plow some $60 billion in investments into its parks and cruises division over the next decade, roughly double the investment that the unit saw over the past 10 years.

Disney Chief Executive Bob Iger in August said parks and experiences represented a "key growth engine" for the company. The return-CEO said earlier this year that he has always believed Disney needed to be accessible and that it "may have been a little bit too aggressive" about some pricing increases, including at its parks.

Some Disney fans were critical of Iger's successor, Bob Chapek, who raised prices and began charging for certain services and features to maximize what the company made per visitor.

The company has looked to make inroads with theme-park fans in other ways. Earlier this year, Disney World said it would no longer require many visitors to make a reservation for the park they wish to visit starting in January.

The reservation policy was introduced when the resort reopened in 2020 following Covid-related shutdowns.

On Wednesday, Disney World said that guests with tickets that allow them to visit multiple theme parks in a single day would no longer need to wait until 2 p.m. to switch parks, ending another Covid-era policy. That change also goes into effect in January.

As Disney contends with accelerated cable-cord cutting, which has hurt its legacy TV business, and grapples with a costly transition to streaming, its theme parks have become a critical financial engine.

ZACK WITTMAN FOR THE WALL STREET JOURNAL

Disney plans to plow some $60 billion into its parks and cruises division over the next decade.

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S&P Winning Streak Extends to 4 Days

Long-term Treasury yields drop as more traders expect Fed to hold rates steady

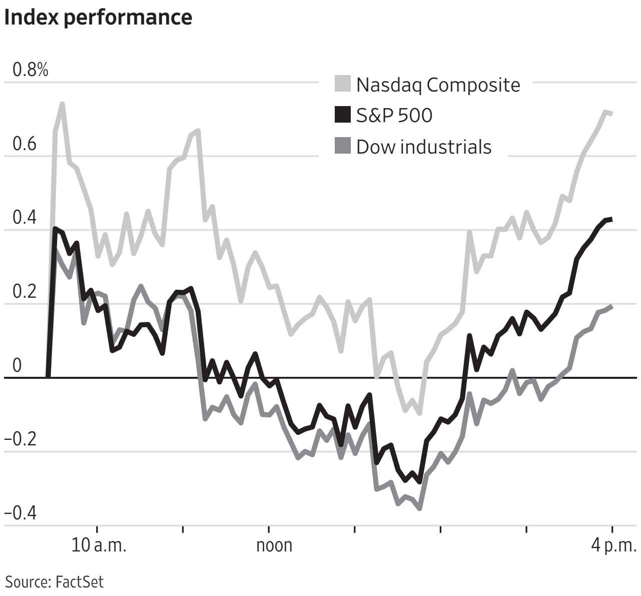
By Hannah Miao

The S&P 500 edged higher, extending its winning streak to four consecutive trading sessions.

The S&P 500 gained 0.4%. The tech-heavy Nasdaq Composite rose 0.7%. The Dow Jones Industrial Average added 0.2%.

WEDNESDAY'S MARKETS

Stocks have rebounded in recent sessions as bond yields pulled back, reversing a swift run-up in yields that had weighed on equities. Top Federal Reserve officials have signaled recently that the central bank could be done raising interest rates if long-term yields remain near highs and inflation continues to cool.



Source: FactSet

"It's more of a relief rally than anything else. That yields stopped going up is a source of strength within the equity markets," said Matt Stucky, chief equity portfolio manager at Northwestern Mutual Wealth Management.

Producer prices climbed 0.5% in September from the month before, according to a report Wednesday, hotter than economists expected. But core producer prices, which strip out volatile food and energy categories, rose just 0.2% from the prior month. The closely watched consumer-price index is due out Thursday.

Traders are pricing in a roughly 91% probability of the Fed leaving its policy rate unchanged at its November policy meeting, up from a 77% probability a week ago, according to CME Group's fed-funds futures.

The yield on the 10-year U.S. Treasury note has fallen in recent sessions after reaching its highest level since 2007 last week. The 10-year yield fell to 4.596% from 4.654% on Tuesday. Bond yields fall when prices rise.

Among individual stocks, shares of **Birkenstock** fell in their debut on the New York Stock Exchange, a discouraging sign for an IPO market that was just starting to show signs of rebounding.

The company's initial public offering was priced at $46 a share, then the stock opened at $41 and closed at $40.20.

U.S.-listed shares of **Novo Nordisk** rose 6.3% after the Danish drugmaker said a trial showed its blockbuster diabetes drug, Ozempic, could delay kidney disease's progression. Shares of **Eli Lilly**, which makes a rival weight-loss drug, gained 4.5%. Shares of kidney-dialysis company **DaVita** dropped 17%.

LVMH Moët Hennessy Louis Vuitton's U.S.-listed shares fell 2.5% after the world's biggest luxury-goods company reported a sharp slowdown in sales growth as it struggled to lure big-spending Chinese consumers back.

Exxon Mobil shares dropped 3.6% after the company agreed to buy Pioneer Natural Resources in a $60 billion deal.

In energy markets, Brent crude declined 2.1% to $85.82 a barrel after an initial jump in oil prices at the onset of the Israel-Hamas war.

The WSJ Dollar Index was flat.

Overseas, Europe's Stoxx 600 rose 0.2%. At midday Thursday, Japan's Nikkei 225 was up 1.2%, Hong Kong's Hang Seng Index was up 1.9% and South Korea's Kospi was up 0.9%. S&P 500 futures rose 0.2%

AUCTION RESULTS

Here are the results of Wednesday's Treasury auctions. All bids are awarded at a single price at the market-clearing yield. Rates are determined by the difference between that price and the face value.

17-WEEK BILLS

Applications	$188,983,273,300
Accepted bids	$56,392,560,300
" noncompetitively	$660,721,300
" foreign noncompetitively	$0
Auction price (rate)	98.229875 (5.355%)
Coupon equivalent	5.542%
Bids at clearing yield accepted	79.06%
Cusip number	912797JD0

The bills, dated Oct. 17, 2023, mature on Feb. 13, 2024.

NINE-YEAR, 10-MONTH NOTES

Applications	$87,507,724,600
Accepted bids	$35,000,052,400
" noncompetitively	$84,114,600
" foreign noncompetitively	$0
Auction price (rate)	94.231522 (4.610%)
Interest rate	3.875%
Bids at clearing yield accepted	92.26%
Cusip number	91282CHT1

The notes, dated Oct. 16, 2023, mature on Aug. 15, 2033.

Closed-End Muni Funds Take Hit

Continued from page B1

Bloomberg U.S. Aggregate bond index, which goes back to 1976.

Muni closed-end funds returned an average of minus 7.69% including price changes and distribution payments in the first three quarters of 2023, according to Morningstar Direct. That compares with returns of minus 1.38% and minus 1.21% on Bloomberg indexes tracking the performance of municipal bonds and the broader bond market, respectively.

U.S. closed-end funds held $252 billion in assets at the end of 2022 compared with $28.6 trillion in open-end funds, according to the Investment Company Institute. Retirees like the steady monthly distributions the funds pay out with income from the stocks, bonds or bank loans they invest in. Muni closed-end funds offer an additional perk: returns exempt from federal and often state income taxes.

Muni investors prized leveraged funds during a decade of low yields. Two years of rising rates have turned that calculus on its head. Short-term tax-exempt borrowing costs have climbed above 4% at times this year, the Sifma Municipal Swap Index shows, higher than the interest rate on some of the older bonds in closed-end fund portfolios. At the same time, the market value of those older bonds is dropping, thanks to the availability of newer, higher-interest bonds.

Some closed-end funds are now reducing leverage, Marfatia found in a recent report. That move—selling assets to pay back a portion of the funds' borrowing—can be a way to rein in losses. Sometimes, however, falling asset values force fund managers to cut leverage to keep from running afoul of regulatory caps on how much they can borrow relative to the value of their underlying securities.

Selling assets to pay off borrowing in a down market means managers end up unloading them at ultralow prices and lose the chance to recover if and when the securities rebound. That is one reason muni closed-end- fund losses were so severe during the 2008-09 financial crisis.

Not all closed-end funds are suffering the way muni funds are. Those that contain floating-rate debt are somewhat insulated from rising borrowing costs. Many funds that contain stocks have experienced market gains that offset the mounting cost of their leverage. U.S. equity closed-end funds returned an average of 3.93% in the first three quarters of 2023, according to Morningstar Direct.

The decline is an acute example of the impact of rising rates on portfolios..

But for muni closed-end funds, losses are again hitting investors' wallets. Over the past two years, dozens of those funds have cut their monthly distributions, often repeatedly. For some funds, those payments are now approaching crisis-era levels.

A shareholder who owns 10,000 shares of Nuveen Municipal Credit Opportunities Fund, for example, would have received a $620 monthly distribution in October 2022 but $455 in October 2023. Seven of **BlackRock**'s leveraged muni closed-end funds cut distributions by between 8% and 16% in the first three quarters of this year and are trading at their lowest prices since the 2008-09 financial crisis.

Investors who want out face another painful reality. They must accept whatever price other investors are willing to pay for their shares, even though that could be far less than the market value of the muni bonds the fund contains. Today many muni closed-end funds are trading at around 15% less than the value of their underlying bonds, according to data from Morningstar Direct.

In a few cases, the widening gulf between the market price of closed-end fund shares and the net asset value has led to investor activism. The hedge fund **Saba Capital Management** has been buying up shares in closed-end funds run by BlackRock and other managers, and in June sued the managers over shareholder voting rights.

The hedge fund aims to elect outsiders to the funds' boards and push for changes that could bring the price close to the underlying value. Those could include converting the funds to open-ended portfolios or selling the assets they contain and giving the money to shareholders.

Others see the spread between muni prices and closed-end-fund share prices as an opportunity. Jason Cole, a certified financial planner in Mount Laurel, N.J., encourages clients to consider keeping 10% to 20% of their muni portfolios in closed-end funds. He said the current discounts make it a good time to stock up on well-managed funds.

"You are taking a little bit more risk," Cole said. "But if you're buying them at a wide enough discount and you don't need that liquidity, well, eventually that discount will narrow."

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The Wall Street Journal CMO Network connects the decision-makers behind the world's most influential brands to discuss what — and who — is driving today's trends and chart the path forward.

Melissa Brotz

Chief Marketing and Communications Officer, Abbott

Membership is by invitation:
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Abbott just turned 135 years old this year. How do you keep a company that's been around for so long relevant?

Abbott has been successful for generations because we've constantly reinvented the company by pioneering health advancements as science and technology evolves. But our purpose is constant — helping more people live fuller lives through better health — and it's what drives our innovation. Today people want more control over their health — and not just when they're sick. We're focused on advancing health tech that helps people get — and stay — healthy. That includes biowearables and connected health tech that places more control into people's own hands.

What does authentic marketing look like for you?

At Abbott, we're leading in the convergence of health and consumer tech, and that calls for more distinctive, consumer-centric marketing that breaks out of traditional health care communications and medical jargon. We're focused on creative execution that's true to who we are and genuinely connects with people, which makes it much easier for them to engage with us and our brands.

You're also the company's chief sustainability officer (CSO). How does the combination of the CMO and CSO roles affect your advertising and marketing emphasis?

For Abbott, our marketing and sustainability priorities are inextricably linked by our purpose. A sustainable future for individuals and communities starts with health, and the way Abbott can have the greatest impact for the most people is by designing our products for greater accessibility and affordability wherever we can. Our ambition is to make health tech the most helpful tech of all. And that intent is often woven into our storytelling.

When faced with a new challenge, what's your decision-making process, and where do you turn for trusted information or advice?

It begins and ends with the people we are here to serve — about 2 billion around the world, every year, who benefit from our products. That's 1 in every 4 people on the planet. I look to our Chairman and CEO Robert Ford, who leads an annual weeklong event we call Abbott Proud Week where we take a deep dive into the impact we have on our customers and what they need from us. I turn to other members of our leadership team, who are great sounding boards. My team and I cast a wide net, gathering insights from trusted sources, both internal and external. These relationships are invaluable, and they help us come to decisions that are right for our customers and our company.

What's in your toolbox for investing in your team — to help them stay focused, feel supported and be productive?

Building one of the world's greatest brands at a place where people's health and fulfillment is our top priority means that our employees should love coming to work every day. They should have opportunities to develop and grow. And they should feel like they're doing great work that matters. I encourage my teams to take advantage of Abbott's learning and development programs, participate in our formal mentoring program or take on a "gig" opportunity that allows them to work on projects outside of their primary role to develop new skills. We recently defined a broad range of career roadmaps for our marketers to give people a better understanding of how to have the career they want here. Being clear about our priorities and keeping a door open to my team leads to stronger relationships and helps us build better ideas together.

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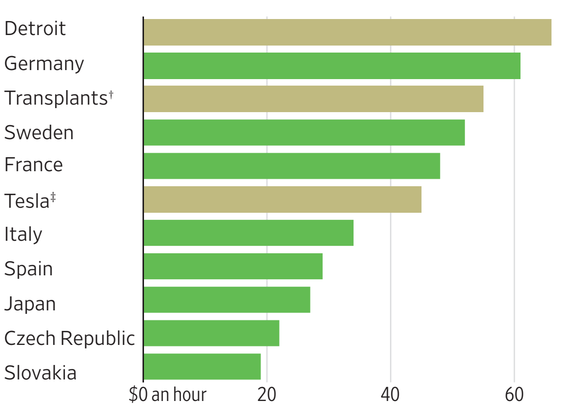
HEARD ON THE STREET

FINANCIAL ANALYSIS & COMMENTARY

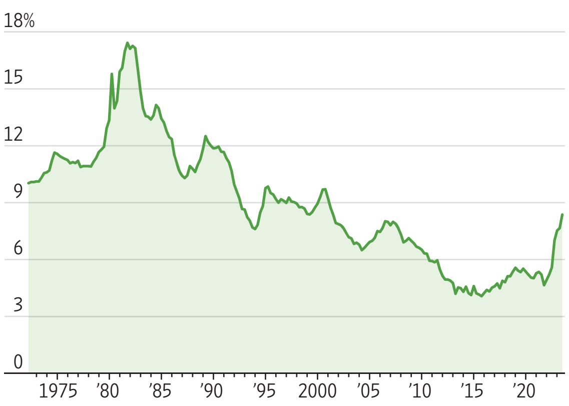
High Union Wages Affect Detroit's Agility

Expensive labor leaves General Motors and Ford overdependent on American demand for big vehicles

All-in automotive labor costs*



Average interest rate on four-year new-auto loans**



*European and Japanese data are for 2022, U.S. data for 2023 †Foreign brands operating in U.S. ‡In the U.S. **Third quarter 2023 data is through August
Sources: German Association of the Automotive Industry; Kristin Dziczek, WSJ reporting (labor cost); Federal Reserve Bank of St. Louis (average interest rate)

Even before the raise they are striking for, Detroit's unionized auto workers are probably the best paid in the world after factoring in benefits such as healthcare. Their employers can afford it for now, but high labor costs box them in strategically.

Whatever the outcome of negotiations with the United Auto Workers union, **General Motors**, **Ford** and Chrysler owner **Stellantis** will have to pay a lot more for factory staff. GM published highlights of its latest offer on Monday, including a 20% wage increase over four years that will bring the yearly earnings of almost all the company's UAW-represented staff to about $82,000 for a full-time schedule. There were higher employer pension contributions and better terms for temporary workers.

While such proposals haven't been enough to end the strike, they have led to a bit more optimism in recent days. UAW President Shawn Fain didn't escalate a walkout last Friday as had been expected. GM's shares have since risen about 4%.

But even today's UAW wages are high by global standards. Kristin Dziczek, an automotive analyst and policy adviser to the Federal Reserve Bank of Chicago, estimated them at $66 an hour for 2023 on average, including nonwage costs such as pensions and healthcare. In Germany, which is heavily unionized, all-in labor costs last year were about €59 an hour, equivalent to $62, according to an analysis by the German Association of the Automotive Industry. The difference likely has more to do with the high cost of U.S. healthcare than with headline wages.

Costs elsewhere in Europe are lower—considerably so in the former Soviet bloc. In Japan, the other big developed-world hub for car production, they averaged the equivalent of $27 an hour last year, partly as a result of the weak yen, according to the analysis.

Germany and Detroit specialize in different kinds of vehicles, but as high-wage centers of vehicle production, they have some things in common. At home, both have stepped back from making lower-margin small cars in favor of their trademark high-value franchises—gadget-rich luxury vehicles in Germany and huge pickup trucks and sport-utility vehicles for Detroit.

Focusing on high-margin products is a sensible strategy as long as those products remain popular. Detroit and Germany have been lucky to have consumer tastes at their back in recent years: Car buyers have sought premium brands over mass-market ones and larger vehicles over smaller ones. Combined with the pandemic car shortage, these trends have made for a lucrative spell on both sides of the Atlantic.

But the price of focus might be flexibility: If the market turns, Detroit in particular will look exposed. Pent-up demand is supporting the U.S. market for now, but higher interest rates and gas prices could push American consumers back toward smaller, cheaper cars. The average four-year new-car loan cost 8.3% in August, the highest rate since 2001.

Rising EV sales might move the needle back toward lighter vehicles, which can use batteries and the expensive niche metals that go into them more efficiently. GM seems to recognize this with its plan to offer EVs of all sizes, including a revamped version of its small Chevrolet Bolt. In time, this strategy could run up against the old problem of how to compete head-to-head with nonunionized manufacturers, particularly Tesla.

This is why the discussions with the UAW around the unionization of battery plants, which will replace engine-and-transmission factories in the automotive supply chain, are so sensitive. Fain said on Friday that GM agreed to bring battery plants into its master agreement with the UAW, but the company didn't mention this crucial detail in this week's offer.

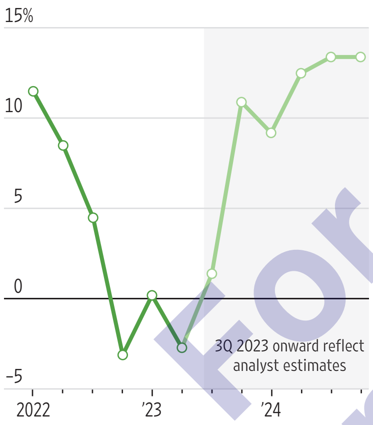
Contract negotiations aside, the underlying reason why the Detroit Three and the UAW make an increasingly dysfunctional couple is a breakdown in trust. Yen Chen, principal economist at the Center for Automotive Research, points out that the master agreement that governs their relationship has ballooned from a small booklet 40 years ago to a 1,000-plus-page tome. Legalese is no substitute for goodwill.

The Detroit Three can't do much about their high labor costs, but an acrimonious relationship with workers adds to the problem while benefiting nobody.

—Stephen Wilmot

Profits Are Making a Comeback

S&P 500 earnings per share, change from a year earlier



Source: Refinitiv

The profit slump is over.

Third-quarter earnings season is getting under way, and it will likely be much better than the second quarter's for U.S. public companies. Industry estimates indicate that members of the S&P 500 will report earnings per share were 1.3% higher than a year earlier—a nice improvement from the second quarter's decline of 2.8%.

Moreover, current estimates almost certainly understate the third quarter's strength given analysts' tendency to lower their forecasts in the lead-up to earnings season. In early July, they were looking for a second-quarter S&P 500 earnings decline of 6.4%.

The S&P third-quarter earnings estimate is also getting damped by an estimated 34.7% decline in energy-sector earnings—the consequence of fuel costs that were much lower than a year earlier. S&P 500 earnings excluding energy are expected to show a 6.2% gain after rising 3.6% in the second quarter.

Finally, analysts reckon profit growth in the fourth quarter will be substantially better, with estimates pointing to S&P 500 earnings up 10.8% from a year earlier. This figure needs to be taken with some skepticism—analysts might be unduly pessimistic about third-quarter earnings. But, if history is any guide, they are probably too optimistic about earnings in the fourth quarter and beyond. Even allowing for analysts' sunny dispositions, earnings growth seems likely to pick up. And chief financial officers—who often play Eeyores to chief executives' Tiggers—expect earnings to pick up next year, according to a survey by Duke University and the Federal Reserve Banks of Atlanta and Richmond.

In several respects, this is surprising. Labor is a major cost at most companies, and labor costs have continued to rise. Wage growth has lately been outstripping inflation, which means many companies' wage bills are rising more swiftly than the prices they are able to charge. To this, add the continued rise in interest rates which, in addition to raising financing costs, is weighing on demand. Many overseas economies have been weak, while the strength of the dollar has cut into the value of the profits U.S. multinationals earn abroad.

The U.S. economy has been steady, though, while the strong job market is giving U.S. consumers the ability to keep spending. Moreover, while Americans seem likely to keep reallocating more of their spending toward services and away from goods as the pandemic's effects continue to lessen, spending on goods has strengthened in absolute terms. This matters for public companies because companies like **Apple** and **Walmart** that make or sell goods are overrepresented in the S&P 500 compared with the U.S. economy.

Many of these goods-focused companies have been on the wrong side of the inventory cycle. Responding to the boom in demand for stuff that occurred after the pandemic struck, many businesses over-ordered and ended up with more on their shelves than they needed. As those businesses worked down inventories, they bought less. But a Goldman Sachs analysis of second-quarter earnings calls suggests the bulk of inventory rebalancing has passed, and it looks as if inventory growth boosted gross domestic product in the third quarter.

There is, of course, plenty that could go wrong, including the possibility that the U.S. economy is finally hit by the recession people have been talking about since early last year. But if earnings growth keeps picking up, the stock market might be headed higher anyway.

—Justin Lahart

Gilded Age for Luxury Brands Fades

The end of easy money is catching up with luxury brands. It took a long time, so the skills needed to protect profit margins may be rusty.

Shares in the world's biggest luxury company, **LVMH Moët Hennessy Louis Vuitton**, fell 6.5% Wednesday after it reported a slowdown in sales for the third quarter the previous evening. LVMH grew sales by 9% for the three months through September compared with a year ago. That sounds impressive, but the business was growing at almost double this pace in the second quarter.

Demand for luxury goods slowed for most products and in all major regions. One surprise was a 14% drop in sales at LVMH's wines and spirits divisions. Shipments of cognac brands such as Hennessy have been weak in the U.S. as cash from pandemic stimulus checks runs out, but the trend is getting worse.

The slowdown is no longer limited to "aspirational" shoppers, as the industry frames less wealthy buyers. Sales of LVMH's watch and jewelry brands were weaker than analysts expected. And wealthy European consumers who were spending freely on luxury goods early this summer turned cautious in the third quarter.

Investors knew a slowdown was coming, but not how big it would be. After Wednesday's share-price drop, LVMH lost a quarter of its market value in roughly six months. The slump may be more severe at weaker rivals like **Burberry** or Gucci owner **Kering**, whose stocks also fell Wednesday. Recently, the industry has fallen out of fashion with shareholders, who at the start of the year expected a bigger surge in Chinese demand after the country lifted pandemic restrictions.

With business probably as good as it can get in China, there is no obvious place for new growth. Weaker demand for luxury goods will damp brands' ability to raise prices. Last year, strong sales helped them lift prices by 8% on average, according to UBS estimates. This pricing power has been a big draw for investors and boosted profit margins, but it is probably over for now. In the four years leading up to the pandemic, prices rose 1.2% annually on average.

Luxury companies face a balancing act with their multibillion-dollar advertising budgets and store-rollout plans. They may need to save cash to protect margins. At the same time, they must continue to spend on advertising to maintain their trademark desirability.

Some perspective is necessary: LVMH's fashion-and-leather-goods division, its main profit driver, is 80% larger than it was in the third quarter of 2019. The industry has had an amazing run and is expected to grow in 2024. Still, some of the sheen that made it attractive to investors has faded.

—Carol Ryan

Country Garden Wilts Amid Woes

The largest private Chinese property developer still standing is likely to be on its knees soon.

That in itself won't be enough to spark a Chinese debt crisis. But it could certainly undermine Beijing's attempts to put a floor under the housing market. Mounting damage to banks' balance sheets from the property meltdown could make stabilizing other parts of the economy more difficult.

Country Garden, the largest Chinese developer by contracted sales last year, warned Tuesday that it doesn't expect to be able to repay all its U.S. dollar bonds and other offshore debts—after missing a 470 million Hong Kong dollar loan repayment, equivalent to around $60 million. The company flagged liquidity issues for months but managed to make payments on past-due dollar debts last month within its 30-day grace period.

This latest missive makes a repeat of that look far less likely. Country Garden's dollar-denominated bonds maturing in January are trading at 7.7% of face value, according to FactSet. And, as was the case at Evergrande before it, the firm's troubles plunged it into a vicious cycle as home buyers stay away, further draining it of cash needed to repay debts. Country Garden's contracted sales were down 81% year on year in September.

Country Garden's downfall is significant as it was considered one of the financially healthier developers not too long ago. While it had similar revenue to Evergrande in 2019, it has much less debt. As of June, it had a net debt, including bonds and bank loans, of 146 billion yuan, the equivalent to $20 billion, compared with Evergrande's 618 billion yuan, according to S&P Global Market Intelligence.

That could cause jitters in debt markets, especially since Evergrande scrapped its plan to restructure its offshore debt last month. But more important, the apparent implosion of a big developer deals another blow to a fragile housing market.

Property sales remain sluggish despite easing policies rolled out by many Chinese cities since late August. Country Garden has around 603 billion yuan of contract liabilities, which are mostly apartments that were sold but not yet delivered to buyers.

To be sure, Country Garden expanded aggressively in smaller cities where the downturn has been worse. About 63% of its contracted sales in the first half of 2023 were in so-called third and fourth-tier cities.

The Chinese banking system's direct exposure to Country Garden looks manageable. But in total, Chinese property developers had 5.3 trillion yuan, equivalent to $726 billion, of domestic bank loans as of June—about 6% of Chinese banks' books. Country Garden's darkening outlook, on top of Evergrande, substantially raises the probability that a big chunk of that debt will need to be written off. And it comes as commercial banks' net interest margin is near an record low.

Another potential ripple effect is on suppliers. As sales dry up, developers are finding it harder to pay construction and material companies. Country Garden had around 202 billion yuan of trade payable as of June and China's listed developers together owed 3.4 trillion yuan in trade payables to their suppliers, according to research firm Gavekal. That caused delays in payments to sectors such as steel and cement and tied up around 1 trillion yuan in working capital for those sectors, says Gavekal. For now, Chinese heavy industry seems to be getting by: Profits at key property-related heavy industrial sectors were about six times interest payments in mid-2023. But troubles at another big developer such as Country Garden could chip away at that. Country Garden is another reminder that China's housing meltdown is a long way from over.

—Jacky Wong

TINGSHU WANG/REUTERS

A Country Garden construction site in Tianjin, China, in August.

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THE FUTURE OF EVERYTHING

A LOOK AHEAD FROM

THE WALL STREET JOURNAL.

■ THE ARTIFICIAL INTELLIGENCE ISSUE

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Scientists are building early-warning systems to help protect Earth R4

AI's Mind-Body Problem

A science fiction writer on technology's future forms R2

A New Eye On Alzheimer's

Scans aim to detect disease years before symptoms R9

PHOTOILLUSTRATION BY JACEY

SCIENCE FICTION WRITER ANN LECKIE ON HOW AI WILL EVOLVE

▲ Ann Leckie, with an AI-generated image, at the St. Louis school where she once worked in the cafeteria

CHASE CASTOR FOR THE WALL STREET JOURNAL

Her theory is that it will get physical: 'If we're ever going to have real AI…it's not going to be just a layer of software'

By Matt Wirz

Science-fiction writer Ann Leckie has an idea for the creators of artificial intelligence: Give it a body.

Leckie is sci-fi royalty—the only author to win three of the genre's biggest awards for a single novel, "Ancillary Justice," published in 2013. She wrote the book and two sequels from the perspective of an AI, captivating readers and critics with kaleidoscopic meditations on identity, gender and philosophy's mind-body problem.

A 57-year-old from St. Louis, Mo., who once worked behind the counter in a school cafeteria, Leckie brings unusual twists to narration and grammar. Her protagonists inhabit multiple bodies simultaneously and all third-person pronouns are female.

Like Isaac Asimov's seminal "I, Robot" and Arthur C. Clarke's "2001: "A Space Odyssey," the Ancillary series explores a violent borderland between humanity and technology. AI characters take over the bodies of humans called ancillaries. But Leckie's digital characters have feminist sensibilities and psychological depth that their predecessors lacked.

For AI to evolve from the accomplished mimicry of ChatGPT into true sentience, it will need the silicon equivalent of emotions, and that will take real-world experience to develop, Leckie says.

So how did you come to be a lunch lady in St. Louis's public schools?

It was when my kids—they're in their 20s now—were in school. We were doing OK but very much hanging on by our fingernails, and I was used to bringing in my own money. My husband never said anything about it, but I felt weird about wanting to buy something and not contributing. I stopped lunch-ladying when I realized it was time to fish or cut bait about writing.

What is your writing process?

It involves a lot of reading and daydreaming and, before Covid, a lot of walking up and down the aisles in libraries reading book spines and plucking out the ones that interested me. For "Ancillary Justice," I did a deep dive into neurology.

Do you think there will be a sentient AI in your lifetime?

One of the conclusions I came to was that if we're ever going to have real AI—and this is where we're getting into my crackpot theory here—it's not going to be just a layer of software that sits somewhere and makes calculations. Because consciousness and identity is very embodied right?

Keep going with that. What's this theory?

I think what a lot of mechanical AI is missing is that the things that are too complex for us to do rationally, we can do quickly with emotional calculation.

If you're going to have a machine consciousness, it will have to have something analogous to emotions that cuts through all those little calculations that need such a huge amount of data…If you don't have that embodied aspect, you're never going to have a consciousness.

What do you mean by embodiment? Do you mean a physical vessel for the AI?

I mean a physical body, even if it's one of the horrible assault-dog robots. Something where you're getting a reward feedback, where you're getting some kind of value and weighting to sensations, right? You can't just say, I've duplicated the calculations that humans make when they are thinking and put it in software, because the calculations that humans make when they're thinking depend on their bodies.

All the characters in your book take female pronouns. Why did you make that choice?

I wanted to build a world where gender is just irrelevant and nobody cares. I changed everyone's pronoun to she—she, she, she—and it was really weird, but the more I did it the more I liked it. Using she makes everyone imagine what they think a feminine character is and what a masculine one is. It makes you realize the idea that the masculine pronoun embraces the feminine is bullshit. "He" is not a genderless pronoun.

One of the gifts of this book was having people tell me, "I read your book at a really hard time and it helped me sort out my gender."

Your AI characters take over the bodies of humans called ancillaries. What is compelling to you about that?

It's partly a result of how we interact with software today—so much is "in the cloud." We interact with hundreds, if not thousands, of different machines drawing on that cloud software. It may—or may not—have some central location, but it's operating in many places at once.

But also, once you start asking the question "who is anybody anyway," it opens up more questions—why is the boundary of a person the skin of a single body? What is a single body but an array of different parts working together? Or, not always working together.

There's a tendency in fiction and in film to personify AI. What do you make of that?

I feel like a lot of folks, when they think about AI, think that something having consciousness is like it being endowed with a spirit—that if a thing is complicated enough, something magic happens and then it's alive. Because I'm a materialist. I think there's a mechanical answer. It might be complicated enough that we can't figure it out, like the weather. That wouldn't surprise me.

Your characters—AI and human—have a psychological realism that's unusual in science fiction. It's very understated, not spelled out. Why is that?

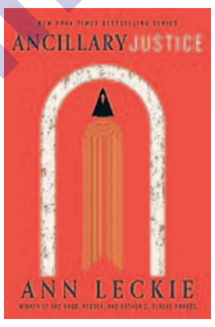
A lot of times in a story a character will have an emotion and just say it. In reality, if I'm upset, nine times out of 10, I don't know why and will dance around it and come at it sideways. No one is actually talking directly about what they are feeling and when they do they immediately draw away from it because it's so uncomfortable.

How is AI changing the world we live in?

I think machine-learning can be really cool and wonderful and can analyze a huge amount of data quickly and pick out patterns….I'm beginning to suspect people in Hollywood believe they can use chat GPT to replace writers. The day that an AI can be used to replace a writer is the day that an AI should be treated as a person. We're not there yet.

Could that be confirmation bias on your part?

It could be. Obviously that's where I live and I'm going to have a reaction to it.



Leckie's novel "Ancillary Justice," published in 2013, won three of the science-fiction genre's biggest awards

20

number of enslaved human bodies the protagonist AI inhabits early in "Ancillary Justice"

DOWNLOADS

10 GREAT BOOKS FOR YOUR AI READING LIST

Today you can use ChatGPT to clone your voice or plan your meals, but what will AI of the future do? These science-fiction novels envision sentient machines that fulfill human desires, topple governments, disrupt economies, save humanity and, maybe, replace it. Some think the genre started with HAL in "2001: A Space Odyssey," Arthur C. Clarke's 1968 book (and screenplay written with Stanley Kubrick). But WSJ staffers' favorites took us further back. **By Matt Wirz**

1. 'I, Robot' (1950)—Isaac Asimov
The OG of AI. A short-story collection exploring self-will and the unintended consequences of creating autonomous life. This is where "The Three Laws of Robotics" were created.

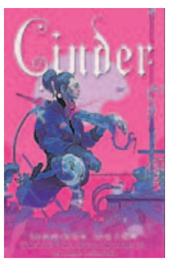
2. 'The Moon Is a Harsh Mistress' (1966)—Robert A. Heinlein
Colonists on the moon, led by a supercomputer, revolt against the government of Earth. Nerds are the heroes in this novel steeped in antiestablishment politics of the swinging '60s.

3. 'Do Androids Dream of Electric Sheep?' (1968)—Philip K. Dick
Before there was the 1982 film "Blade Runner," there was the book it is based on, a masterpiece mélange of hard-boiled detective, environmental dystopia and identity crisis.

4. 'Neuromancer' (1984)—William Gibson
Henry Case is a cyberspace hacker intent on one last score—if he can just outmaneuver the godlike AIs that populate Gibson's elegantly crafted world. Crisp writing and postmodern sensibilities that will please fans of "The Matrix" and "The Peripheral."

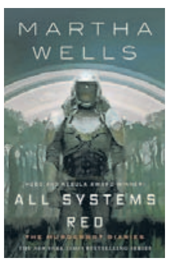
5. 'The Diamond Age' (1995)—Neal Stephenson
The AI is a book in this steampunk story about an orphan who triumphs against classism and unfettered capitalism thanks to her supercomputer tutor. A Dickensian epic full of technological optimism written in the days of the early internet.

6. 'The Windup Girl' (2009)—Paolo Bacigalupi
"I, Robot" in the era of climate change, this book tackles globalization, environmental degradation and the sex trade. A fast plot and rich world creation carries the reader through these weighty topics with ease.



7. 'Cinder' (2012)—Marissa Meyer
The eponymous hero of this fairy tale refresh is a cyborg, and her best friend is an android caught up in another Moon-versus-Earth space opera. A read for the YA crowd.

8. 'All the Birds in the Sky' (2016)—Charlie Jane Anders
AI combines with magic, literally, in this dark romance between a witch and a scientist in the near future. Beautiful prose by one of the leaders in new science fiction elevates the YA plotline.



9. 'All Systems Red: The Murderbot Diaries' (2017)—Martha Wells
Murderbot is the genderless good guy in this wry and fast-paced investigation of sentience and emotion dressed up as a murder mystery. A page-turner that launched the bestselling series.

10. 'Klara and the Sun' (2021)—Kazuo Ishiguro
A near-future tale of a sun-worshiping android nanny and its sickly charge. Written by the Nobel Prize-winning author of "The Remains of the Day," this novella shares its predecessor's insights on love, servitude and service.

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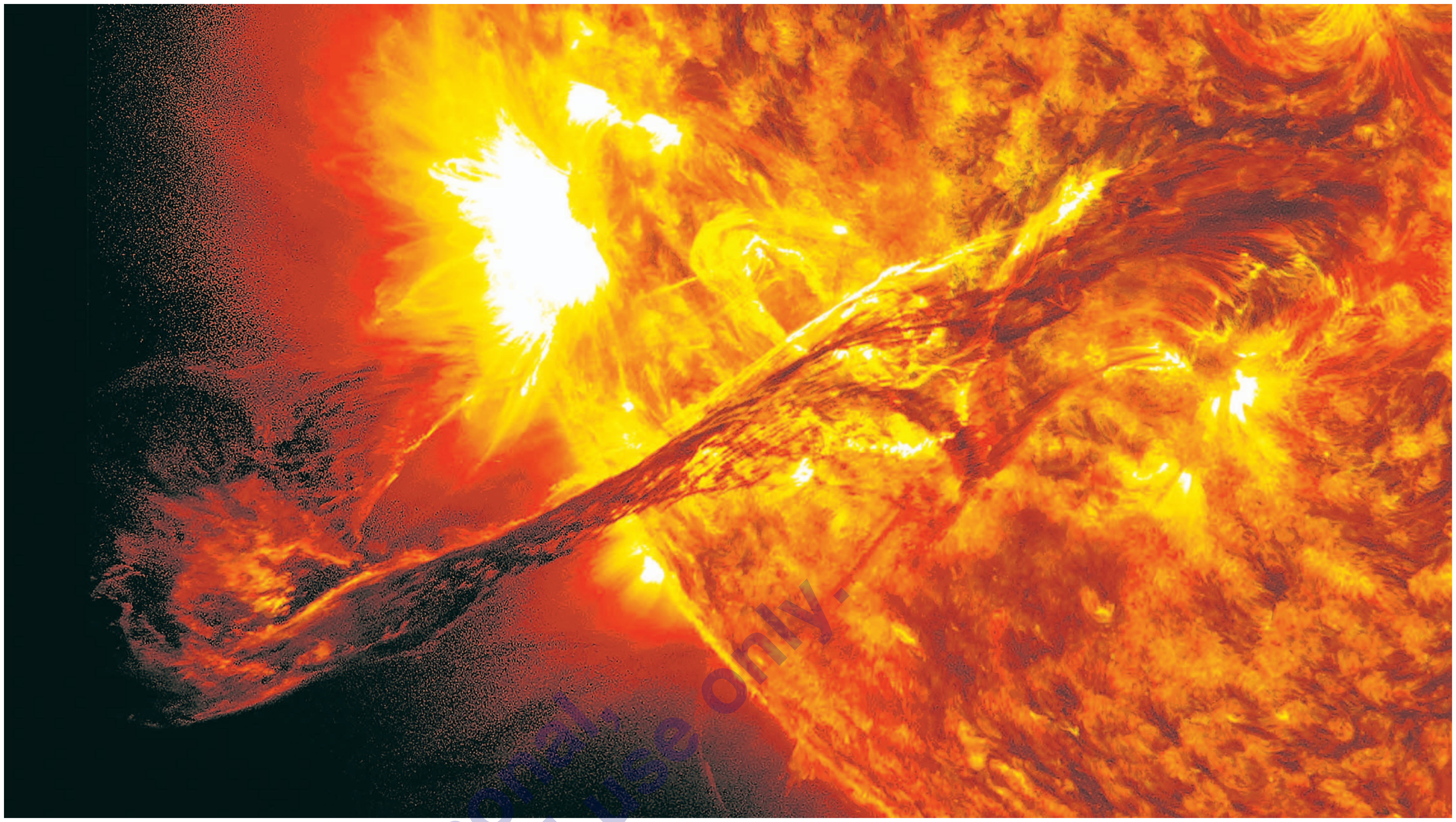
A SOLAR STORM COULD WIPE OUT THE GRID.

AN EARLY WARNING COULD HELP AVERT CHAOS.

Scientists are using artificial intelligence in new ways to try to predict what our Sun will do. More advanced notice of a coronal mass ejection could help protect satellites, electric power and undersea internet cables. **By Christopher Mims**

At right, a coronal mass ejection erupts from the Sun. Below, technicians working on NASA's Parker Solar Probe in 2018.



One day, you wake up, and the power is out. You try to get information on your phone, and you have no internet access. Gradually you discover millions of people across the U.S. are in the same situation—one that will bring months or years of rebuilding.

A gigantic solar storm has hit Earth.

The odds are low that in any given year a storm big enough to cause effects this widespread will happen. And the severity of those impacts will depend on many factors, including the state of our planet's magnetic field on that day. But it's a near certainty that some form of this catastrophe will happen someday, says Ian Cohen, a chief scientist who studies heliophysics at the Johns Hopkins Applied Physics Laboratory.

To get ahead of this threat, a loose federation of U.S. and international government agencies, and hundreds of scientists affiliated with those bodies, have begun working on how to make predictions about what our Sun might do. And a small but growing cadre of scientists argue that artificial intelligence will be an essential component of efforts to give us advance notice of such a storm.

The most dangerous of these solar storms is known as a coronal mass ejection, when a gargantuan blob of charged particles is catapulted from the Sun's atmosphere by rapidly shifting magnetic fields, at speeds in excess of 8,000 times that of sound. These happen often, but we're rarely aware of them because they only affect us when they happen to strike earth.

What makes these huge blasts of particles so dangerous to our power grid and electronics is that, when they collide with Earth, the interaction of the sun's magnetic field with our own can induce large currents in power lines on Earth. If you've ever moved a magnet back and forth across a copper wire to illuminate a lightbulb in science class, this is the same effect—but on a global scale. A solar storm can induce currents in power lines that are strong enough to trip safety mechanisms—or even seriously damage parts of our power-distribution infrastructure.

And while the undersea fiber-optic cables for internet data don't carry electricity, they do have electrical signal-repeaters within them. These repeaters boost the optical signal as it travels the length of the cable. If they're disabled, the cable ceases to function.

Solar storms can also pose a threat for satellites in higher orbits around earth—such as the ones that make up our GPS system—by bringing a spike in so-called killer electrons that can damage and, in extreme cases, disable the satellites. Closer to Earth, solar storms can heat the atmosphere, causing it to expand in a way that increases drag, which can cause some satellites in lower orbits to crash to the surface. This happened in February 2022, leading to the destruction of 40 Starlink satellites.

Solar storms have already struck again and again. In 1859, a now-legendary storm known as the Carrington Event hit, well before we built a civilization dependent on electronic devices that it could wreck. It caused auroras as far south as the Caribbean, made telegraph lines spark, caused fires at some telegraph stations, and shut down parts of the telegraphy network in the Northern Hemisphere.

Estimates vary on how often large solar storms hit Earth. Research by Delores Knipp, a professor at the University of Colorado, Boulder, suggests solar storms that could cause auroras visible at the same latitudes as the Carrington Event hit about once every 60 years. Cohen, on the other hand, estimates that a major storm hits Earth every 150 years or so. These differing estimates partly reflect that we don't have a formal or even a very good definition of a "Carrington-class" solar storm.

However, it doesn't take a storm of maximum intensity to do serious damage to infrastructure. In 1972, a solar storm caused as many as 4,000 magnetically sensitive mines in the waters off Vietnam to detonate, while briefly fooling a U.S. Department of Defense satellite into thinking that the Russians had just set off a nuclear bomb. In 1989, a storm knocked out power in Quebec for nine hours.

We are entering a period of peak activity for our sun—the apex of its 11-year cycle will occur in mid 2024—that has already proved to be more violent than the solar cycles of the past three decades. Just as earth has hurricane seasons, it's fair to say that we are entering a solar-storm season, Cohen says. When it comes to the next big one, "I don't think we're going to get knocked back into the Stone Age, but there are significant events that could occur," he says. "We have to be ready," he adds.

At present, no warning system is capable of giving us more than a few hours' notice of a devastating solar storm. If it's moving fast enough, it could be as little as 15 minutes. The most useful sentinel—a sun-orbiting satellite launched by the U.S. in 2015—is much closer to Earth than the sun, so that by the time a fast-moving storm crosses its path, an hour or less is all the warning we get.

The European Space Agency has proposed a system to help give earlier warning by putting a satellite dubbed Vigil into orbit around the Sun, positioned roughly the same distance from the Earth as the Earth is from the Sun. It could potentially give us up to five hours of warning about an incoming solar storm—enough time to do the main thing that can help preserve electronics: Switch them all off.

But what if there were a way to predict this better, by analyzing the data we've got? That's the idea behind a new, AI-powered model recently unveiled by scientists at the Frontier Development Lab—a public-private partnership that includes NASA, the U.S. Geological Survey, and the U.S. Department of Energy. The model uses deep learning, a type of AI, to examine the flow of the solar wind, the usually calm stream of particles that flow outward from our sun and through the solar system to well beyond the orbit of Pluto.

Using observations of that solar wind, the model can predict the "geomagnetic disturbance" an incoming solar storm observed by sun-orbiting satellites would cause at any given point on Earth, the researchers involved say. This model can predict just how big the flux of the Earth's magnetic field will be when the solar storm arrives, and thus how big the induced currents in power lines and undersea internet cables will be.

Research into how AI can be used to better predict the impacts of solar storms is still at an early stage, in part because the entire field of space weather is new, says Enrico Camporeale, a scientist at the University of Colorado who is affiliated with the Space Weather Prediction Center, the government body responsible for predicting weather in space.

Building AI-based systems to predict space weather requires lots of good data, gathered continuously, at high spatial and temporal resolution. Accomplishing that with our current sun-observing tools is a challenge, because most of the satellites and ground-based sensors we have that observe the sun are science experiments, not intended to be "operationalized" as part of an early-warning system, says Tom Schad, an astronomer with the National Solar Observatory.

Continuous observation of the Sun, of the sort that could gather the volumes of data needed to build all kinds of predictive models, is coming. The Inouye Solar Telescope, where Schad works, was built atop Haleakalā, the active shield volcano that forms most of the island of Maui. It began operations in 2021, and is now the world's most powerful telescope for continuously observing the sun. That same year, NASA's Parker Solar Probe penetrated the Sun's corona—the million-degree hellscape where solar storms are born.

The Parker Probe, as revealed in a just-published study, a year ago flew through a coronal mass ejection. Results from that encounter showed it to be just as violent as the 1859 Carrington Event—though fortunately it was on the other side of the Sun from the Earth.

Further key data will be gathered by other systems in space, including the ESA's Vigil craft and NASA's follow-up to its aging solar-observation satellite, and on Earth, in the form of projects like the Coronal Solar Magnetism Observatory, planned for Boulder, Colo.

Already, the first primitive ancestor of future AI-based solar-weather alert systems is live. The DstLive system, which made its debut on the web in December 2022, uses machine learning to take data about the state of Earth's magnetic field and the solar wind and translate both into a single measure for the entire planet, known as DST. Think of it as the Richter scale, but for solar storms. This number is intended to give us an idea of how intense a storm's impact will be on earth, an hour to six hours in advance.

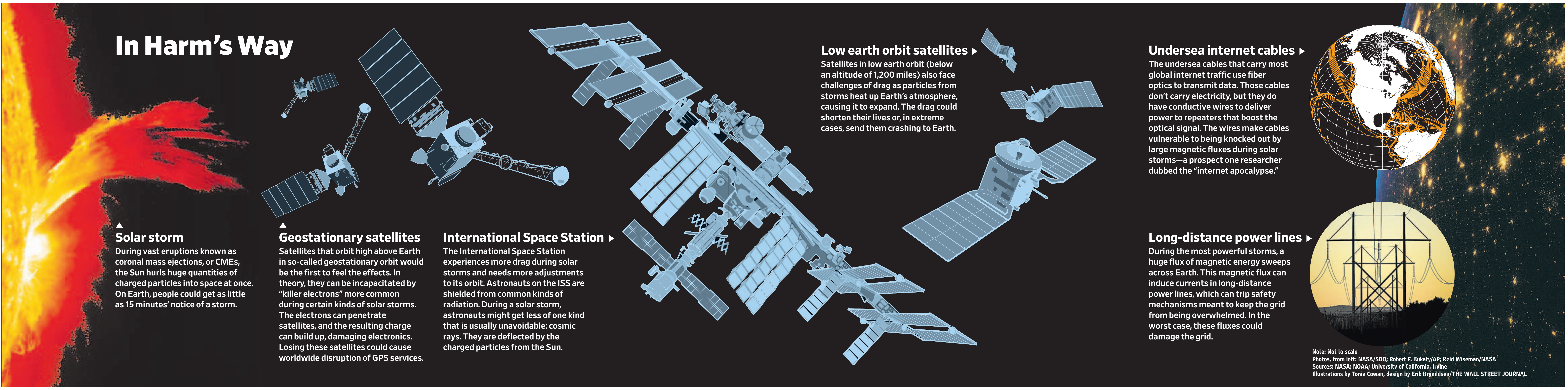
Unfortunately, we may not know how useful such systems are until we live through a major solar storm. But many of the scientists working on better understanding such storms are collectively trying to convince the world that preparation is in our best interest, and early prediction is an essential part of that.

Building AI-based systems to predict space weather requires lots of good data, gathered continuously.

To that end, in early 2024 the Applied Physics Lab that employs Cohen will be hosting a "tabletop exercise" that will simulate a major solar storm hitting earth. It will bring together government agencies and outside parties, allowing them to see how well they can handle such a catastrophe. It's the same kind of exercise that generals conduct when playing wargames to determine who would win, say, a battle over Taiwan.

In some ways, the stakes may be even higher.

FROM TOP: NASA/GSFC/SDO; LEIF HEIMBOLD/NASA



In Harm's Way

Solar storm
During vast eruptions known as coronal mass ejections, or CMEs, the Sun hurls huge quantities of charged particles into space at once. On Earth, people could get as little as 15 minutes' notice of a storm.

Geostationary satellites
Satellites that orbit high above Earth in so-called geostationary orbit would be the first to feel the effects. In theory, they can be incapacitated by "killer electrons" more common during certain kinds of solar storms. The electrons can penetrate satellites, and the resulting charge can build up, damaging electronics. Losing these satellites could cause worldwide disruption of GPS services.

International Space Station
The International Space Station experiences more drag during solar storms and needs more adjustments to its orbit. Astronauts on the ISS are shielded from common kinds of radiation. During a solar storm, astronauts might get less of one kind that is usually unavoidable: cosmic rays. They are deflected by the charged particles from the Sun.

Low earth orbit satellites
Satellites in low earth orbit (below an altitude of 1,200 miles) also face challenges of drag as particles from storms heat up Earth's atmosphere, causing it to expand. The drag could shorten their lives or, in extreme cases, send them crashing to Earth.

Undersea internet cables
The undersea cables that carry most global internet traffic use fiber optics to transmit data. Those cables don't carry electricity, but they do have conductive wires to deliver power to repeaters that boost the optical signal. The wires make cables vulnerable to being knocked out by large magnetic fluxes during solar storms—a prospect one researcher dubbed the "internet apocalypse."

Long-distance power lines
During the most powerful storms, a huge flux of magnetic energy sweeps across Earth. This magnetic flux can induce currents in long-distance power lines, which can trip safety mechanisms meant to keep the grid from being overwhelmed. In the worst case, these fluxes could damage the grid.

Note: Not to scale
Photos, from left: NASA/SDO; Robert F. Bukaty/AP; Reid Wiseman/NASA
Sources: NASA; NOAA; University of California, Irvine
Illustrations by Tonia Cowan, design by Erik Brynildsen/THE WALL STREET JOURNAL

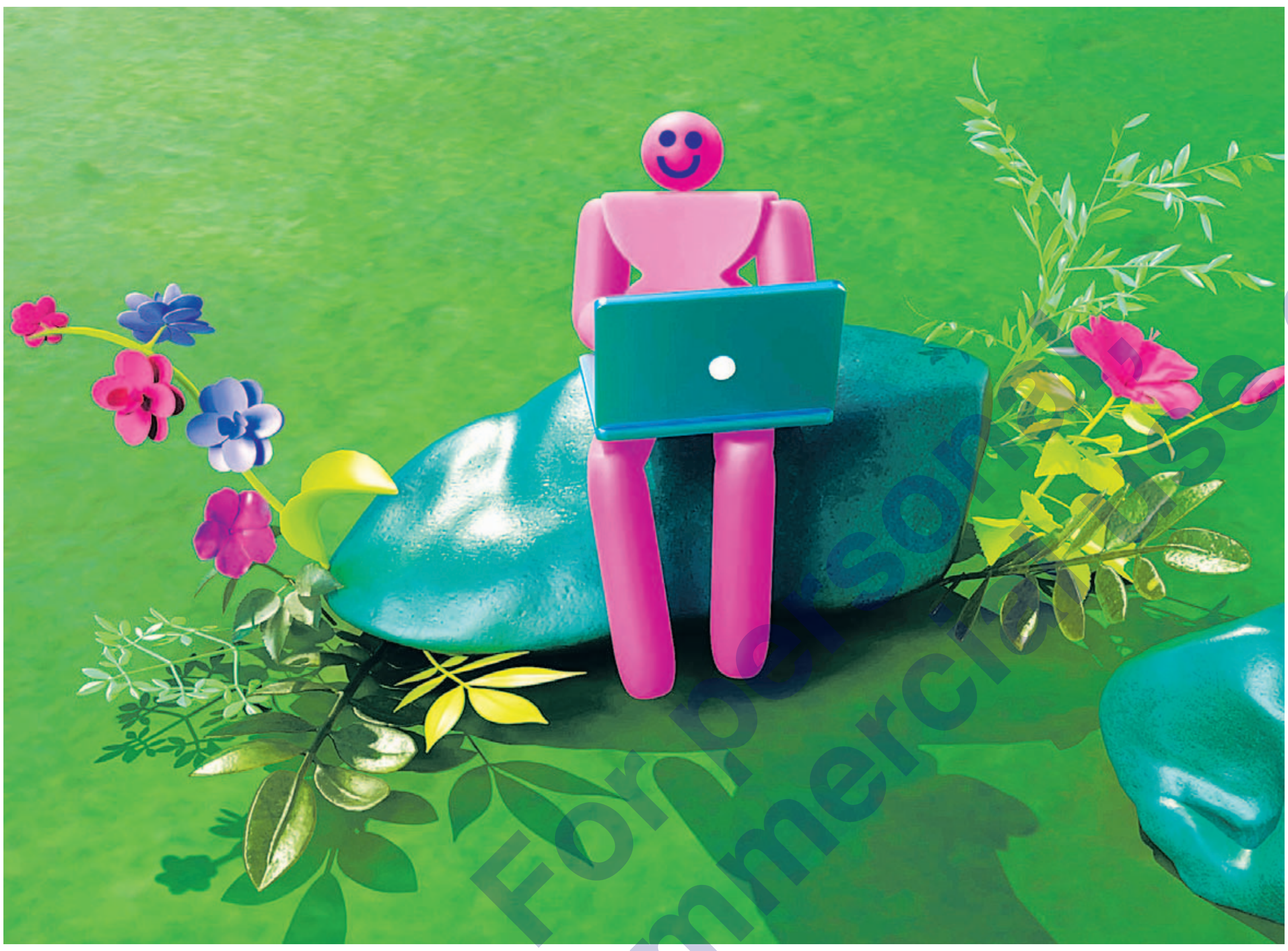
CAN AI DO EMPATHY EVEN BETTER THAN HUMANS? COMPANIES TRY IT.

Letting machines emulate and measure emotion raises ethical questions **By Lisa Bannon**

Busy, stressed-out humans aren't always good at expressing empathy. Now computer scientists are training artificial intelligence to be empathetic for us.

AI-driven large language models trained on massive amounts of voice, text and video conversations are now smart enough to detect and mimic emotions like empathy—at times, better than humans, some argue. Powerful new capabilities promise to improve interactions in customer service, human resources, mental health and other fields, tech experts say. They're also raising moral and ethical questions about whether machines, which lack remorse and a sense of responsibility, should be allowed to interpret and evaluate human emotions.

Companies like telecom giant Cox Communications and telemarketing behemoth Teleperformance use AI to measure the empathy levels of call-center agents and use the scores for performance reviews. Doctors and therapists use generative AI to craft empathetic correspondence with patients.



For instance, Lyssn.io, an AI platform for training and evaluating therapists, is testing a specialized GPT model that suggests text responses to give to patients. When a woman discloses anxiety after a tough week at work, Lyssn's chatbot gives three options the therapist could text back: "Sounds like work has really taken a toll this past week" or "Sorry to hear that, how have you been managing your stress and anxiety this week?" or "Thanks for sharing. What are some ways you've managed your anxiety in the past?"

Even a person calling from your bank or internet provider may be reading a script that's been generated by AI. The next time you get a phone call, text or email, you may have no way of knowing whether a human or a machine is responding.

The benefits of the new technology could be transformative, company officials say. In customer service, bots trained to provide thoughtful suggestions could elevate consumer interactions instantly, boosting sales and customer satisfaction, proponents say. Therapist bots could help alleviate the severe shortage of mental health professionals.

"AI can even be better than humans at helping us with socio-emotional learning because we can feed it the knowledge of the best psychologists in the world to coach and train people," says Grin Lord, a clinical psychologist and CEO of mpathic.ai, a conversation analytics company in Bellevue, Wash.

Some social scientists ask whether it's ethical to use AI that has no experience of human suffering to interpret emotional states. Artificial empathy used in a clinical setting could cheapen the expectation that humans in distress deserve genuine human attention.

70%

estimated accuracy of an AI model measuring empathy in agents' calls. It can score 10,000 calls a day—up from 100-200 rated by humans.

AI may be capable of "cognitive empathy," or the ability to recognize and respond to a human based on the data on which it was trained, says Jodi Halpern, professor of bioethics at University of California, Berkeley, and an authority on empathy and technology. But that's different from "emotional empathy," or the capacity to internalize another person's pain, hope and suffering, and feel genuine concern.

"Empathy that's most clinically valuable requires that the doctor experience something when they listen to a patient," she says. That's something a bot, without feelings or experiences, can't do.

Here's a look at where applications for artificial empathy are headed.

MENTAL HEALTH

AI that is trained in structured therapy methods like motivational interviewing and cognitive behavioral therapy could help with everything from smoking cessation and substance-use issues to eating disorders, anxiety and depression, proponents say. "We've had self-help, online CBT, videos and interactive worksheets without human therapists for a long time. We know tech can be helpful. This is the next logical step," says David Atkins, a clinical psychologist who is the CEO and co-founder of Lyssn.

The next time you get a phone call, text or email, you may have no way of knowing whether a human or a machine is responding.

Using AI to suggest and rewrite therapists' responses to patients can increase empathy ratings, studies have shown. In an experiment conducted on online peer-support platform TalkLife, an AI-trained bot called Hailey suggested how 300 volunteer support personnel could make their advice to users more empathetic. For instance, when a supporter typed, "I understand how you feel," Hailey suggested replacing it with, "If that happened to me I would feel really isolated."

The human and AI response together led to a 19.6% higher empathetic response, the study found, compared with human-only responses. "AI can enhance empathy when paired with a human," says Tim Althoff, an assistant professor of computer science at the University of Washington, who was an author on the study, with Atkins and others.

AI for therapy will need government regulation and professional guidelines to protect users, mental-health experts say. In June, a bot used by the National Eating Disorder Association's information hotline was suspended after making inappropriate suggestions. Instead of merely providing information, the bot gave some users specific therapeutic advice, like reducing calories and setting weekly weight-loss goals, which experts said could be harmful to those suffering from disorders like anorexia.

CUSTOMER SERVICE AND SALES

People who are considerate of others' feelings have more successful interactions in business, from selling real estate to investment advice, research has long shown.

Uniphore, an enterprise AI platform based in Palo Alto, Calif., sells an AI virtual-meeting tool that tracks emotional cues of participants on a call to help the host analyze in real time who is and isn't engaged and what material is resonating. A dashboard on the screen shows the sentiment and engagement scores of participants, and provides cues on whether the presenter should slow down, show more empathy or make other changes.

Critics have questioned whether people are unwittingly giving up privacy when companies record their behavior. Umesh Sachdev, CEO and co-founder of Uniphore, says companies must disclose and ask participants' permission before using the technology.

In the future, such technology could be applied in education, when instructors need to keep track of dozens of students in virtual classrooms, Sachdev says. It could also be used in entertainment, for virtual audience testing of TV and movies.

HUMAN RESOURCES

AI that scores empathy during conversations will increasingly be used for performance reviews and recruiting, HR experts say.

Humanly.io, a recruiting and analytics company with customers like Microsoft, Moss Adams and Worldwide Flight Services, evaluates chatbot and human recruiters on the empathy they exhibit during job interviews. "Higher empathy and active listening in conversation correlates to higher offer acceptance rates in jobs and sales," says Prem Kumar, Humanly's CEO and co-founder.

At one large tech company, Humanly's conversation analytics identified that recruiters lacked empathy and active listening when interviewing women. Rates of job acceptance by women increased 8% after the model identified the problem and recruiters received feedback, Kumar said.

Accolade, a healthcare services company outside Philadelphia, used to have supervisors listen to its 1,200 health assistants' recorded conversations with clients calling about sensitive medical issues. But they only had time to review one or two calls per employee per week.

"One of the most important things we evaluate our agents on is, 'Are you displaying empathy during a call?'" says Kristen Bruzek, Accolade's senior vice president of operations. "Empathy is core to our identity. but it's one of the hardest, most complicated things to measure and calibrate."

Accolade now uses a machine-learning AI model from Observe.AI trained to detect the presence of empathy in agents' calls. Observe.AI's off-the-shelf empathy model came preprogrammed to recognize phrases such as "I'm sorry to hear that," but it didn't reflect the diversity of expressions people use depending on age, race and region. So Accolade's engineers are training the algorithm to recognize a wider range of empathic expressions, inserting phrases into the computer model such as: "That must be really scary," and "I can't imagine how that feels."

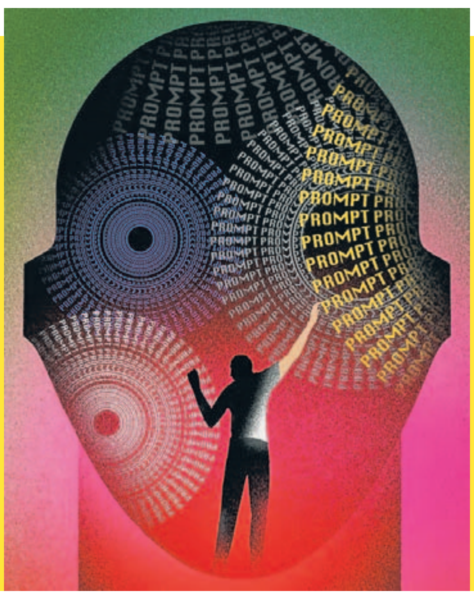
For now, the model is about 70% accurate compared with a human evaluation, Accolade estimates. Even so, it's already shown major efficiencies. Observe.AI can score 10,000 interactions per day between customers and employees, Ms. Bruzek says, compared with the 100 to 200 that humans scored in the past.

As automated performance reviews also become more common, some academics say, humans will need to understand the limitations of what AI can measure. "What happens if machines aren't good at measuring aspects of empathy that humans consider important, like the experience of illness, pain, love and loss?" says Sherry Turkle, professor of the social studies of science and technology at the Massachusetts Institute of Technology. "What machines can score will become the definition of what empathy is."

FORWARD LOOKING

Careers for Humans in The AI Era

AI systems are coming for our jobs. But they are also creating new opportunities. Here are a few of the openings.



Prompt Engineer

How do you program an AI system like ChatGPT that can converse with you, much like a human? You talk to it. Or, more precisely, you hire a prompt engineer to do this. Prompt engineering is an emerging class of job that is nestled somewhere between programming and management. Instead of using complicated computer programming languages like Python or Java, prompt engineers will spell out their instructions to AI systems in plain English, creating new ways of harnessing the power of the underlying AI systems.

This is what legal software maker Casetext's new class of engineers do with its AI-based legal assistant called CoCounsel. Jake Heller, the company's chief executive, says he's hiring prompt engineers to build out CoCounsel's abilities by instructing the AI chatbot how to do legal tasks. The language the prompt engineers use is precise and to the point, explaining how to review documents, summarize research or edit a contract. For example, a prompt engineer may start to outline instructions for a CoCounsel memo by indicating the level of expertise needed: "Your goal is that the memo will display the level of perception, nuance, and attention to detail one would expect from a federal appellate judge drafting a legal opinion."

The best prompt engineers are people who can give very clear instructions, but who also understand the principles of coding, Heller says. In other words, they're often great technical managers. Except with prompt engineers, it's not an employee that they're managing, he says. "It's an AI." ......▶▶

—Robert McMillan

FROM TOP: SIMOUL ALVA; BRIAN STAUFFER

'A TRANSFORMATIVE MOMENT'

Stanford University's medical school dean predicts AI will bring breakthroughs **By Jo Craven McGinty**

Dr. Lloyd Minor, dean of the Stanford University School of Medicine, last year began playing around with AI-powered chatbots, the computer programs that simulate human conversation.

"When ChatGPT was introduced in November, I just started using it to see what I could learn from it," says Minor, who is also the university's vice president for medical affairs. "And then when Bard came along, I started using Bard. And what I found was incredible."

In moments, the chatbots were able to spit out answers to questions it would have taken Minor hours to research, convincing him that neural networks and generative AI, which can swiftly uncover difficult-to-discern patterns in massive quantities of data, could revolutionize how physicians are trained, how biomedical research is conducted and how healthcare is delivered.

He teamed up with Fei-Fei Li, co-director of the Stanford Institute for Human-Centered Artificial Intelligence, to launch an initiative called Responsible AI for Safe and Equitable Health, or Raise-Health, which the two groups are funding together. It aims to serve as a repository for key research, to gather experts to discuss AI and to tackle ethical concerns in its application.

"This is a transformative moment in human history," Minor said. "We wanted to lead the way."

Minor spoke with the Journal about how he expects artificial intelligence to change medicine.

In your wildest dreams, what role do you see AI serving in medicine?

In healthcare delivery, my wildest dream is generative AI will help to break down barriers to access and will dramatically improve the quality and consistency and efficiency of healthcare.

In biomedical science, generative AI has the possibility and the probability to dramatically improve the precision of the science.

It will help us achieve the same quality and data from clinical trials but probably with more focused trials that don't necessarily have the tens of thousands of participants that some clinical trials have to do today. It will help us safely get new therapies into medical practice.

What we're going to be doing as educators is deciding what fundamentals of knowledge students need to have in their active memory to be excellent practitioners. And that probably is going to be much smaller than it is today because the larger breadth of knowledge is going to be readily available.

Top, Dr. Lloyd Minor, dean of the Stanford University School of Medicine.

Above, a new testing and screening program at Stanford University uses AI to improve eye care.

What is the worst thing that could happen for AI in medicine?

One is, if applied inappropriately, the technology itself is capable of significant intrusions into privacy in ways we are only now beginning to learn about. A second is, if you train care-delivery models on a specific demographic group without inclusion of other demographic groups, what you get from those models is potentially going to be harmful to the groups whose data weren't used. If the data used to train the models are biased, then the results of the models are going to be biased.

At what point will you know that AI in medicine has arrived?

The first set of goals that would be very pleasing and affirming would be if a physician in practice in rural America has the same access to analytic information and diagnostic information that a physician in an academic medical center does. For example, a physician in rural America sees a patient with a growth on the skin, they take a picture of that with their smartphone and, instantly, it gives them an analysis of the possible diagnoses and the likelihood that this represents a malignancy. Instantly, the physician knows if this is something I need to worry about, and if I need to encourage this patient to drive three hours to a referral center.

The drug discovery process is on the cusp of being transformed in ways that will dramatically improve the number of therapies that get to patients. In the intermediate term, say in the next five years, I think we'll see a lot of new medicines coming out—and medicines more specific to a disease and an individual rather than medicines that are generic in terms of treatment of everyone who has this disorder.

We need to be able to return physicians and other healthcare professionals to what historically we've been and should be in the future, and that is really focusing on our patients.

What are the next steps in integrating AI into medical care?

Those of us who are users of technology—and aren't the scientists and engineers driving the evolution of technology—have to make sure we stay up [to speed], particularly with regard to the responsible deployment of the technology and the discussion about the ethical use of the technology. We have to make sure we are running at the same pace as the people driving the development of the technology.

How do you expect to ensure the responsible deployment of the technology?

Polls show the public today is deeply skeptical about the application of AI and, in particular, the application of AI in healthcare. Those discussions should help inform the regulators. The Food and Drug Administration and other agencies are eager to engage in a dialogue. They are looking for institutions like Stanford to bring the thought leaders together with them, so they can develop the appropriate regulations.

At what stage do you expect patients to become comfortable with AI in medical care?

If AI is deployed responsibly in healthcare, I think 10 years from now we will be seeing the benefits societally and at the level of the individual in ways that people will, yes, have concerns, but they will be pleased with the transformation in their health. They will be pleased that [AI] is available.

What is your advice to young people entering the medical field now?

There has never been a better time to be going into medicine. Young people starting out in medicine today are going to be on the front row and also very much involved in the most radical and I hope most positive transformation in health since the introduction of antibiotics. The changes that are going to occur in the lifetime of people entering medicine today are going to be without parallel. And now we have to make sure those are changes for the good.

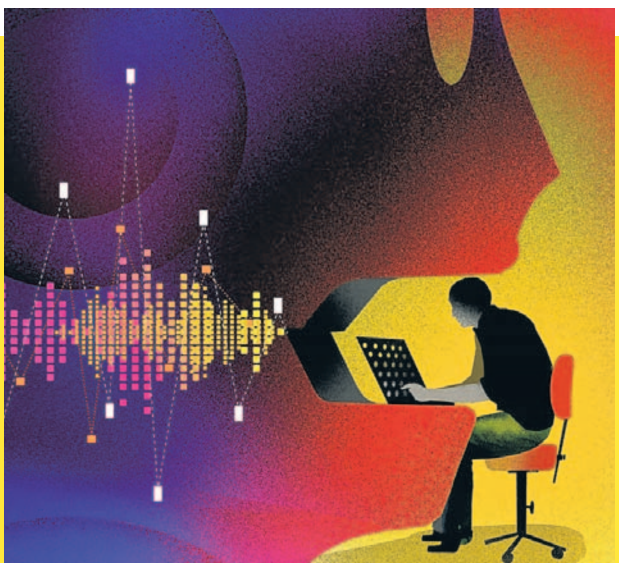
Interview has been condensed and edited.

FROM TOP: CAROLYN FONG FOR THE WALL STREET JOURNAL (2); BRIAN STAUFFER (ILLUSTRATION); ISTOCK

In-House Large Language Model Developer

Large language models such as OpenAI's GPT and Google's LaMDA are trained on massive amounts of data scraped from the internet to recognize, generate and predict language in sequences. For the finance industry, that makes them a bit like new college graduates: Not much use without more specialized instruction.

In-house developers will change that by introducing the models to new word patterns that will equip them to better carry out functions such as summarizing a company's 10-K annual report filing or guiding a client through a loan-application process.

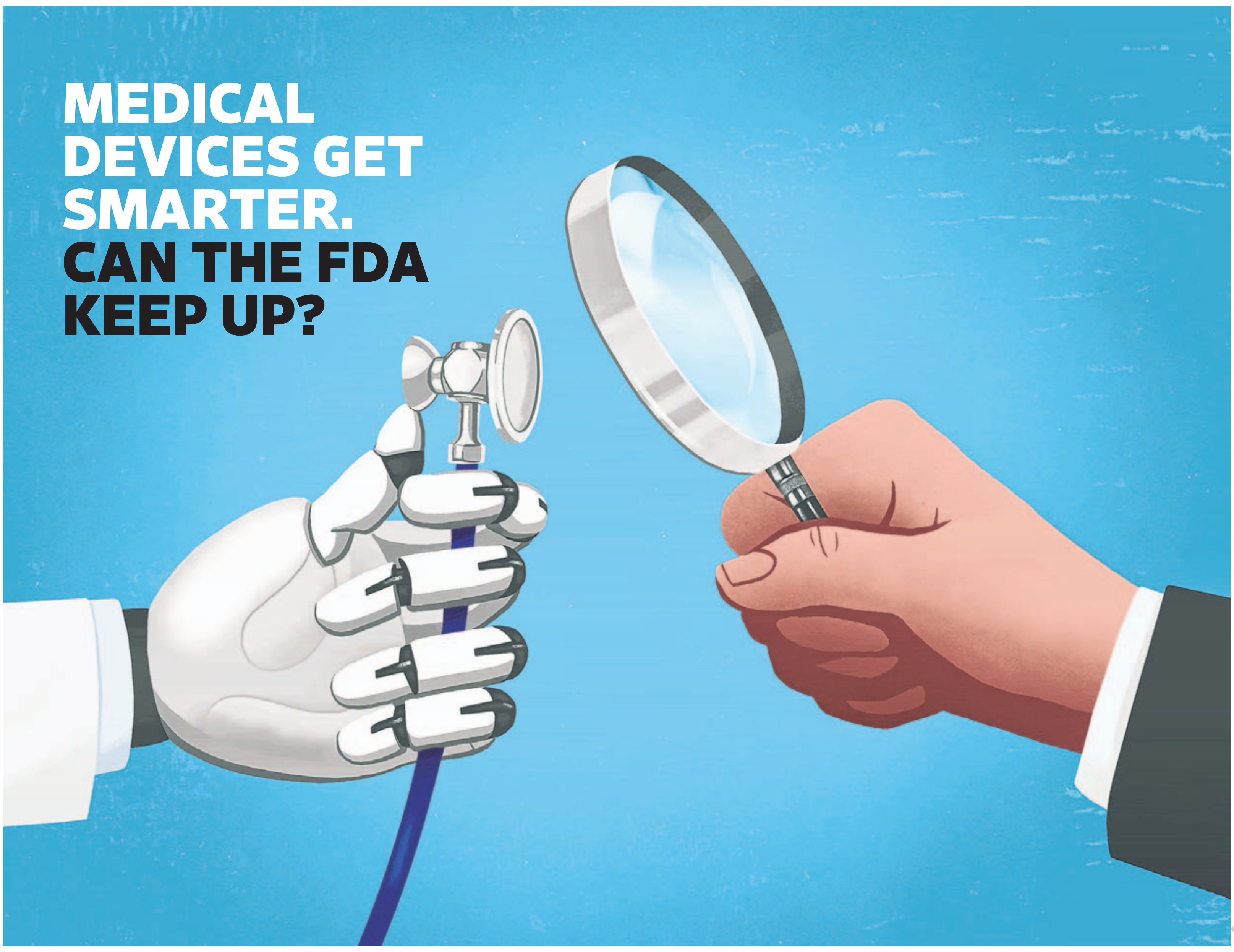


"What we currently are heading toward is some small number of companies developing these humongous models and then customers—financial institutions—taking those models and then training them better for their own purposes in-house," says Eric Ghysels, a professor of economics and finance at the University of North Carolina, Chapel Hill."

In-house developers will design the curriculum for this training by choosing new and often proprietary data to run through the models. They will habituate models to legalese and to the financial meaning of words such as "interest" and "derivative" by querying them and responding with constructive feedback on their answers. Finally, they will deliver the models in a user-friendly form to employees and clients.

The challenge for financial institutions, says Ghysels, will be finding people qualified to do all this. *—Bob Henderson* ▶▶

MEDICAL DEVICES GET SMARTER. CAN THE FDA KEEP UP?



Use of AI means devices and apps can learn and change, making regulators' job harder **By Ryan Tracy**

The use of artificial intelligence in medical devices is exploding, paving the way for potentially lifesaving advances—and daunting challenges for regulators responsible for keeping new products safe.

If tech companies have their way, anxious patients may one day opt to talk to a chatbot instead of a human therapist. A patient checking into the hospital would be assessed with an AI-driven risk calculator, and an automated assistant would help do tests. Such AI-powered apps, when used for diagnosis or treatment, would qualify as medical devices under the oversight of the Food and Drug Administration—meaning developers could need the agency's permission to market them.

The FDA is one of many U.S. agencies wrestling to find the right policies as the AI revolution picks up speed. From 2020 through late 2022, the FDA approved more than 300 devices with AI features—more than during the entire previous decade. "We've got a speeding train coming in a tunnel and there's a challenge about to hit," says Amy Abernethy, who served as the FDA's principal deputy commissioner of food and drugs from 2019 to 2021 and is now chief medical officer at Verily Life Sciences, a unit of Alphabet that makes AI-enabled medical devices.

For decades, the agency looked at medical devices the same way it looks at drugs: as static compounds. When the FDA approves a device, the manufacturer can sell that version. It needs the regulator's signoff before upgrading to a new version. But AI-enabled devices often use algorithms designed to be updated rapidly, or even learn on their own. The agency is grappling with how to deal with this fast-moving technology while ensuring the devices stay safe.

"One of the key benefits of an AI-powered product is that it can be improved over time," says Tim Sweeney, CEO of Inflammatix, a developer of blood tests designed to predict the presence, type, and severity of an infection. If the company learned that a particular pattern of the body's immune response strongly indicates the onset of sepsis, for instance, it would want to retrain its algorithms to account for that. "If you have a lot of extra data, you should be improving your results," Sweeney says.

Under the FDA's traditional method of oversight, however, companies like Inflammatix would likely have to get additional permission before changing their algorithms.

The agency is beginning to point developers down an alternative path, in April offering formal guidance on how they can submit more flexible plans for devices that use AI. A manufacturer can file a "Predetermined Change Control Plan" that outlines expected alterations. FDA staff—including lawyers, doctors, and tech experts—review the plans and the scope of the expected changes. Once the device is approved, the company can alter the product's programming without the FDA's blessing, as long as the changes were part of the plan.

The goal is "to ensure that the market has some flexibility to continue to push the boundaries of the innovation that they are doing, while still adhering to the guardrails that we've established when we approve a product," says Troy Tazbaz, director of the FDA's Digital Health Center of Excellence.

Many device makers have cheered the FDA direction, though they have asked the agency for more clarity on the extent of changes it would allow. "It's going to be challenging to, up front, predetermine what are the possible changes that we would want to do," says Lara Jehi, who has helped develop AI-driven patient assessment tools as chief research information officer for the Cleveland Clinic Health System. "The only thing we know is predictable in science is that it is unpredictable."

NeuroPace, a maker of brain implants that treat severe epilepsy, would consider a "change control plan" as part of a new AI-enabled version of its device, says Martha Morrell, the company's chief medical officer.

The device now delivers electrical currents to stop a seizure, and those currents are only altered by a physician after reviewing the patient's data. In the future, Morrell says, the device could be given the power to interpret the patient's brain waves and decide what current to deliver in real time, subject to predetermined safety limits.

Morrell says that, as a "type-A doctor," even she feels uncomfortable ceding that kind of power to a device. But she also believes patients will benefit and that the FDA and the company need to figure out the standard necessary to be confident that the device will be safe.

After the latest FDA guidance on AI devices, she predicts, "there will be another one right behind it, and another one right behind that as well, as we scramble to keep right on top of this enormous change."

Critics see the FDA's new direction as potentially introducing risks, pointing out that there have been cases where medical-device software mistakes posed grave dangers to patients. AI systems add an additional challenge, they say, because the humans in charge of them don't always fully understand how they work and potential problems, such as racial bias, can be difficult to measure. "AI brings with it very different kinds of harms—algorithmic harms that are difficult to understand and explain," says Mason Marks, a health-law professor at Florida State University. By allowing changes to complex algorithms without going through regulatory scrutiny, he says, "the FDA is giving the manufacturers a lot of leeway."

An FDA spokesman said the agency's evaluation of devices addresses potential bias.

Those concerns could, in the future, be addressed by a new policy some FDA officials have discussed: requiring real-time monitoring of AI devices after they go on the market. That would look different from the traditional approach, where the maker of an FDA-approved device must simply report "adverse events" that could affect patients. New monitoring requirements would aim to ensure manufacturers are closely watching their algorithms' performance. But adopting them would likely require legal authority the FDA doesn't have. Industry groups might lobby against the agency gaining that authority, if they view the requirements as overly intrusive.

These debates will only increase in urgency as more developers incorporate generative AI systems that can produce humanlike outputs of text, photos, videos and other media.

Woebot Health offers a bot that it hopes psychiatrists, doctors, or insurers will recommend to help patients work on mental-health issues. The bot offers encouragement and responds 24/7. As a safety measure, Woebot says, its responses are limited to a selection preapproved by humans. The company is testing the use of a generative AI model to help understand what users say, but is wary of allowing open conversations.

Woebot markets its chatbot as a mental-health support app, avoiding using certain terms, such as "treatment," that could trigger the need for an FDA review. The agency has authority to regulate any device intended to be used for the diagnosis, treatment or prevention of disease—a broad remit that applies to many medical-software functions. It doesn't enforce its rules in what it views as low-risk situations, such as wellness apps.

Woebot says it wants to seek the FDA's stamp of approval. But it also wants to be able to market its product without a prescription, reaching a much broader user base. FDA-approved "digital therapeutics" for mental health generally aren't cleared for sales directly to consumers. "How can we make sure these tools are clinically validated [but do] not necessarily require a prescription?" says Robbert Zusterzeel, Woebot's vice president of regulatory science and strategy. "There's this middle option at some point the FDA needs to look at."

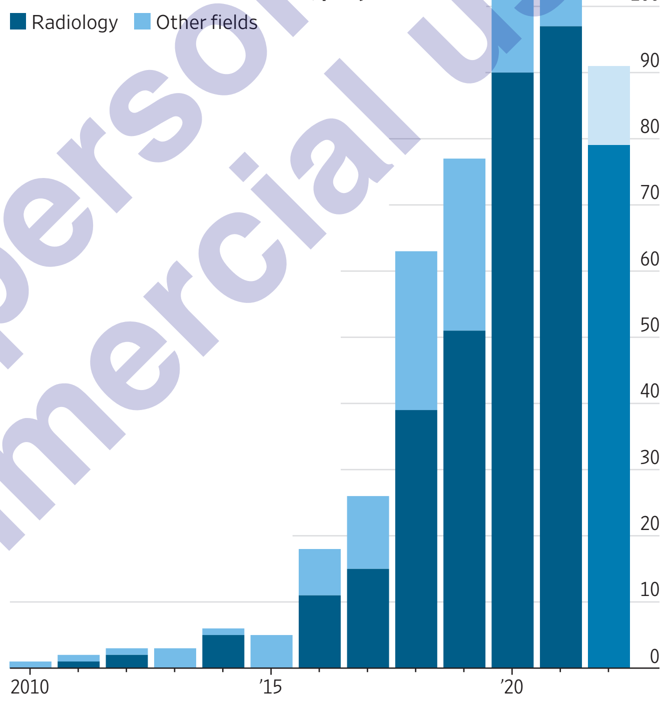
That points to another potential effect of the FDA's policies: The agency's regulatory boundaries end up shaping product development.

"It creates a funny set of incentives." says Ariel Dora Stern, a professor at Harvard Business School who has studied FDA regulation. "I've talked to startups that are basically going after smaller problems than their algorithms can go after, simply because regulation is something that they don't want to go near with a 10-foot pole."

AI Uptick

The FDA is approving more AI-enabled medical devices, especially in the field of radiological imaging.

AI-enabled devices authorized, per year



Note: 2022 data through Oct. 5, 2022, the most recent available
Source: Food and Drug Administration

> **'We've got a speeding train coming in a tunnel and there's a challenge about to hit.'**
>
> Amy Abernethy, Verily Life Sciences

AI Psychotherapist

Financial firms relying on AI for prediction and decision-making will need people to divine the drivers of a model's thinking.

Unlike conventional software, the logic behind the output of applications such as OpenAI's ChatGPT is typically opaque. That may be fine when they're used to generate things like recipes and poems, says Dinesh Nirmal, senior vice president, products, IBM Software, but not if they're relied upon for things such as assigning credit scores, optimizing investment portfolios and predicting liquidity balances.

Business or enterprise AI, which serves firms and organizations, is all about "explainability," says Nirmal. Customers will want to know why their loan application was rejected. Bank regulators will require some decisions to be explained.

AI psychotherapists will evaluate a model's upbringing, by scrutinizing its training data for errors and sources of bias. They may put AI models on the couch, by probing them with test questions. Companies such as IBM, Google and Microsoft are racing to release new tools that quantify and chart an AI's thought processes, but like Rorschach tests they require people to interpret their outputs.

Understanding an AI's reasoning will only be half the job, says Alexey Surkov, partner and global head of model risk management at Deloitte & Touche. The other half will be signing off on a model's mental fitness for the task at hand. "No matter how sophisticated the models and systems get," says Surkov, "we as humans are ultimately responsible for the outcomes of the use of those systems."

"Psychotherapist" might be a stretch for a job title in some financial firms. Surkov suggests AI Risk Manager or Controller as alternatives. ▶▶

—Bob Henderson

FROM TOP: ROB DOBI; BRIAN STAUFFER; ISTOCK (ICON)

THE EYE AS A WINDOW TO ALZHEIMER'S

AI tools could diagnose the disease with visual scans, years before symptoms appear

By Vipal Monga

Getting tested for Alzheimer's disease could one day be as easy as checking your eyesight.

RetiSpec has developed an artificial-intelligence algorithm that it says can analyze results from an eye scanner and detect signs of Alzheimer's 20 years before symptoms develop. The tool is part of broader work by startups and researchers to harness AI to unlock the mysteries of a disease that afflicts more than seven million Americans.

For years, people have studied individual hallmarks of Alzheimer's, including brain inflammation and neurodegeneration, but the exact causes of the disease remain elusive. AI, researchers say, could open a new era in the diagnosis of a neurological disease that remains difficult to identify, let alone treat.

"There still remains a huge amount we fundamentally don't understand about the brain and how it works," said Eliav Shaked, co-founder of Toronto-based RetiSpec. "The power in AI is that it can help connect the dots."

Another company, Sacramento, Calif.-based Neurovision, aims to use machine learning to develop retinal scans and blood tests to identify people at risk of developing Alzheimer's and other forms of dementia. The company's AI model analyzes eye scans for anomalies, like the buildup of certain proteins or blood vessels with a twisted shape, that are associated with Alzheimer's, said Steven Verdooner, Neurovision's co-founder.

It can be difficult for people to discern such signs in the scans. Many scans have dark areas, and plaque deposits can be very small. The human eye can't distinguish them very well, Verdooner said. "The algorithm does a better job," he said.

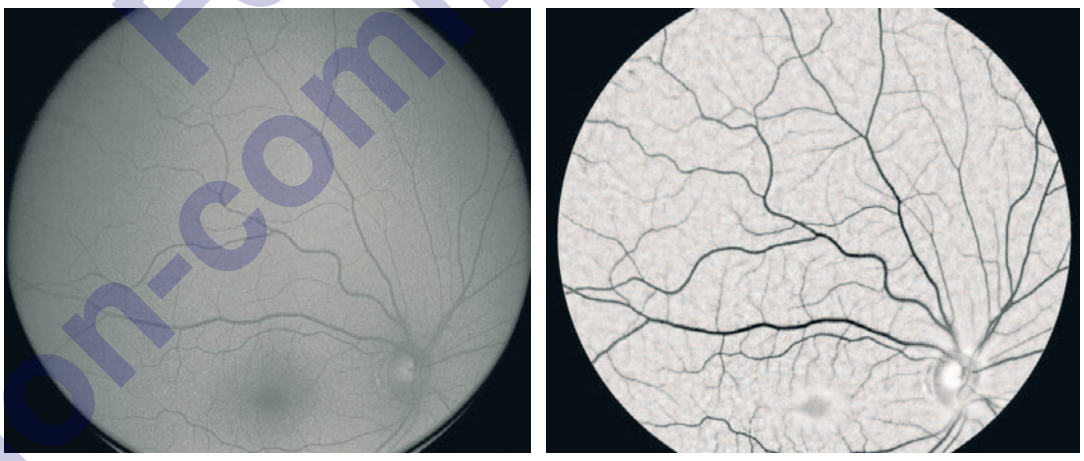
At the University of Arizona College of Medicine in Tucson, neurology associate professor Rui Chang built an AI model that aims to identify genetic triggers that are linked to Alzheimer's. The traditional approach researchers follow is painstakingly slow, Chang said.

"It's like looking at the forest one tree at a time," he said.

AI can absorb the whole forest of information at once and find patterns people can't. The model took two months to identify 6,000 gene targets that, if knocked down or repressed, might change how Alzheimer's develops. Chang said the tool has cut a decade off his research.

Chang founded a company, Path Biotech, which will start clinical trials next year based on his AI research.

Alzheimer's was the sixth-leading cause of death in the U.S. in 2021, not including Covid-19.



Left, unenhanced retinal scan. Right, a scan with Neurovision's AI shows white specks indicating the presence of the amyloid protein.

The Food and Drug Administration in July approved a drug, Leqembi, that removes amyloid, a sticky plaque that gathers in the brains of Alzheimer's patients. But current techniques for identifying the disease are expensive and difficult.

People with symptoms can get a spinal tap or a PET scan to see if they have high levels of amyloid and tangled strands of the protein tau, which is also commonly found in Alzheimer's patients. The scans are very accurate, which makes them the gold standard of diagnosis, said Catherine Bornbaum, RetiSpec's chief business officer. Compared with autopsy results—still the only way to tell for certain whether a patient had Alzheimer's when they died—the PET scan's diagnostic success rate is close to 90%.

But the machines aren't widely available, the scans are expensive, and getting a diagnosis can take weeks. Insurers don't routinely cover the scans and they can cost around $6,000.

Artificial intelligence technologies could speed up the process of getting a diagnosis and make it cheaper. RetiSpec's AI reads scans from a camera that can be attached to machines already available in most optometrists' offices, for example. The camera measures a wider range of the spectrum than the human eye can see, which allows the AI to detect unique optical signatures that correspond with the presence of amyloid in the brain. The model, which delivers results instantaneously, was 80% accurate in detecting such signatures in a recent study of 271 patients.

80%

accuracy of RetiSpec's AI in detecting optical signatures that correspond with amyloid in the brain, a study found

AI tools in medical research can perform well in clinical testing but break down in messier real-life situations, said Matt Leming, a postdoctoral researcher at Massachusetts General Hospital.

"Biotech AI models are finicky," he said.

AI learns better from huge amounts of data, Leming said. AI models like ChatGPT are good at analyzing and mimicking writing, for example, because they learn from text gathered across the internet.

Medical data is comparatively scarce and proprietary. That means AI in biotech has a more limited sample to learn from and its results can be easily thrown off by wider variation in cases it encounters in a clinic compared with more controlled laboratory settings.

"When it comes to AI fundamentally changing the way we do medicine, I don't think it is going to happen," Leming said.

Chang at the University of Arizona said he has tried to overcome this problem by using mathematical models that minimize errors and improve prediction accuracy. RetiSpec said the company has taken samples from 14 research partners, from whom it gathers samples from racially and socioeconomically diverse communities. Neurovision said it took samples from diverse data sets and tested them against others to minimize errors.

"Some of the most important work we've done is to make sure the AI doesn't suffer from garbage in and garbage out," RetiSpec's Shaked said.

FROM TOP: PHOTO ILLUSTRATION BY WSJ; GETTY IMAGES; NEUROVISION (2); BRIAN STAUFFER; ISTOCK (ICON)

Reskiller

As AI becomes capable of taking on more work that is now done by humans, people will need to more aggressively upgrade their skills to stay productive and employable. "Reskillers," a new type of teacher, will help people stay one step ahead of the machines.

Companies will put growing value on specialists who can guide such critical human development. "Teachers had it bad under the industrial revolution. Look at what they are paid," says Stephen Messer, co-founder and chairperson of Collective[i], which has developed a foundation model that produces insights around revenue forecasting and growth. "Now, I think teachers are about to go through a revolution because of AI."

Reskillers will need to understand the talents that organizations require as technology marches ahead. "This puts an onus on employees and companies to stay relevant," says Keith Peiris, co-founder and chief executive of Tome, a startup with a generative AI-native storytelling and presentation platform. "In the 'old world,' pre generative AI, maybe you needed 100 people to build a company...With AI, maybe you could build that company with 30 people."

New career-development arcs are already taking shape because of generative AI, according to Peiris, who is trained in nanotechnology engineering and is a veteran of Facebook and Instagram. "Sales professionals are learning web development and copywriting. Marketers are becoming more steeped in graphic design," he says. "HR professionals are taking on "legal work" and becoming paralegals by using AI legal tools."

—Steven Rosenbush

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