

THE WALL STREET JOURNAL.

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What's News

Business & Finance

The FDA's chief called a surge in teens' use of e-cigarettes an epidemic and said he is considering pulling all flavored e-cigarettes from the U.S. market. A1

◆ Two years before Equifax disclosed its data breach, the firm believed it was the victim of another theft, one at the hands of Chinese spies. A1

◆ AT&T's boss said it may shift resources to HBO from other parts of the Time Warner business as part of a plan to compete with Netflix. A1

◆ Apple unveiled its biggest and most expensive iPhone lineup ever, making a bet on larger screens. B1

◆ American incomes rose and poverty declined for the third consecutive year in 2017, census figures show. A3

◆ The executive producer of "60 Minutes," Jeff Fager, is leaving CBS, which said he violated company policy. B1

◆ China's sovereign-wealth fund and other large investors have expressed interest in buying Deutsche Bank shares from HNA. B1

◆ JPMorgan's Dimon said he could prevail over Trump in a presidential contest, but later backtracked on his remarks. B1

◆ Saudi Arabia's Aramco is asking for a discount in its acquisition of the state petrochemicals firm. B6

◆ The S&P 500 edged up for a third straight session. The Dow gained 27.86 points to 25998.92. B12

◆ Jenny Craig is seeking a buyer as the weight-loss brand's turnaround efforts start coming to fruition. B3

World-Wide

◆ The Trump administration is giving Beijing another chance to try to stave off new tariffs on \$200 billion in Chinese exports, asking officials for a fresh round of trade talks later this month, people briefed on the matter said.

The invitation from Treasury Secretary Steven Mnuchin comes as some Trump officials said they sense a new vulnerability—and possibly more flexibility—among Chinese officials pressured by U.S. tariffs imposed earlier this year and

threats for more.

It also follows a steady rise in political pressure on President Trump to ease up on trade fights—which have pinched consumers and prompted painful retaliation against U.S. exports—ahead of November elections in which his Republican Party risks los-

ing congressional control.

Given the difficult nature of the trade talks between the two countries over the past year, there is no guarantee the invitation will yield a meeting.

Chinese officials said they've grown wary of the Trump administration's unpredictable decision-making process and may be hesitant to accept without a clear sign U.S. negotiators have authority to speak for the president.

The U.S. administration sent the invitation this week to a

group of Chinese officials headed by Vice Premier Liu He. That follows an inconclusive session held in Washington last month among midlevel trade officials. The proposed higher-level talks might take place in Washington or Beijing, the people said.

"Most of us believe it's better to talk than not to talk, and I think the Chinese government

Please turn to page A10

◆ Past storms still haunt parts of North Carolina..... A6

Calling a surge in teen use of e-cigarettes an epidemic, the head of the Food and Drug Administration said he is considering pulling all flavored e-cigarettes from the U.S. market.

After years of declining U.S. smoking rates, sales of e-cigarettes have jumped in the past year, fueled in part by online startups selling vaporizers and nicotine-laced liquids. The most popular brand, Juul, sells refills with mango, cucumber and creme flavors. Each \$4 pod contains as much nicotine as a pack of cigarettes.

"The number of teenagers we believe are now using these products...has reached an epidemic proportion," said FDA Commissioner Scott Gottlieb, who outlined new measures Wednesday to curb underage use.

For decades, the U.S. has been combatting cigarette smoking by slapping taxes on products, limiting advertising and raising age limits. Smoking rates have fallen to about 16% of U.S. adults from about 25% in 1997, though more than 480,000 people annually die

Please turn to page A4

Guarantee applies to same data warehouse or transaction processing workload run on Oracle Autonomous Database Cloud or AWS. Pricing based on standard published pricing for Oracle bring your own license and AWS as of 3/18. Workload comparison to be based on actual required number of OCPU/VCPU, storage amount, and time required to complete workload with minimum workload of one hour. Any credits due will be applied to Universal Credit cloud account. Offer valid through 5/31/19. Copyright © 2018, Oracle and/or its affiliates.

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U.S. NEWS

U.S. WATCH

RHODE ISLAND

Governor Fends Off Primary Challenger

Democratic Rhode Island Gov. Gina Raimondo turned back a primary challenge Wednesday from Matt Brown, a former secretary of state who tried to harness progressive discontent with the party's establishment to unseat an incumbent.

The Associated Press declared Ms. Raimondo the winner.

At her campaign's watch party in Providence, Ms. Raimondo, who is seeking a second term, told supporters she had been elected in 2014 because Rhode Islanders wanted change—particularly more jobs and a better economy. "So we've been working as fast as we can to bring that change and tonight, the people of Rhode Island said, 'Do more, go faster!'"

In the general election, Ms. Raimondo, the state's first female governor, will face a rematch with Cranston Mayor Allan Fung, who won the Republican primary. Mr. Fung lost to Ms. Raimondo in a close race in 2014, and polls suggest another tight contest. An independent candidate, Joseph Trillo, is also running.

—Jennifer Levitz

MANAFORT

Legal Team, Mueller Hold Plea-Deal Talks

Former Trump campaign Chairman Paul Manafort's legal team is discussing a possible plea deal with special counsel Robert Mueller's office in a bid to avoid a second criminal trial scheduled to begin next week in Washington, according to people familiar with the matter.

The potential terms under discussion couldn't be determined but are unlikely to include an explicit obligation for Mr. Manafort to cooperate in Mr. Mueller's investigation into possible collusion of Trump associates with Russia in the 2016 election, the people said.

Representatives for Messrs. Mueller and Manafort declined to comment.

Mr. Manafort has already been convicted in Virginia on eight tax- and bank-fraud counts relating to his work for pro-Russia politicians in Ukraine. He faces a sentence of roughly eight to 10 years in prison.

Mr. Manafort faces charges in the second trial that include conspiring against the U.S. and conspiring to launder money.

—Aruna Viswanath and Julie Bykowicz

CAPITAL ACCOUNT | By Greg Ip

The Economic Cost of Fraught Politics

The day after Lehman Brothers failed, Treasury Secretary Henry Paulson and Federal Reserve Chairman Ben Bernanke went to President George W. Bush with bad news. Insurer American International Group Inc. needed \$85 billion or it, too, would collapse.

Though unhappy and frustrated, Mr. Bush approved the loan, saying, "If we suffer political damage, so be it," Mr. Paulson later wrote.

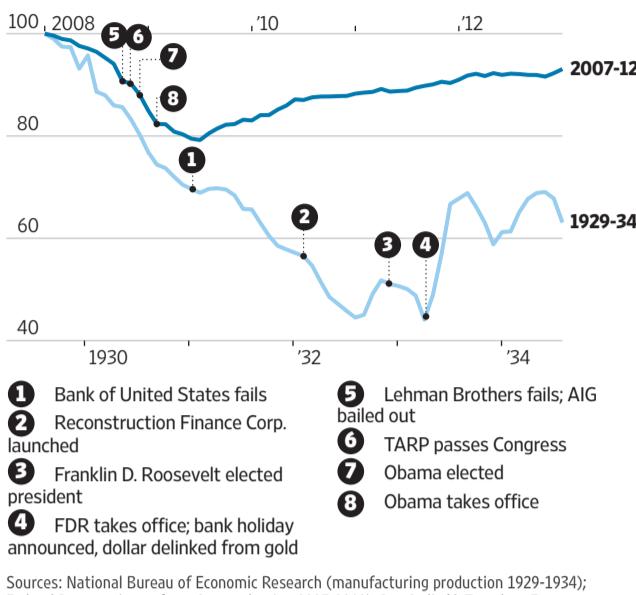
Scholars of the crisis rightly focus on the decisions that the three crisis managers—Mr. Paulson, Mr. Bernanke and New York Fed President Tim Geithner—made to rescue the financial system. Though unpopular at the time and still second-guessed, their actions were vital in avoiding a second Great Depression. Yet most would have been impossible without the president's support, which Mr. Bush gave unreservedly from start to finish.

Mr. Bush's unsung role merits greater appreciation today. Ten years after the crisis, the financial system is stronger, but the political system is far more fragile. Polarization, populism and protectionism mean the next crisis will be met with far less political will than the last.

You don't have to look far to see the potential consequences. Fractured politics are largely why the eurozone took so much longer to respond to and recover from its crisis than the U.S. The bloc lacks a unified fiscal authority, so decisions on how to commit public funds had to pass muster with a skeptical German public. For that reason the eurozone insisted on austerity and Draconian bailout terms for crisis-stricken countries that worsened the downturn. The European Central Bank couldn't take the sorts of radical steps the Fed did for at least two years because of German political resistance.

Lessons Learned

Congress, presidents and the Fed acted faster and more effectively during the last crisis than during the Depression.

Manufacturing production, start of recession=100

Sources: National Bureau of Economic Research (manufacturing production 1929-1934); Federal Reserve (manufacturing production 2007-2012); Ray Dalio 'A Template For Understanding Big Debt Crises' (Depression chronology)

THE WALL STREET JOURNAL

such as the U.S. invasion of Iraq, but his responsibility for causing the crisis that would cost his party the White House was at most minor and shared with predecessors.

Nonetheless, he was prepared to abandon political orthodoxy to fix it. In his memoir, Mr. Bush recalls lobbying a Republican congressman to approve the Troubled Asset Relief Program, which would eventually inject billions of dollars into banks. The legislator protested that he couldn't be "part of the destruction of the free market." Mr. Bush retorted: "Do you think I like the idea of doing this? Believe me, I'd be fine if these companies fail. But the whole economy is on the line."

Unlike Roosevelt, Barack Obama didn't allow a dangerous vacuum to form as the White House changed hands. He stayed in touch with Mr. Paulson during the 2008 election campaign, mustered Democratic votes for TARP, and appointed Mr. Geithner his

Treasury Secretary. Mr. Geithner devised the "stress tests" that restored confidence in the banking system. (John McCain, the Republican candidate, vacillated more on bailouts, though he ultimately voted for TARP.) Still, for all the credit Mr. Obama is given for turning the economy around, the toughest decisions were made by Mr. Bush.

They will be far harder to make in the next crisis. Ray Dalio, founder of hedge fund Bridgewater Associates, has just published a meticulous study of debt crises as a free e-book. In an interview, he says a significant takeaway is that resolving a crisis depends in great part on whether the crisis fighters "have the knowledge and authority to make decisions or if they are encumbered by the political environment."

Chinese leaders, he believes, have both the necessary know-how and authority to deal with an eventual crisis. For the U.S., he's more pessimistic, partly because its leaders have fewer tools: interest rates can't be lowered as much, and Congress curbed much of the discretion the Fed and Treasury used to stem the panic. Politically, Mr. Dalio believes inequality and populism will only worsen in the next downturn, depriving crisis managers of the political freedom they need to make unpopular decisions.

President Trump is adept at feeling the pulse of his base at any given moment and shifting his position accordingly, yet crisis management often requires doing the opposite of what the public demands. His belief that international relations are zero-sum would make cross-border cooperation harder. Meanwhile, what little unity the eurozone was able to muster in recent years will be harder with populists now governing Italy and leading the opposition in Germany.

Much of Mr. Bush's legacy has been dismissed by Democrats and renounced by Republicans. Yet when the next crisis rolls around, both may find they miss him.

CORRECTIONS & AMPLIFICATIONS

Protolabs uses 3-D printing and other processes to make parts and prototypes. A U.S. News article Wednesday about U.S. job openings incorrectly said the company manufactures 3-D printing equipment.

Stefan Lumiere was con-

victed of U.S. charges of trying to mislabel securities in a fixed-income fund associated with **Visium Asset Management** LP. An Exchange article Saturday about Visium's founder, Jacob Gottlieb, incorrectly said Mr. Lumiere pleaded guilty.

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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U.S. NEWS

Visitors Gravitate to Armstrong's Space Suit at Smithsonian Facility

TO THE MOON AND BACK: Visitors took pictures Wednesday of Neil Armstrong's Apollo 11 space suit at a Smithsonian conservation lab.

Incomes Rise, Poverty Falls AgainBY JANET ADAMY
AND PAUL OVERBERG

American incomes rose and poverty declined for the third consecutive year in 2017, according to census figures released Wednesday that suggest more Americans are benefiting from the robust economy.

The new data, which provide a broad look at U.S. economic well-being, show that median household income increased to \$61,372 last year, up 1.8% when adjusted for inflation. There were 39.7 million people in poverty last year, and that rate dropped 0.4 percentage point to its lowest level since 2006. The number of people working full time year round increased by 2.4 million in 2017.

Incomes have grown 10.4% in the past three years, and last year's figure was the highest on record. But a change in the way the numbers are calculated over time makes comparisons imperfect, and census officials said last year's figure wasn't statistically different than income peaks in 1999 and 2007.

The result is that the typical American household's income is stuck where it was before the last two recessions. The 2017 growth rate also lagged behind the previous two years, when median household income—the midpoint of all households—rose 3.2% in 2016 and 5.2% in 2015.

Incomes rose mostly because more people worked more hours, and to a lesser extent because their wages increased. "We're continuing to see that shift from part-time, part-year work to year-round,

Hispanic Household Income Climbs

One demographic group stood out as American household incomes rose for a third straight year in 2017: Hispanics.

Median income for Hispanic households rose 3.7% in 2017, to \$50,486, adjusted for inflation. That easily outpaced a 1.8% increase for all households, according to new census data.

Though broad income growth for the nation as a whole slowed from 2016, the latest figures showed a continued trend of robust rises for Hispanic households, whose median income climbed 20.7% over the past five years.

The gains are due in part to a labor market that has been strong in particular for Hispanic

workers, said Valerie Wilson, director of the Economic Policy Institute's program on race, ethnicity and the economy. The jobless rate for Hispanic or Latino workers fell a full percentage point last year, to 4.9% in December 2017 from 5.9% in January 2017, according to the Labor Department.

"Those gains in employment have clearly contributed to this growth in household income," she said.

Despite the gains, Hispanic household income is still considerably lower than that of non-Hispanic white or Asian households. In 2017, median white household income totaled \$86,145, up 2.6% from 2016, while Asian household income totaled \$81,331, which wasn't statistically different from the previous year.

—Kate Davidson

full-time work," said Trudi Renwick, an economist at the Census Bureau.

Some economists said they remain puzzled that wages haven't risen more quickly, given the overall strength of the economy and an unemployment rate around 4%. While wages are rising a little bit more quickly than earlier in the economic expansion, inflation has also ticked upward, cutting into gains.

A separate set of census figures released Thursday showed the income gains were unusually widespread across the country, with 39 states and the District of Columbia logging gains and just one—Oklahoma—showing a small loss. Median income in 10 states re-

mained basically unchanged. Top gainers included D.C., Maine, Montana, California, Washington and Tennessee.

Large cities continued recent trends by recording the strongest gains, with median household income rising 3.1%. Gains were weaker in their suburbs and smaller cities, at 1.6%. Rural households gained 2%.

Republicans hope that recent signs of income growth will persuade voters to back GOP candidates in November. The White House Council of Economic Advisers said Wednesday's figures were a sign "the effects of the strong economy are reaching Americans throughout the United States."

The council said the figures understate economic gains be-

cause they don't fully capture health insurance, food stamps and housing assistance. Since 2014, the poverty rate has fallen 2.5 percentage points, from 14.8% to 12.3%.

Democrats say President Trump and Republicans are wrong to claim responsibility for the gains, because meaningful increases in household income and poverty reduction started three years ago. In a speech at the University of Illinois last week, former President Obama said, "When you hear how great the economy's doing right now, let's just remember when this recovery started."

In midterm campaigns, Democrats are emphasizing that the income gains haven't been spread broadly enough. Income inequality remained essentially unchanged in 2017. More than half of all income went to the top fifth of households.

Marian Meszaros, a 62-year-old who works at a grocery-store deli in Franklin Square, N.Y., said she got a 93-cent raise last year that lifted her pay to \$15 an hour. But because her cost of living is also rising, and she is helping support her mother, she feels like she keeps falling further behind.

"I made more money 20 years ago than I am now," said Ms. Meszaros, who previously worked as a hairdresser. "I would just like to be middle class again."

The percentage of people without health insurance for 2017 was 8.8%, or 28.5 million, not statistically different from 2016. But the share of people lacking coverage rose in 14 states in 2017—a first since the Affordable Care Act began expanding coverage in 2014.

DAVID YURMAN

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U.S. NEWS

Russia Tweets Target Affordable Care Act

Nearly 10,000 Twitter posts disparaged—or praised—health law, new analysis shows

BY STEPHANIE ARMOUR
AND PAUL OVERBERG

On the March 23 anniversary of the Affordable Care Act becoming law, Democrats attacked Republicans for trying to sabotage the health law and praised the embattled legislation.

So did Russian trolls.

"8 years ago today, President Obama signed the Affordable Care Act into law. Millions of Americans have gained access to health care. Thank you, Mr. President!" said a tweet linked to the Internet Research Agency, a Russian company engaged in an online influence campaign that typically seeks to pit one side against the other on controversial issues.

A newly identified group of nearly 10,000 tweets shows that while Russian trolls often focus on such hot-button issues as Hillary Clinton's email or athletes kneeling during the national anthem, they also target substantive and divisive policy areas like health care.

Nearly 600 IRA-linked accounts posted to Twitter about the ACA and health policy from 2014 through this past May, with the most prolific ones tweeting hundreds of times, the new data show. One account, called TEN_GOP, rocketed from fewer than 1,000 followers to more than 138,000 in

two years, sending 60 tweets that potentially reached followers more than four million times.

Researchers at Clemson University provided The Wall Street Journal with the set of about 9,800 tweets involving health policy and the ACA that the IRA posted over that period. An analysis by the Journal found that 80% of the tweets had conservative-leaning political messages, often disparaging the health law.

The accounts have been closed by Twitter as congressional investigators unearthed their origin, but intelligence experts say the assault is continuing through other accounts and channels. The tweets provide a snapshot of a strategy, one that is likely now aimed at November's midterm elections in which health care is playing a dominant role, experts said.

Twittering by the IRA accounts peaked in spring 2017 and again that summer, when congressional Republicans mounted failed efforts to repeal the health law.

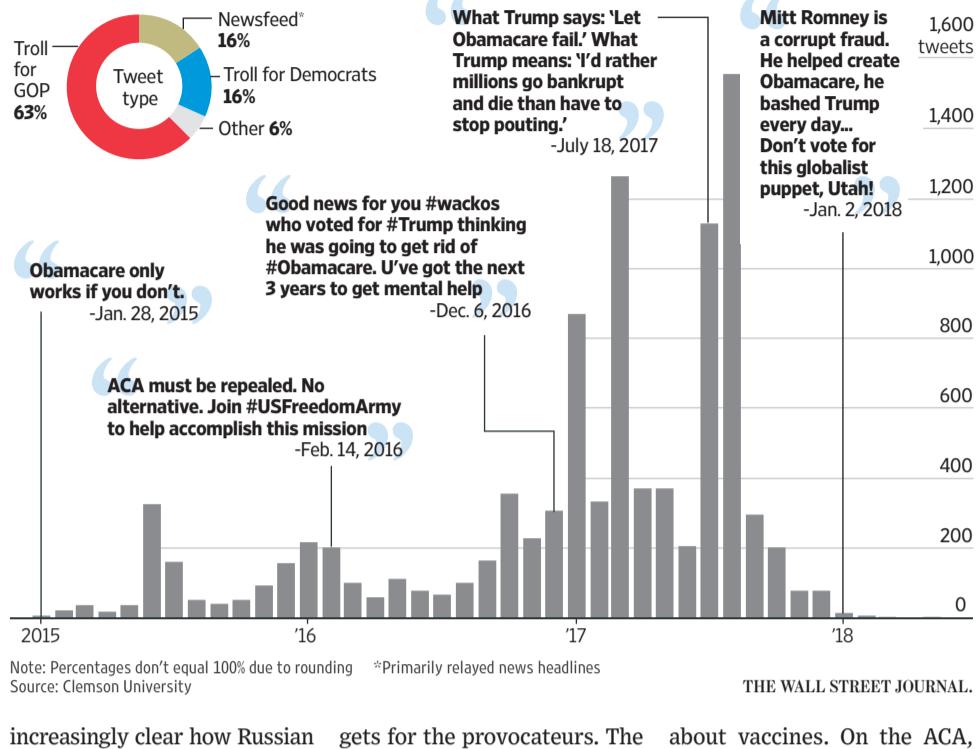
The IRA, based in St. Petersburg, seeks to use divisions over the health law to mobilize voters, pressure Congress and target specific lawmakers, the tweets suggest. The organization is seen by U.S. intelligence officials as a sophisticated, Kremlin-backed group that ran a surreptitious operation to influence the 2016 elections with a budget in the tens of millions of dollars.

The IRA is the focus of several federal and congressional investigations as it becomes

Sowing Division

Twitter accounts linked to Russian trolls created thousands of tweets about the Affordable Care Act, peaking during last year's GOP-led repeal efforts.

Tweets by Russian trolls on Twitter about health care



Note: Percentages don't equal 100% due to rounding *Primarily relayed news headlines

Source: Clemson University

What Trump says: 'Let Obamacare fail.' What Trump means: 'I'd rather millions go bankrupt and die than have to stop putting.'

-July 18, 2017

Good news for you #wackos who voted for #Trump thinking he was going to get rid of #Obamacare. U've got the next 3 years to get mental help

-Dec. 6, 2016

ACA must be repealed. No alternative. Join #USFreedomArmy to help accomplish this mission

-Feb. 14, 2016

gets for the provocateurs. The ACA "was already an issue that divided America, and if Russians could throw fuel on the fire, it makes sense," said Sen. Susan Collins (R., Maine). "It's a systematic effort to weaken faith in our democracy. That's why it's so serious."

A recent report in the American Journal of Public Health found that Russian trolls and bots have been spreading misinformation

about vaccines. On the ACA, the Russian effort moved between backing and opposing the health law depending on the political moment.

Pro-ACA tweets peaked around the spring of 2016, possibly aimed at fostering division between Mrs. Clinton and her presidential primary rival, Sen. Bernie Sanders (I., Vt.). Anti-ACA tweets intensified in mid-2017 as Republicans mounted their push to repeal

the law, apparently seeking to capitalize on the emotions generated by that effort. "Let Obamacare crash & burn. Do not bail out insurance companies," said a tweet from an IRA-linked account called JUS-MASXTRT on Aug. 28, 2017.

The tweeters displayed political savvy, retweeting respected analysts and citing pop culture figures like singer Clay Aiken, who gained fame on "American Idol," as ACA supporters. They latched onto ACA-related events, such as votes in Congress, urging followers to contact lawmakers and making far-fetched assertions, such as saying the health law was a weapon of mass destruction or more dangerous than Islamic State.

"The IRA consistently uses the ACA as a wedge issue to motivate their right-leaning followers," said Darren Linvill, an associate professor of communication at Clemson University who, along with a colleague, provided the tweets used in the Journal's analysis.

The Russian trolls also likely use topics like the ACA to gather personal information from Americans they can later exploit, experts said. They may follow up by encouraging them to vote—or not vote.

"One has to ask, what are they trying to do when they're on both sides of an issue?" said Kathleen Hall Jamieson, director of the Annenberg Public Policy Center at the University of Pennsylvania. "When people like it, share it, you can collect the identification to send additional information."

U.S. Acts To Curb E-Cig Use

Continued from Page One
from smoking-related diseases.

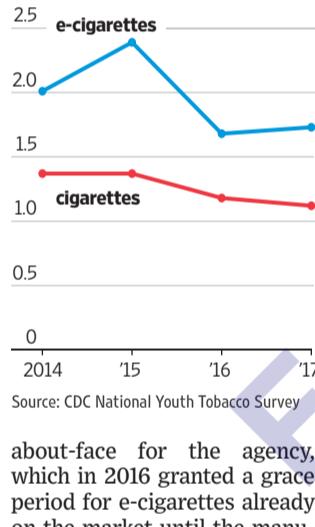
Last year, the FDA said it wanted to reduce nicotine levels in cigarettes and urge smokers to switch to less harmful products, like e-cigarettes. The agency encouraged companies to introduce such alternatives, but those products have become popular among children. In 2017, 2.1 million middle- and high-school students had used e-cigarettes in the past 30 days, according to a federal study. Dr. Gottlieb said 2018 data showed much higher usage, but declined to disclose the figures.

Dr. Gottlieb said he believes that certain flavors make the products appealing to teens. "The availability of e-cigarettes cannot come at the expense of addicting a new generation of youth onto nicotine, and it won't," he said in an interview.

The FDA said it was sending letters Wednesday to Juul and

Smoking Rates

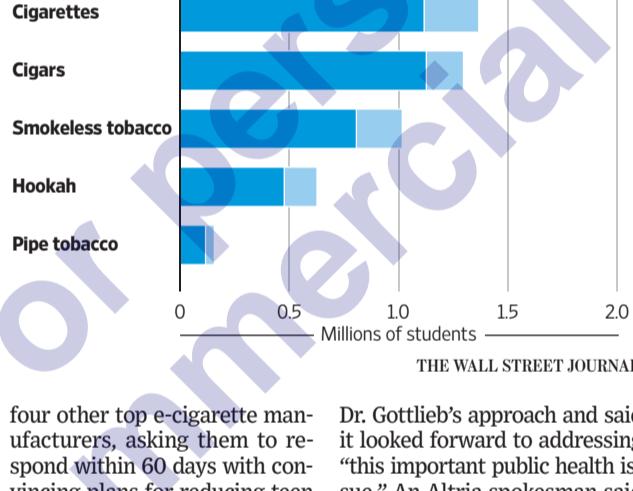
Estimated number of high-school students who smoked or vaped in the past 30 days



about-face for the agency, which in 2016 granted a grace period for e-cigarettes already on the market until the manufacturers submitted products for FDA review. Last year, Dr. Gottlieb extended that grace period to 2022, allowing Juul Labs Inc. and others to continue to sell their existing products.

The FDA said it was sending letters Wednesday to Juul and

Prevalence of tobacco use by type for 2017



Dr. Gottlieb's approach and said it looked forward to addressing "this important public health issue." An Altria spokesman said the company welcomed the FDA's action on "an issue we have focused on for decades."

The maker of Blu said it would work with the FDA to further strengthen its youth access prevention policies. A Logic spokesman said it would work with the FDA "to show that Logic markets its products only to adults."

The FDA is attempting to thread "a public-health needle, which is trying to sustain the market" for products that adults could use as smoking-cessation tools while protecting children from becoming addicted to nicotine, Dr. Gottlieb said. He said that if he hadn't extended the grace period, manufacturers would still have been able to keep their products on store shelves until next year.

"I think we're going to have to step into this market," Dr. Gottlieb said. "I am willing to narrow the off-ramp for adults to close the on-ramp for kids."

Juul said its products are intended for adult cigarette smokers looking to quit. Facing increased pressure to curb widespread use of its devices by teens, Juul over the past year has changed its marketing practices and no longer uses images of models or people under 35 in its marketing.

Last summer it raised to 21 the minimum age to buy from its website and since then it said it has strengthened the tools it uses to block purchase attempts by those under 21 on its own site. The company also conducts random compliance checks of independent retail stores, the company has said.

The FDA said Wednesday it conducted an enforcement blitz this summer and found that products from Juul and other top manufacturers were illegally sold to minors at more than 1,100 stores and websites. It imposed 131 fines for repeat offenders.

Officials' Partisan Activity Challenged

By VIVIAN SALAMA

WASHINGTON—By the time President Trump took the stage in Missouri to address the Veterans of Foreign Wars in late July, his speech had already gone through the usual wringer with officials at both the White House and Department of Veterans Affairs.

They had negotiated with Stephen Miller, Mr. Trump's top adviser and speechwriter, and his team to purge it of any problematic partisan references since the VA was funding the trip, according to two people familiar with the process.

Their aim was to avoid violating the Hatch Act, which stipulates that government officials must not engage in political activity in an official capacity at any time. The president is one of very few exceptions. The VA is not.

When in Kansas City, Mr. Trump opened his prepared remarks by paying tribute to the men and women who "defended our nation in battle."

Seven minutes in, he abandoned his script. "We need Josh badly," he said of Missouri Republican Attorney General Josh Hawley, a candidate for the Senate this fall, calling him up on the stage and giving him the mic.

Mr. Hawley hailed Mr. Trump's "courage" and "leadership," then closed his brief remarks by adding a pitch for votes: "I think he needs reinforcements in Washington."

A complaint last week by Citizens for Responsibility and Ethics in Washington, a watchdog organization, warned that "several official government events in which President Trump, members of his cabinet, and other administration officials participated are part of the president's efforts to help Republican candidates in

the coming midterm elections."

The complaint, submitted to White House chief of staff John Kelly and Henry Kerner at the Office of Special Counsel, added that "these actions appear to be directed toward the success or failure of candidates in partisan races and thus may constitute political activity prohibited by the Hatch Act, and the costs of attending them must be properly apportioned."

The White House asserts "there is no legal prohibition" on Mr. Trump endorsing candidates at taxpayer-funded events, said spokesman Hogan Gidley, noting "the Hatch Act does not apply to the president or the vice president."

"Historically, this type of issue is focused on costs surrounding an event—primarily traveling expenses of the president," said Jan Witold Baran,

a watchdog group files a complaint about possible violations of the Hatch Act.

an election law and government ethics attorney with Wiley Rein. In the case of Mr. Trump's speeches, "there are potential violations, at the very least, of appropriations laws."

In Iowa, at a July event dubbed "Pledge to American Workers," Mr. Trump hailed GOP Rep. Rod Blum, saying, "Without Rod, we wouldn't have our tax cuts." A number of senior government employees participated in the event, including Labor Secretary Alexander Acosta and Mr. Trump's senior adviser, his daughter Ivanka Trump.



President Trump brought Missouri GOP Senate candidate Josh Hawley, right, onstage at a VA event in Kansas City in July.

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U.S. NEWS

Lawmakers to Quiz Tech Giants on Privacy

By JOHN D. MCKINNON

WASHINGTON—The Senate Commerce Committee will hold a high-profile hearing on the privacy practices of big tech companies this month, signaling intensifying government interest in a thorny issue for the industry.

The hearing, set for Sept. 26, reflects growing concerns among lawmakers over user privacy on the internet, especially in light of recent revelations of questionable practices at several big tech firms, including Facebook Inc. and Alphabet Inc.'s Google unit.

Google, Amazon.com Inc., Twitter Inc. and Apple Inc. will all send privacy executives to testify at the Senate hear-

ing, along with telecommunications firms AT&T Inc. and Charter Communications Inc.

"Americans are struggling to understand what's being collected and how it's used," said Sen. John Thune (R., S.D.), the committee chairman. "We're holding this hearing to help inform consumers and to determine where the federal government may need to assert itself."

The committee officially announced the hearing on Wednesday. Tech shares broadly declined for the day.

The hearing will give lawmakers a chance to understand how internet companies have fueled their rapid growth by leveraging consumer data to sell advertising and other

services and products.

Lawmakers are likely to try to pin down the executives on how they make use of potentially sensitive information such as users' location data.

The hearing also will give the companies a chance to defend themselves, as well as lay out what they think lawmakers and the companies should and shouldn't do to address concerns.

The hearing marks the latest in a series of high-profile congressional appearances by tech executives this year, including testimony by Facebook Chief Executive Mark Zuckerberg in April. More recently, Facebook Chief Operating Officer Sheryl Sandberg and Twitter Chief Executive Jack

Dorsey made appearances last week before congressional panels looking at a range of issues, including privacy.

Privacy concerns have emerged as an increasingly important theme in the current antitech backlash that has been going on in Washington over the past year or so.

Most of the companies reached didn't immediately respond to requests to comment. An AT&T spokesman said: "We have long supported federal legislation to protect consumer privacy through a clear and consistent set of safeguards that apply equally to all platforms. We look forward to participating in the hearing."

Despite all of the congress-

ional interest in privacy problems, behind-the-scenes discussions on federal legislation appear to be moving slowly, as lawmakers increasingly focus on the November midterm elections. Still, this month's hearing could help pave the way for congressional action on privacy in the next Congress.

Federal agencies and some state attorneys general also are looking into privacy concerns, along with antitrust and other potential issues.

"The Regulation of Consumer Data," for example, will be one of the expert panels that the Federal Trade Commission convenes on Thursday in Washington, as it considers updating competition and con-

sumer-protection standards for the digital age. The FTC has confirmed it is investigating whether Facebook violated its privacy standards in the data transfers to Cambridge Analytica.

State attorneys general are getting more interested in the privacy issue, too. "There's a number of attorneys general on both sides of the aisle that have some major concerns about privacy" as well as antitrust and other issues, Louisiana Attorney General Jeff Landry said in an interview this week. Mr. Landry and other attorneys general are expected to meet with Justice Department officials to discuss those concerns the day before the congressional hearing.

Past Storms Still Haunt Parts of North Carolina

By CAMERON MCWHIRTER
AND SCOTT CALVERT

Jernigan Furniture in Goldsboro, N.C., flooded badly after Hurricane Matthew in 2016. "We were wiped out. We lost everything in the store, and it took us roughly 6 months to recover and reopen," office manager Paula Fields said.

As Hurricane Florence bears down on the Carolinas, the family-owned business isn't risking a repeat. On Tuesday, moving crews loaded sofas, beds, dining room sets and the rest of the store's contents onto trucks that will haul them away for safekeeping.

Across eastern North Carolina, people prepared for Florence as it churned directly toward the low-lying region. Many evacuated, driving west to higher ground. Others boarded up windows and stockpiled food and water. On Tuesday, North Carolina Gov. Roy Cooper ordered mandatory evacuations of all barrier islands in the state.

The storm is expected to be more severe than Hurricane Matthew, a Category 1 storm that struck eastern and central North Carolina in October 2016, killing at least 25 people and damaging about 100,000 houses, businesses and other buildings at a cost of about \$4.8 billion, according to a state report.

The federal government and the state General Assembly have provided hundreds of millions of dollars in disaster relief and other aid to rebuild homes and infrastructure, but some communities are just starting to get funds for Matthew's destruction—just as a storm that is expected to be a more powerful arrives.

Business owners prepared with clear memories of Hurricane Matthew's deluge in mind. William Wilder, 41-year-old owner of two Piggly Wiggly grocery store franchises in Kinston, N.C., lost inventory when one store flooded during Matthew.

In low-lying Kinston, the water "just kind of sits like in a bathtub" in the area, taking a long time to drain away, he said. He hoped the area would be spared, but "it's not looking good right now," he said.

While the Outer Banks and its miles of beachfront have attracted wealthy vacationers and owners of second homes, many inland parts of eastern North Carolina have struggled economically as agriculture and other sectors have consolidated. Many communities have seen significant population decline even before Matthew, according to a report by the University of North Carolina's Carolina Population Center. While sections of eastern North Carolina are declining,



A market at a gas station in Surf City, N.C., is boarded up ahead of Hurricane Florence.

the state as a whole is one of the fastest-growing in the nation.

Residents of Belhaven are worried how the town of 1,600 will fare in the storm, even though hundreds of houses were elevated in the years af-

ter torrential rains from Florence cause major flooding.

"Now you got this storm, it's a whole different beast. We don't know how high is high enough," Mr. Credle said. "I'm an optimistic, praying man, but you've still got to be smart about this thing."

Eastern North Carolina's problems are part of a broader challenge facing U.S. coastal communities as they try to cope with increasingly intense storms, even as more Americans find such areas appealing places to live. In 2010, 123.3 million Americans lived in coastal areas of the U.S., a 39% increase from 1970, according to a 2013 report by the National Oceanic and Atmospheric Administration.

After Hurricanes Fran in 1996 and Floyd in 1999, the state offered a federally funded voluntary buyout program for homeowners in

flood-prone areas, said Gavin Smith, who was a state emergency management official at the time.

Eventually about 5,000 homes were purchased and turned into open land, and some 500 other buildings were elevated, said Dr. Smith, director of the Coastal Resilience Center of Excellence at the University of North Carolina at Chapel Hill. But many homeowners didn't take the buyout offer. "There are still thousands of homes in the floodplain," many of them owned by poorer people with little savings and often without adequate insurance coverage, Dr. Smith said.

Many communities are just now receiving federal or state funds from Matthew to make their areas safer. "They are in the midst of the recovery," he said. "And they could be inundated again."

'I'm an optimistic, praying man, but you've still got to be smart...'

ter Hurricane Floyd in 1999.

"This will be the true test," Mayor Ricky Credle said Tuesday during a pause in storm-preparation efforts.

While he said he thinks the raised homes are structurally sound, he said he fears those measures might not be enough

if the storm is as bad as forecast.

After Hurricane Fran in 1996 and Hurricane Floyd in 1999, the state offered a federally funded voluntary buyout program for homeowners in

Border Crossing Arrests Increase

By ALICIA A. CALDWELL

More than 90,000 immigrants traveling as part of a family have been arrested crossing the U.S. border illegally in the past 11 months, the highest such number in at least five years, according to data released by the Trump administration on Wednesday.

U.S. Customs and Border Protection Commissioner Kevin McAleenan said 12,274 people traveling as part of a family, mostly from Central America, were arrested at the border in August. Last month's arrests marked a 38% increase over July, when just over 9,000 were apprehended.

Total family apprehensions since October, the beginning of the federal fiscal year, is already higher than for any complete prior fiscal year for which data are available.

The total number of people arrested at the border in August rose about 20% from the prior month, to more than 37,500.

Mr. McAleenan said that the rise in arrests of families was a "very direct response to the vulnerabilities" in U.S. immigration law and that the government has little ability to deter immigrant families and children traveling alone from crossing the border illegally.

"There are no consequences to being apprehended," Mr. McAleenan said.

The Trump administration has been struggling to curb the flow of illegal border crossers, particularly families, in recent months. Its policy of separating parents and children and criminally prosecuting the adults was scuttled in late June after widespread criticism.

A federal judge in San Diego also ordered a halt to the effort and directed the government to reunite more than 2,500 children separated from their parents. The government has been scrambling to find hundreds of parents who were deported without their children and several hundred immigrant children remain in the government's care.

As part of a decades-old court ruling known as the Flores Agreement, the government isn't allowed to detain immigrant children in jails that aren't licensed child-care facilities for more than 20 days. Other laws govern the treatment of children who are caught crossing the border alone and are cared for by the Department of Health and Human Services' Office of Refugee Resettlement before being placed with sponsors in the U.S.

President Trump and other administration officials have said the Flores case and other laws are legal loopholes that encourage more illegal immigration. A federal judge in Los Angeles earlier this year rejected an administration request to ease the rules in the Flores settlement to allow for parents and children to be jailed until their immigration cases are decided.

Last week the administration announced plans to rewrite government regulations about jailing immigrant families and effectively end the Flores agreement. The proposed change is likely to be challenged in federal court.

Businesses Halt for Florence

Continued from Page One shifted south Wednesday, lining up to affect Georgia more than previously expected. Florence has the potential to dump historic amounts of rain, as much as 40 inches in some places.

Aviation data site FlightAware reported 280 cancellations Wednesday, and 547 Thursday.

"Based on current models, it's likely that the biggest impact will be to the Charlotte airport," a FlightAware spokeswoman said Wednesday.

Delta Air Lines Inc. said it was flying larger aircraft than planned on routes in the region ahead of the storm and adding flights, for a total of 1,000 additional seats aimed at assisting evacuations. United Continental Holdings Inc. also added service to the area to help passengers evacuate, said chief executive Oscar Munoz.

American Airlines Group Inc. canceled some 705 flights in the region scheduled between Wednesday and Sunday. Southwest Airlines has canceled 264 flights through Saturday morning.

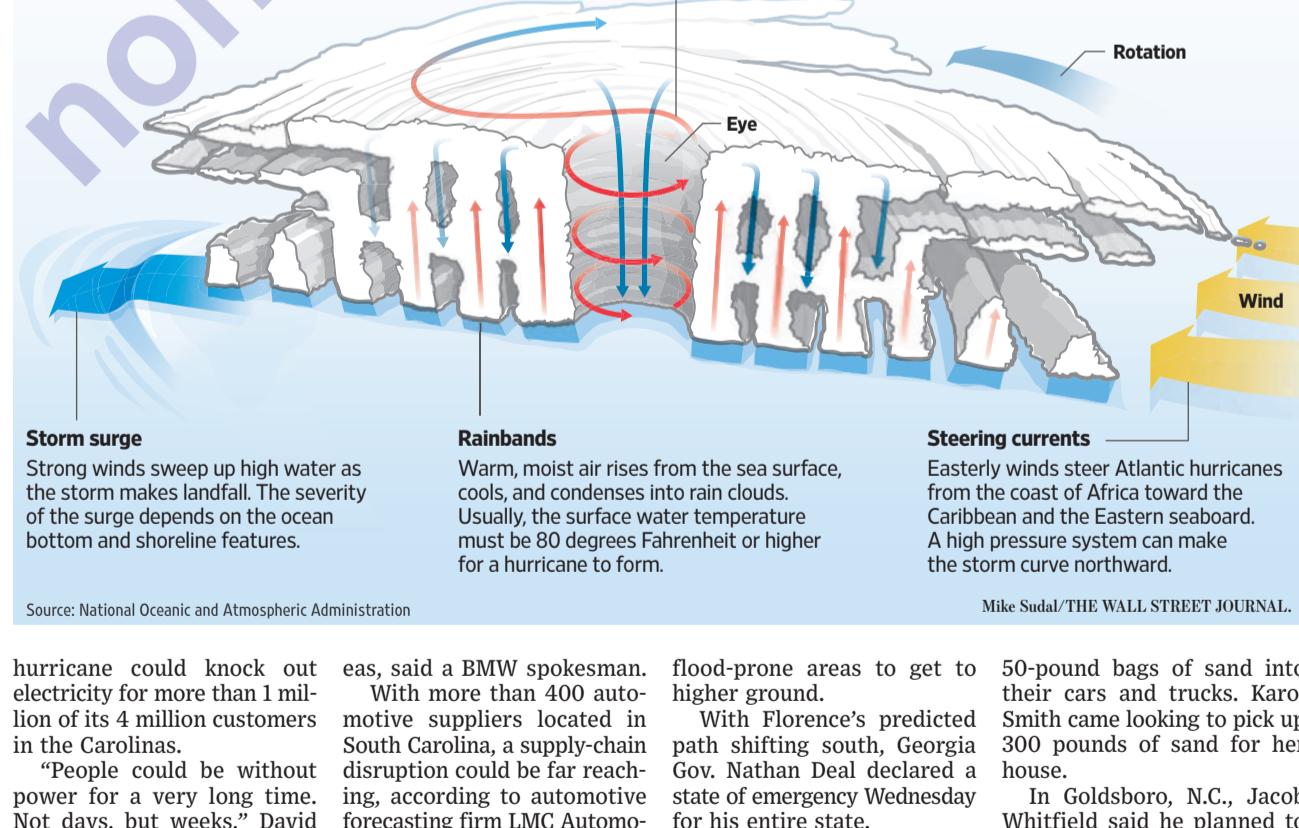
Some airlines waived change fees and allowed passengers to fly out of the storm's path with extra luggage and pets on board for free.

"We're doing everything we can to help them," American Airlines Group CEO Doug Parker said Wednesday at a conference in Washington, D.C.

Duke Energy Corp. said the

The Makings of a Hurricane

How nature supercharged Hurricane Florence.



hurricane could knock out electricity for more than 1 million of its 4 million customers in the Carolinas.

"People could be without power for a very long time. Not days, but weeks," David Fountain, the North Carolina president of Duke Energy, said Wednesday.

A Boeing spokesman said some 787s were flown from its plant in North Charleston, S.C., to the plane maker's facilities in Everett, Wash. "We...will continue 787 production there until it is safe for our employees to return back to work in South Carolina," the spokesman said.

BMW AG also has a plant in the state, and railcars transporting vehicles to the port of Charleston for export have been diverted to holding ar-

eas, said a BMW spokesman.

With more than 400 automotive suppliers located in South Carolina, a supply-chain disruption could be far reaching, according to automotive forecasting firm LMC Automotive.

The firm said while plants in South Carolina are at the greatest risk for an extended production loss, automotive plants in Georgia, Kentucky and Tennessee could be impacted by flooding.

State and local authorities in the Carolinas and Virginia had ordered at least 1.5 million people to evacuate the coasts, while urging many more to leave. South Carolina Gov. Henry McMaster lifted some orders for the southernmost parts of the state, but on Wednesday urged people in

flood-prone areas to get to higher ground.

With Florence's predicted path shifting south, Georgia Gov. Nathan Deal declared a state of emergency Wednesday for his entire state.

In inland North Carolina, the U.S. Army's Fort Bragg—the nation's largest military installation—said only "mission and emergency essential personnel" should report on Thursday and Friday.

Across the region, many people boarded up homes and businesses and left to areas farther inland or out of the storm's predicted path. Others gathered supplies and prepared to ride it out in their homes.

In Elizabeth City, N.C., employees at a Lowe's helped customer after customer load

50-pound bags of sand into their cars and trucks. Karol Smith came looking to pick up 300 pounds of sand for her house.

In Goldsboro, N.C., Jacob Whitfield said he planned to close his jiu jitsu school Wednesday night, then will head west with his family to stay with his mom outside of Greensboro. Fresh in his mind was another powerful storm, Hurricane Matthew in 2016.

"We're right on the edge of where it's going to be really bad," he said. "When Hurricane Matthew came through the flooding was biblical. I'm hoping that doesn't happen again."

—Adrienne Roberts,
Jon Kamp, Scott Calvert
and Alison Sider
contributed to this article.

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WORLD NEWS

Pope Summons Bishops Over Sex Abuse

Gathering is a high-stakes gamble to quell furor over Francis' handling of crisis

By FRANCIS X. ROCCA

ROME—Pope Francis called a global meeting of Catholic bishops to discuss how to prevent sex abuse, an unprecedented move and a sign that the pontiff is trying to retake the initiative on an issue that has thrown his pontificate into crisis.

No pope has ever called such a large-scale meeting of church leaders specifically to address the sex-abuse crisis. The meeting, set for February, is a high-stakes gamble that instantly raises expectations of overhauls in the church and sets up the pope to take the blame if those expectations aren't met.

"If the meeting ends with statements of regret and of positive resolve but no concrete and meaningful measures to ensure accountability for abuse and coverup, it will backfire," said John Allen, president of Crux Catholic Media and author of numerous books about the papacy.

Pope Francis has been on the defensive on the subject for months, and especially since late August, when a former Vatican ambassador accused him of ignoring reports of sexual misconduct by a U.S. cardinal and making him a powerful adviser.

In recent weeks, several bishops in the U.S., Britain and Australia have publicly called



Pope Francis, seen at St. Peter's Square at the Vatican on Wednesday, has been dogged by criticisms of his record in combating sex abuse.

on the pope to convene an international meeting of bishops to address sex abuse.

The announcement came a day after Cardinal Donald Wuerl, the archbishop of Washington and one of the most influential officials in the U.S. Catholic Church, indicated he would soon step down, after weeks of criticism of his record on handling abusive priests.

The Vatican statement said the topic of the gathering, scheduled for Feb. 21-24, would be the "prevention of abuse of minors and vulnera-

ble adults." It wasn't clear whether the agenda would also include the disciplining of abusive clergy and of bishops who cover up or neglect abuse by priests under their authority.

According to the Vatican statement, the pope decided to summon the presidents of more than 100 national bishops' conferences after listening to his advisory Council of Cardinals, which includes Cardinal Sean O'Malley of Boston, his top adviser on child protection.

Bishops around the world are required to report all plau-

sible accusations of sex abuse to the Vatican, but disciplinary and prevention practices vary widely by country. Since the outbreak of sex-abuse scandals in 2002, Catholic bishops in the U.S. have adopted a zero-tolerance policy that requires the lifetime suspension or dismissal of any priest convicted of sex abuse.

A child-protection panel headed by Cardinal O'Malley, which Pope Francis established in 2014, is an attempt to encourage more rigorous and uniform practices around

the world. But the panel's history has been marred by the resignation last year of two members, themselves victims of abuse, over what they said was Vatican inaction. A major complaint was Pope Francis' decision not to establish a tribunal to judge bishops who cover up abuse.

German media separately reported Wednesday on a study commissioned by the German Catholic bishops' conference that found priests there had abused at least 3,677 victims over seven de-

cades after World War II, and that 4.4% of German priests had been accused of sexual abuse. A 2004 report commissioned by U.S. bishops found the equivalent figure for the U.S. was 4%.

The Vatican's announcement comes less than a month before bishops from around the world gather at the Vatican for a meeting dedicated to the subject of youth. Sex abuse isn't on the agenda for that event. Archbishop Charles Chaput of Philadelphia has called on the pope to cancel it amid the furor over abuse.

Pope Francis' move is an indirect response to Archbishop Carlo Maria Viganò, a former Vatican ambassador to the U.S., who has accused the pope of rehabilitating then-Cardinal Theodore McCarrick, whom Archbishop Viganò said Pope Benedict XVI had privately disciplined for sexual activity with seminarians.

The pope has declined to respond to the accusations, but on Monday the Vatican said that "clarifications" on the matter would be forthcoming.

In July, now-Archbishop McCarrick became the first man in nearly a century to give up his title of cardinal, after a church investigation found credible a charge that he had sexually abused a teenager in the early 1970s.

He faces a church trial that could end in his dismissal from the priesthood. The archbishop has said he doesn't remember the incident with the teenager and believes he is innocent. His lawyer says he deserves due process with regard to Archbishop Viganò's allegations.

EU Lawmakers Blast Hungary as Threat to Democracy

BY VALENTINA POP AND DREW HINSHAW

STRASBOURG, France—The European Parliament issued a rare admonishment of a member country, with lawmakers saying Hungary was becoming an authoritarian state in the heart of Europe that encourages nationalists across the continent to follow in the same path.

The European Union's legislature voted overwhelmingly to label Prime Minister Viktor Or-

ban's government a "systemic threat to the rule of law." The vote carries no immediate consequences, though it could theoretically lead to sanctions.

Mr. Orban is at the front of the two biggest challenges to the EU's authority: on migration and on the removal of domestic checks and balances. That has left Brussels in standoffs with more member states, especially in the south and east of the bloc, at a time when the EU is locked in a trade fight with Washington and seeking

to avert a fresh crisis over Britain's exit from the bloc.

On migration, Mr. Orban was a leader of European anti-immigrant policies, building a fence to keep out refugees and refusing to participate in an EU-wide relocation program for asylum seekers. His views have moved increasingly into the mainstream since the 2015 migration crisis. Mr. Orban has recently made common cause with Matteo Salvini, the popular Italian interior minister who leads the fiercely anti-immigra-

tion party, the League, in Italy's new government.

But it is Mr. Orban's challenge to EU's rules governing democracy that was under scrutiny this week by lawmakers. His government has exerted control over the courts, media regulators and tax inspectors, building what he calls an "illiberal state" that would emulate countries such as China and Russia. Czech and Polish leaders have spoken positively about that vision.

European lawmakers on

Wednesday voted to censure the Hungarian government, saying it is undermining European values. Mr. Orban has directed government contracts to his friends and political allies, who have in turn purchased most of the country's TV and radio stations, members of Parliament said.

While the vote passed with a clear majority, some fear it could do little to restrain the Hungarian leader, who said the bloc was meddling in his country's internal affairs.

Mr. Orban's government will now be labeled a threat to Europe's democratic order, the same charge the EU's executive has thrown at the Polish government over its overhaul of the judiciary.

Any sanctions could see EU funding for the two countries slashed and possibly lead to both losing some voting rights at the EU level. However, the imposition of sanctions would require all other EU member states to agree, an unlikely prospect.

FROM PAGE ONE

AT&T Boss Plans HBO Push

Continued from Page One
companies compete with Facebook Inc. and Alphabet Inc.'s Google.

"We think we have a couple of years window to stand this up and really make inroads," Mr. Stephenson said in a wide-ranging interview with The Wall Street Journal. "I have yet to speak to a [chief marketing officer] or an advertiser who says, 'I wish I could spend more money with Google and Facebook.' That human being doesn't exist."

The telephone industry veteran, who struck the more-than-\$80 billion deal for Time Warner in 2016 and defeated a Justice Department antitrust lawsuit challenging the deal in June, defended his strategy to plunge into the media business at a time when cord-cutting is sapping cable-TV revenue and digital competitors are disrupting the advertising business.

At an investor conference hosted by Goldman Sachs Group Inc. on Wednesday, chief executives of other big media companies faced questions about how they would manage consumer resistance to keep paying for the big cable-TV bundle and chart a path forward in streaming content directly to consumers.

Comcast Corp., which acquired NBCUniversal in 2011, highlighted its broadband business and played down its reliance on cable-TV services. "It's playing a bit of a more supporting role than it's historically played," Comcast CEO Brian Roberts said.

At the conference, Mr. Ste-

phenson said defections by AT&T's pay-TV customer were easing despite a recent price increase at its DirecTV Now streaming video service. He also dismissed the idea that HBO and Netflix are direct competitors, saying Netflix was the Walmart of streaming video services, while HBO was the Tiffany's.

Mr. Stephenson said in the Journal interview that AT&T, seeking to catch up to Netflix's larger customer base, might shift resources from creating original programs for its Turner cable networks to HBO. Those Turner channels, like TNT and TBS, could use some freed-up program time to air HBO reruns, which could in turn bring new viewers to HBO, he said.

"A lot of the content spend is in Turner, specifically TNT and TBS," he said. "Is that really the highest and best use of capital? Or is it more appropriate and best use to put it toward HBO?"

Mr. Stephenson said HBO, which spent \$3.7 billion last year on programming, is unlikely to spend anywhere close to the \$11 billion to \$12 billion in cash that analysts expect Netflix will spend this year on content, but he said that as a whole WarnerMedia, which also includes CNN and the Warner Bros. film studio, will roughly match Netflix.

Mr. Stephenson, who said his favorite shows include "Game of Thrones" and "Succession," said HBO's existing lineup is "too Sunday night-centric" and said AT&T plans to plow investment into the channel to produce more hit shows. "You've got to get a programming schedule that we think is a little more fulsome."

The three-decade AT&T veteran reiterated Wednesday that he doesn't want to interfere with the creative culture of WarnerMedia—a change

from how AT&T would previously "forklift" its processes on top of companies it acquired. "That is the issue I'm most guarded about," he said. "You can't be bleeding off talent. That culture needs to remain, you need to guard that culture with your life."

Still, Mr. Stephenson said some of the old ways of doing business have to evolve, and it will be a "very difficult migration."

"The business model does have to change," he said. "Everybody's business model is changing right now."

Historically, HBO, Turner and Warner Bros. operated largely autonomously, with limited cooperation or cross-pollination of programming. And in Hollywood, many producers and actors remain wary

of allowing analytics to factor into programming decisions, even though Netflix is a pioneer in that area.

"In the world of media, it is not readily acknowledged that [using data] might be useful," Mr. Stephenson said. "Could that not help inform your view in terms of how you would like to be investing in content? I have to believe it should."

At the same time, WarnerMedia chief John Stankey is "not going to force data analytics on every greenlighting decision in WarnerMedia," Mr. Stephenson said.

As Mr. Stephenson sets out to turn AT&T into a bigger advertising business, he said he isn't focused on the huge pool of digital ad dollars, which is being vacuumed up by Facebook and Google. Those tech

AT&T's Stephenson Discusses Trump, Taxes and Moonves

Excerpts from AT&T CEO Randall Stephenson's interview:

On the view that politics played a role in the government's effort to block AT&T's acquisition of Time Warner, given President Trump's past criticism of CNN:

"I have a sneaking suspicion that when we announced this deal had we said that we were selling CNN, I probably wouldn't have had the issues that I had surrounding getting this deal approved. I'm not suggesting that he interfered with the Department of Justice with any of this, but I think it's a logical conclusion."

On his communication with Mr. Trump, who called Mr. Stephenson after AT&T said it would give a \$1,000

bonus to employees in response to the federal tax cut:

"He just wanted to tell me he thought that was a terrific gesture and wanted to say thanks for all of our support on tax reform and say great things about AT&T. I said, 'Mr. President, I wish your entire administration felt the same way about AT&T.'"

On the value of CBS Corp. without its chief, Leslie Moonves, who stepped down amid accusations that he sexually assaulted numerous women over his career. (Mr. Moonves has acknowledged having relationships with some of his accusers but said they were consensual):

"Les has been a genius in terms of what he's done programmatically. I'd be like asking how much of Apple's business did you attribute to Steve Jobs. It's not quite that level but I do think Les is responsible for building that business into what it's become."

in the works will help advertisers target consumers with certain characteristics and programming tastes. He said other media companies like 21st Century Fox could benefit from AT&T's analytics and ad technology. AT&T recently acquired ad tech firm AppNexus for about \$1.6 billion.

The 58-year-old CEO said he has no plans to step down from the top of the telecom company anytime soon. If all goes according to plan, he said, the next head of AT&T should have the right mix of assets for the future.

"My board expects me to see through some significant parts of this deal," he said. AT&T's record of big acquisitions has left it with nearly \$180 billion of net debt that it is working to pay down.



AT&T Chairman and Chief Executive Randall Stephenson

giants together are expected to have close to 60% of the \$107 billion U.S. online ad market in 2018, according to eMarketer. In digital ads, it is "game over. Facebook and Google won," he said.

On Wednesday, wireless rival Verizon Communications Inc. said the architect of its online advertising business, Tim Armstrong, was leaving at year's end. The Journal reported last week that Mr. Armstrong was in discussions to depart after struggling to grow the AOL and Yahoo businesses that Verizon had acquired.

Mr. Stephenson said he instead wants to update the traditional TV advertising market—stagnant but still a roughly \$70 billion business—before Silicon Valley's giants muscle in. He said an initiative

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WORLD WATCH

IRAQ

Deadly Car Bomb Hits North of Baghdad

Iraqi officials said a car bomb exploded outside a restaurant north of Baghdad, killing at least six people.

Iraq's Joint Operations Command said the explosives-laden car ignited Wednesday outside a restaurant on a highway near Beiji.

It wasn't immediately clear what the target was, and no group immediately claimed responsibility.

Beiji, about 155 miles north of Baghdad, fell to Islamic State during its 2014 blitz across northern and western Iraq, and it was the scene of heavy fighting until it was taken back in 2015.

—Associated Press

SOUTH SUDAN

Warring Parties Sign Final Peace Accord

South Sudan's warring parties signed what they say is the final peace agreement to end the country's five-year civil war, which has killed tens of thousands and displaced millions.

President Salva Kiir and head of the opposition, Riek Machar, as well as the other opposition parties signed the "final final" deal in neighboring Ethiopia, a government spokesman said.

The spokesman said the agreement is acceptable to all parties and noted that Messrs. Kiir and Machar had an amicable chat after the signing.

—Associated Press

SYRIA

U.N. Reports Record War Displacement

The U.N. Commission of Inquiry said Syria this year has witnessed levels of internal displacement not seen before in the seven-year conflict.

The agency said in a report released Wednesday that more than one million Syrian men, women and children have been displaced so far this year "with most now living in dire conditions."

—Associated Press

WORLD NEWS

Pakistan Seeks Broader China Help

By SAEED SHAH

ISLAMABAD—Pakistan's new government is pushing China to establish factories and poverty-alleviation initiatives in Pakistan instead of solely the big infrastructure programs that so far have dominated Beijing's high-profile overseas investment program, Pakistani officials said after talks with Chinese officials.

Pakistan has been the showcase for China's "Belt and Road Initiative" to build and finance transport and other infrastructure across the globe. The Pakistani move to broaden that effort comes as Beijing experiences rising criticism and pushback on its program across a range of countries, from Malaysia to Montenegro.

Washington is concerned China is trying to gain global influence through what critics call "debt trap diplomacy," lending countries money for projects they can't afford. Beijing calls this Western propaganda.

Pakistan's government, elected in July and led by Prime Minister Imran Khan, is advocating major changes to the secretive \$62 billion China Pakistan Economic Corridor, the most ambitious part of the Belt-and-Road project and centered on the building of roads, rail, power plants and a port.

The program will move toward private-sector Chinese factories in Pakistan, Pakistani officials say. More Pakistani suppliers and laborers will be included, and social-sector projects such as sanitation added, they say.

The changes are the work of a committee formed by the new government in Islamabad to review the economic corridor, headed by Planning Minister Khusro Bakhtiar. Government officials say the committee's work will include looking at whether the projects were unfairly skewed to benefit the eastern province of Punjab under the previous administration of former Prime Minister Nawaz Sharif—who has his political base there.

The government has also



The \$2 billion metro train in Lahore. Pakistan's new government, led by Prime Minister Imran Khan, below, is advocating major changes to the secretive \$62 billion China Pakistan Economic Corridor.



PAKISTAN PRESS INFORMATION DEPARTMENT/EPA/SHUTTERSTOCK

author of the book "The China-Pakistan Axis." "What's important for China is that CPEC doesn't turn into another public embarrassment."

As its relationship with the U.S. has soured, Pakistan has grown increasingly dependent on China. Despite advocating changes in the Chinese initiative, government officials have avoided the more direct criticism of China that recently has surfaced in Malaysia. A minister who suggested this week that Pakistani business hadn't benefited, and advocated putting new projects on hold, quickly took back his words.

"We're not limiting CPEC, we're expanding it," said Chaudhry Fawad Hussain, the information minister. "Our government's priorities are not infrastructure, but industrialization and human skills development."

China's foreign minister, Wang Yi, visited Islamabad this past weekend. He said the 22 projects done so far in Pakistan

had helped lay the foundation for economic development.

"Our two sides have agreed that the CPEC cooperation will gradually shift to industrial cooperation," Mr. Wang said. "We will pay greater attention to improve the livelihood of Pakistan people, and hence more people will benefit from CPEC."

China and Pakistan reject criticism that the economic initiative has added to Pakistan's debt and trade-balance woes, which could force Islamabad to seek a bailout from the International Monetary Fund within the next few weeks. Pakistan says it is considering turning to the IMF among other financial options.

Described carefully by the Pakistani government as a "realignment of goals," the initiative will enter new areas such as health care and provision of clean water. It isn't clear how these social-sector projects will be paid for. Almost all of the projects so far have been commercial deals.

The focus will also shift from Punjab, the country's most prosperous region, to the underdeveloped western part of the country, both sides said.

Energy projects will move to renewable sources of energy and indigenous fuel. CPEC has built three power plants, for around \$6 billion, that run on imported coal, and more were planned.

No Chinese manufacturing has relocated to Pakistan under the economic initiative, as envisaged. None of the nine planned "special economic zones" for Chinese industry were established, as the provinces wouldn't agree to the incentives demanded by China. The proposal will now be cut back to four such economic zones, said Hassan Daud, project manager for CPEC at Pakistan's Ministry of Planning. The aim is to set them up within three months.

"We must go for low-hanging fruit first," Mr. Daud said.

—Jeremy Page in Beijing contributed to this article.



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WORLD NEWS

Ukraine Churchgoers Seek More Autonomy

Orthodox leader backs Kiev's push for self-governing church to uproot centuries of Russian religious authority

BY JAMES MARSON

PTYCHA, Ukraine—One morning this summer outside the village church, an Orthodox priest led a prayer for soldiers battling a Russian takeover in Ukraine's east. Minutes later, a column of Orthodox believers from a rival, Moscow-affiliated church marched straight through the middle of his flock.

"Occupiers will be occupiers," said the priest, Father Ihor, after they passed.

This village in Ukraine's west is one of many on the front lines of a dispute that is pitting neighbor against neighbor and roiling the Eastern Orthodox Church, the world's second-largest Christian denomination.

At issue is Russia's centuries-old authority over most Orthodox churches and monasteries in Ukraine. In a cause that has been championed by President Petro Poroshenko, Ukraine appealed in April to officially establish its own self-governing church—and undermine Russia's claim to the country's 30 million believers.

Mr. Poroshenko, and Father Ihor and his congregation, now have a powerful ally: The foremost Orthodox cleric, Ecumenical Patriarch Bartholomew I of Constantinople, is preparing to grant Ukraine's request, in what would be the Orthodox Church's biggest overhaul in centuries. Patriarch Bartholomew's office said on Friday that he had appointed two bishops to Kiev to arrange for the granting of a self-governing church.

Mr. Poroshenko says it is a matter of national security. "The issue...goes far beyond religion," Mr. Poroshenko told an Independence Day military parade in August. "It is similar to the strengthening of the army, protection of the language, struggle for



Father Ihor blesses supporters in Ptycha, a town at the center of a dispute over Russia's centuries-old authority over most Orthodox churches and monasteries in Ukraine.

membership in the European Union and NATO."

For years, few among Ptycha's 1,000 residents gave much thought to the affiliation of their century-old blue-brick church. "I didn't realize they were for Moscow," said Valeriy Ihnatenko, a 38-year-old war veteran who now attends services under the Kiev Patriarchate, the homegrown church to which Father Ihor belongs.

But the response of the Moscow Patriarchate, as the local arm of the Russian Orthodox Church is known, to the Kremlin's attacks in Crimea and eastern Ukraine in 2014 lifted the veil. When some priests refused to pray for Ukrainian soldiers and

blamed Ukraine for the conflict, churchgoers across the country rebelled. Dozens of villages ousted their priests and switched allegiance to the Kiev Patriarchate.

"People started to reject Russia and everything connected with it," said Alina Dubovska, a 28-year-old journalist from Ptycha. "The church is dripping information into people's heads to pull them toward Russia."

The Moscow Patriarchate retains millions of adherents in Ukraine, despite its more-than-four-year conflict with Russia, though it now has fewer followers than the Kiev Patriarchate, surveys show.

A move by Patriarch Bartholomew to grant Ukraine's

appeal would allow priests and congregations, including those from the Moscow Patriarchate, to join a new church unblemished by the stigma of worshiping in churches of the Kiev Patriarchate, which isn't recognized by the global Orthodox community.

It would also heighten discord with the Russian Orthodox Church, whose leader, Patriarch Kirill, is a close ally of President Vladimir Putin.

The Russian Orthodox Church said it wouldn't recognize the granting of a self-governing church in Ukraine.

Mr. Putin, for his part, claims Ukraine's cultural heritage as Russia's own and uses the links to justify his interventions.

A spokesman for the Moscow Patriarchate said it wants peace in Ukraine and stays out of politics.

Opponents of Mr. Poroshenko, who has placed the push for a Ukrainian church at the center of his bid for re-election next year, say he shouldn't meddle in church matters.

"The government can't boast of any economic achievements, so they need to think of something else to distract people," said Oleksandr Vilkul, an opposition lawmaker who supports the Moscow Patriarchate.

In November 2014, residents of Ptycha voted in a referendum in favor of joining the Kiev Patriarchate, but the Moscow Patriarchate

wouldn't hand over the village church. Months of arguments and scuffles followed.

A court ordered the building closed, and the rival congregations began worshiping in buildings on opposite sides of the church.

Worshippers with the Russian-led church said their allegiance is religious, not political. "We have Ukrainian passports," said Venedikt, a 46-year-old monk. He said Kiev just wanted a church "on a leash that can bark when required."

Mr. Ihnatenko, the war veteran, said the Moscow Patriarch was an enemy more insidious than any on the front lines. "Here," he said, "it's neighbors and relatives."

Putin Says the Accused Skripal Assailants Are Civilians

President Vladimir Putin said the two Russians accused by the U.K. of poisoning a former Russian spy in England were civilians, maintaining

By Anatoly Kurmanov in Vladivostok, Russia, and James Marson in Moscow

Moscow's denial of involvement and foreshadowing an alternative narrative of events that led to the largest-ever collective expulsion of Russian diplomats from the West.

The U.K. government immediately rejected Mr. Putin's suggestion that the men weren't Russian military intelligence officers.



LONDON METROPOLITAN POLICE

Mr. Putin said Wednesday that Russia had identified the two men, named by British authorities last week as Alexander Petrov and Ruslan Boshirov,

although those are believed to be aliases. He urged the men to come forward and tell their story to media.

"There's nothing special or

criminal there," he said.

British authorities last week charged the two men with the attempted murder of Sergei Skripal, who has lived in the U.K. since a 2010 spy exchange with Moscow, and his daughter. British Prime Minister Theresa May said the attack was almost certainly authorized at a "senior level" of the Russian state.

Russian officials previously said they hadn't heard of the men, but Mr. Putin's comments indicate the Kremlin is preparing to offer an alternative narrative of events. The Kremlin has denied involvement, while state propaganda channels have spread a raft of implausible and often conflicting versions blaming anyone but Russia.

The attack exacerbated tensions between Russia and the U.K. and its allies, already strained over Moscow's military interventions in Ukraine and Syria and alleged interference in U.S. and European politics.

Mrs. May's official spokesman on Wednesday dismissed Mr. Putin's claims, saying the men in question are the prime suspects in the poisoning and British investigators have identified them as officers of the Russian military intelligence service, also known as the GRU.

British prosecutors last week charged the two men with four offenses, including attempted murder, conspiracy to murder, and the use and possession of Novichok. The U.K. said it wouldn't seek ex-

tradition of the men because it is forbidden by the Russian constitution.

U.K. police presented evidence of how the suspects flew into London in March and traveled to the southern city of Salisbury, where police believe they contaminated Mr. Skripal's front door with the nerve agent before returning to London and flying back to Moscow.

Mr. Skripal, a 67-year-old former colonel in Russian military intelligence who was a double agent for the U.K., and his daughter were left critically ill, and are now under the protection of British authorities at an undisclosed location.

—Jason Douglas in London contributed to this article.

U.S. Eyes New China Talks

Continued from Page One
is willing to talk," Lawrence Kudlow, head of the White House National Economic Council, said Wednesday. "You could say that communication has picked up a notch."

Mr. Kudlow said he couldn't provide further details, saying Mr. Mnuchin "is the leader on this."

A spokesman for Mr. Mnuchin declined to comment.

China has shown reluctance to address the issues raised by Washington, notably those concerning deeper structural changes to China's economy such as removals of subsidies to state-owned firms to give U.S. companies a fair playing field in Chinese markets.

People who have followed the Trump administration's China trade strategy closely cautioned against casting the invitation as a major breakthrough, saying the administration remained divided internally on its China strategy. They said talks would be unlikely to derail a planned round of tariffs on \$200 billion in Chinese goods. That followed U.S. tariffs imposed on \$50 bil-

lion earlier this year.

The new outreach to Beijing comes less than a week after Mr. Trump threatened not only to go forward with the planned tariffs but to add another \$267 billion, effectively putting duties on all of China's shipments into the U.S.

Beijing has pledged to retaliate by subjecting as much as 85% of U.S. imports—totaling \$110 billion—to tariffs. But China's leaders have begun to back off threats against U.S. businesses in China in a bid to get U.S. companies to lobby against the tariffs and keep foreign capital in China.

Mr. Trump has repeatedly mentioned in recent days the sharp drop in the Chinese stock market and new signs of fragility in the Chinese economy, contrasting them with more robust U.S. economic indicators.

Some of his aides believe that gives the U.S. more leverage to seek concessions from Beijing, especially as it rushes to strike new pacts with partners from the European Union to Canada and Mexico.

"Because the U.S. economy is so strong, because some of these other trade deals are in the bank or on the precipice, they feel they are going to be negotiating with China from a stronger position than if we'd done this three months ago," said Steve Moore, a fellow at the Heritage Foundation, a

conservative Washington think tank.

"It's like dominoes," said Mr. Moore, who worked on the Trump campaign and talks regularly with administration economic advisers. "It puts more pressure on the ones that don't have a deal."

At the same time, Mr. Trump—and Republican lawmakers seen as vulnerable in this fall's elections—are facing growing pressure from business and agriculture groups opposed to the tariffs and urging a new truce with China.

On Wednesday, organizations representing thousands of companies in industries including retailing, toy manufac-

turing, farming and technology said they are cooperating on a lobbying campaign called Tariffs Hurt the Heartland to oppose Mr. Trump's duties.

Retailers in particular have ramped up warnings that further tariffs, especially those aimed at consumer goods, are threatening to disrupt supplies for the year-end holiday shopping season.

"The tariffs are coming so fast and furiously, they're giving retailers large and small whiplash," said Christin Fernandez, vice president for communications for the Retail Industry Leaders Association.

Despite the efforts by Mr. Mnuchin, the administration

remains divided over its China strategy, raising questions over what a new round of talks could accomplish—or whether Chinese officials would consider the session worth their effort.

"We're still in the same position of a lack of agreed-upon strategy within the U.S. government," said Naomi Wilson, director for China and greater Asia at the Information Technology Industry Council.

The offers China made during previous rounds of talks were largely limited to increased purchases of U.S. products and a gradual opening of financial-services sectors.

But the discussions did little

more than reveal chasms between the two sides. The Chinese negotiators focused on their efforts to live up to World Trade Organization obligations and offered "conceptual" ideas for a deal, said people briefed on the talks. U.S. officials sought more concrete offers.

Structural changes are the toughest for China to meet. Beijing has denied that it pressures U.S. companies to hand over technology to Chinese firms, as Washington alleges. Chinese officials cite political and national-security reasons for resisting other U.S. demands, such as allowing U.S. cloud-computing companies to operate more freely.



Abe, Xi Renew Ties Amid Tariff Threat

The leaders of China and Japan met for the first time since last year and said relations were warming, a development Tokyo officials attribute to the pressure both feel from President Trump.

"Japan-China relations have been moving in the direction of great improvement," said Japanese Prime Minister Shinzo Abe on Wednesday after meeting Chinese President Xi Jinping in Vladivostok, Russia, where both are attending an

economic conference.

Mr. Abe said he would visit China in October and reiterated that he hoped Mr. Xi would reciprocate with a visit to Japan, which would be the Chinese leader's first since taking his position.

China and Japan share a common interest in seeking to persuade the Trump administration to refrain from tariffs. The White House is preparing to hit China with tariffs on \$200 billion in goods, on top of the \$50 billion in exports already facing 25% levies. Mr. Trump said last week that "there is another \$267 billion ready to go on short notice if I want."

—Peter Landers

EVAN VUCCI/ASSOCIATED PRESS

Treasury Secretary Mnuchin will lead new trade talks with China.

WORLD NEWS

Attack Resumes On Yemeni Port

A Saudi-led coalition resumed its assault on a Yemeni port city controlled by Iran-backed forces as United Nations-brokered peace talks stalled and the Trump administration rebuffed U.S. lawmakers' efforts to cut American support for the three-year-old war.

By Asa Fitch in Dubai,
Dion Nissenbaum in
Washington and Saleh
al-Batati in Cairo

As the U.N. envoy for Yemen tried to get negotiations back on track, Yemeni forces backed by Saudi Arabia and the United Arab Emirates on Wednesday said they had cut off the main road between the capital San'a and Hodeidah, the Red Sea port that serves as the main gateway for humanitarian aid entering the country.

Officials said they took the step because the Iran-backed Houthi rebels failed to turn up last week in Geneva for what was supposed to be the first U.N.-brokered negotiations on Yemen in two years.

"This escalation comes in response to their rejection of par-

ticipation in the Geneva peace talks," said Mamoon al-Mahgami, a spokesman for the Yemeni force, the Giant Brigades.

The renewed push to seize the Red Sea port city came as the Trump administration rebuffed congressional attempts to curtail American support for the military campaign led by Saudi Arabia and the United Arab Emirates.

In a special report required by Congress, Secretary of State Mike Pompeo said the two Gulf nations were doing enough to address widespread concerns about coalition airstrikes in Yemen that the U.N. says have been responsible for most of the civilian deaths and injuries over the past three years.

Mr. Pompeo said Saudi Arabia and the U.A.E. were making moves to reduce civilian casualties, push the peace process forward and ensure humanitarian aid gets into the country. The decision allows the U.S. to continue providing the coalition with limited intelligence and to carry out aerial refueling of warplanes launching airstrikes in Yemen.

In the unclassified report, viewed by The Wall Street



Yemeni government forces patrol as smoke billows from a Houthi position during battles with the rebels in the port of Hodeidah.

Journal, Mr. Pompeo conceded that "civilian casualties have occurred at rates that are far too high in the Saudi-led coalition's campaign in Yemen."

The administration decision was the subject of intense internal debate, people familiar with the discussions said. Some officials involved in the State Department decision

urged Mr. Pompeo not to issue the certification, these people said, but he ultimately sided with those who backed continued American support.

U.S. Defense Secretary Jim Mattis backed Mr. Pompeo's decision, saying the two Gulf nations were making "every effort to reduce the risk of civilian casualties."

The renewed offensive in Hodeidah came as Martin Griffiths, the U.N. envoy for Yemen, traveled through the region in an effort to salvage peace talks.

Anwar Gargash, the U.A.E.'s minister of state for foreign affairs, tweeted on Wednesday that the Houthis' no-show was "further proof that the libera-

tion of Hodeida is what is needed to bring them to their senses & constructively engage in the political process."

The Houthis said the coalition, which controls Yemen's airspace, prevented the rebels from flying to the peace talks. But Mr. Gargash joined other coalition officials in blaming the rebels for their absence.

Twitter Boots Iraqi After U.S. Says He Incited Violence

BY MICHAEL R. GORDON

Twitter Inc. shut down the account of a prominent Iraqi militia leader after he was accused by the U.S. government of inciting violence against American diplomats in Basra, where the U.S. consulate came under a rocket attack.

The episode illustrates the importance that social media has come to play in mobilizing political support in Iraq—and, potentially, in encouraging militia attacks. It comes as Iraqi politicians are struggling to form a new government and the U.S. and Iran are vying for influence.

foreign interests.

A spokesman for Twitter said the social-media company doesn't comment on actions concerning individual accounts for privacy and security reasons. Analysis cited by the company indicates that more than 90% of terrorist accounts are removed by Twitter based on its own monitoring efforts.

Mr. Mohandis has long been considered a notorious figure by Washington, although he has led some of the Shiite militia forces that have fought militants from Islamic State in recent years. The U.S. has designated him as a terrorist

and has accused him of participating in the bombing of the U.S. and French embassies in Kuwait in the 1980s. During the Iraq war, Mr. Mohandis was involved in Tehran's effort to arm and train Iraqi Shiite militias that attacked U.S. and other allied troops, U.S. officials say.

Mr. Mohandis's cooperation with Iran emerged in recently declassified interrogation reports of another Shiite leader, Qais al-Khazali, who was captured by the U.S.-led coalition a decade ago and accused of organizing a botched kidnapping of five U.S. soldiers in 2007 that led to their deaths. Mr. Khazali

told interrogators that Mr. Mohandis was so close to the Iranians at the time that he probably didn't even own a house in Iraq.

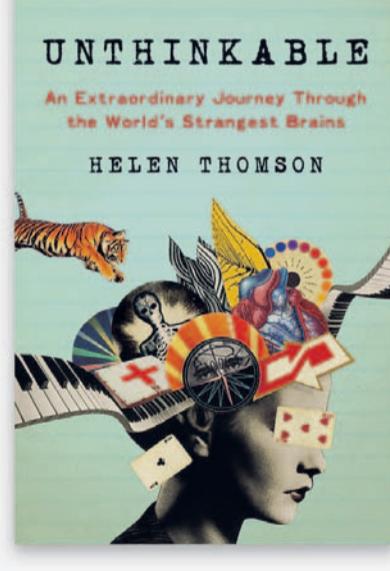
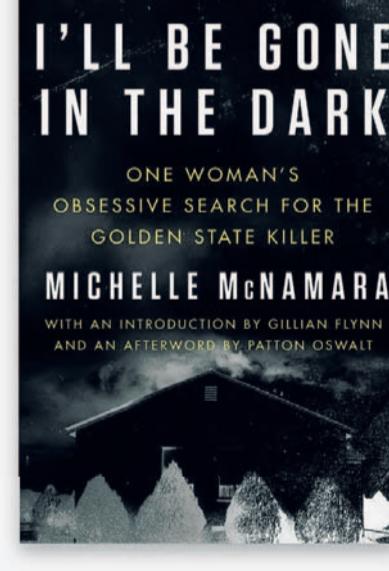
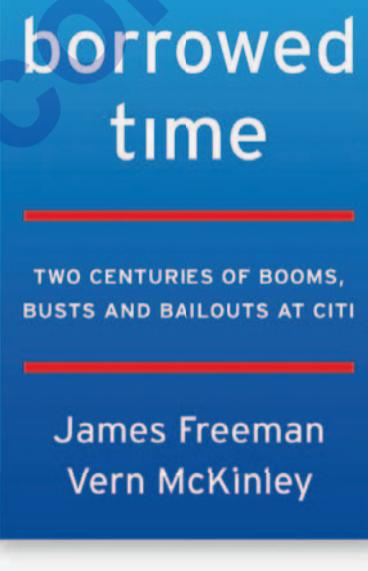
It was Mr. Mohandis's Saturday statements blaming the U.S. for the turmoil in Basra that prompted the Americans to approach Twitter about his messages. Still, the move won't preclude him from making comments through other media, such as television.

Mr. Mohandis made the remarks after demonstrators in the southern Iraqi city took over the Iranian consulate, set it ablaze and ransacked the offices of most political parties. Rocket

fire was directed soon after at the U.S. consulate, which is located at the Basra airport.

The U.S. hasn't made public evidence that Iran directed the rocket attack, and American officials acknowledge that the attackers may have acted on their own.

But the White House blamed Iran for failing to prevent the Basra attack and a similar one directed at the U.S. Embassy in Baghdad. It warned it would hold Iran responsible for future attacks against U.S. personnel and facilities in Iraq by proxies armed, financed and trained by Tehran.



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FROM PAGE ONE

Schmear Campaign For Bagels

Continued from Page One

A local news site, Gothamist, captured it all, posting the video online. And for the last three days as the story spread, the sweet-and-savory sandwich has been plunged into a boiling controversy.

Even for a city famously opinionated about its food, it's been a while since a food debate has stirred such strong emotions. (We're talking about you, Mayor Bill de Blasio, and that time you ate pizza with a knife and fork.)

Most vocal are those New Yorkers and other bagel fans who have expressed a firm belief—mostly on social media—that Ms. Nixon committed a gag-inducing gaffe: chewy raisins, and sweet dough, briny capers and smoked fish joined together in an unholy union.

A chorus of tweets have ripped the unorthodox bagel combo as “gross.” An NJ.com reporter in New Jersey called it a “crime against the bagel gods.” Some went further.

“I can no longer vote for



Cynthia Nixon is caught ordering a lox sandwich on a cinnamon-raisin bagel at Zabar's market in New York City, right. At left, a recreation of the alleged foodstuff.



ALEXANDER COHN/THE WALL STREET JOURNAL
KEVIN CHUNG/GOTHAMIST

Cynthia Nixon. Her decision to put lox (w tomato, onions, capers) on a cinnamon raisin bagel AT ZABARS?!?!?” wrote Melissa Musiker. “Suggests that at best she exhibits poor judgment and at worst that she is crazy and definitely not a real NYer.”

Ms. Nixon took to Twitter to defend her choice and announced a contest to give political donors a chance to have their favorite bagel with her. But even her own campaign allowed that the candidate's order was “weird.” And followers seemed unpersuaded. “LOX HER UP” replied some.

Bagel bakers, lox purveyors and deli owners have been more measured. “I don't think it merited, as we say in Yiddish, this meshugas,” said Niki Russ Federman, the fourth-generation co-owner of famed Lower East Side “appetizing shop” Russ & Daughters, which offers a less sweet version of the cinnamon-raisin bagel.

The bagel first emerged at least a couple of centuries ago in Poland, where it became a staple of the Jewish community, according to food experts.

As bagels came to this country, via Polish immigrants, entrepreneurs eventually saw the

possibility of broadening their appeal beyond the Jewish market. In particular, the Lender family, bagel makers based in New Haven, Conn., began to offer a range of innovations, most notably a frozen version.

The family also experimented with flavors. Jacob Remes, a clinical assistant professor at New York University's Gallatin School of Individualized Study who is researching bagel history, believes cinnamon raisin was first introduced by the Lender's brand between the mid '50s and early '60s.

Pinnacle Foods, the company that now owns Lender's Bagels,

declined to comment about this aspect of the brand's legacy.

In many ways, cinnamon raisin became a kind of gateway bagel, experts say. That is, it moved the bagel into sweet territory, and thus opened the door within a few decades for a host of bagel makers to offer everything from blueberry bagels to chocolate-chip bagels.

As part of this evolution, the bagel also saw changes in size, becoming noticeably bigger, experts say. And in texture as well.

The bagel, which was prized by traditionalists for its chewiness, became softer. A few cyn-

ics have derided these modern-day versions as “ba-rolls.”

All of which may explain why there was such fuss over Ms. Nixon's choice of a cinnamon-raisin bagel with lox.

Indeed, purists balk at the idea of a cinnamon-raisin bagel itself. “I think they're not real bagels,” said Lee Schrager, a native of New York's Long Island who runs the South Beach and New York City Wine & Food Festivals.

“Cinnamon raisin bagels are a shanda,” tweeted New York political consultant Evan Stavsky, using a Yiddish word for “a shame.”

Equifax Took Fears To the FBI

Continued from Page One

represented what they feared was stolen. Adding to suspicions, the Chinese government had recently asked eight companies to help it build a national credit-reporting system.

At one point, Equifax grew so worried it began building a way to monitor the computer activity of all of its ethnic-Chinese employees, according to people familiar with the investigation. The resource-heavy project, which raised legal concerns internally, was short-lived.

Some investigators believed Equifax's focus on the matter contributed to a delay in its understanding the extent of the 2017 hack of consumers' information, an event that hammered the stock, cost some executives their jobs and damaged the company's reputation.

Ultimately, the investigation undertaken by the FBI stalled. The FBI wanted to pursue a criminal case, believing the theft of trade secrets costs the U.S. hundreds of billions of dollars a year, with China the leading offender, said people familiar with the investigation. Equifax began to worry about legal exposure and how onerous the inquiry could be, said these people, and eventually reduced its cooperation with law enforcement.

That left many of the questions raised by the investigation, both about Equifax and about China, unresolved.

This account of the events at Equifax is based on people familiar with the investigation.

Equifax, in a written statement, said it became aware in 2015 of “efforts by a former employee to obtain company information, and launched an internal investigation into his activities.” The company “brought the investigation to the attention of U.S. law enforcement authorities and cooperated with the federal agencies,” Equifax said.

“Although this individual had improperly obtained proprietary Equifax information,” it said, “the information we determined was accessed was general in nature and not material or harmful to Equifax, consumers or our business clients.” Equifax said the company has “no evidence to suggest that consumer data or other personal information was compromised, or that this individual targeted this type of information.”

Equifax didn't address in its statement whether it thought other employees were involved.

A person familiar with the company's thinking disputed the notion that Equifax reduced its cooperation with law enforcement in a probe it had itself triggered.

Representatives of the FBI and CIA declined to comment. The Chinese Embassy in Washington didn't respond to requests for comment.

One of the former employees Equifax and the FBI investigated was Daniel Zou, who worked in Toronto. The company he joined in China was Ant Financial, a

fast-growing financial-technology affiliate of Alibaba Group Holding Ltd.

Both Ant and Mr. Zou denied any involvement in taking proprietary Equifax data. Alibaba referred questions to Ant.

Ant, based in Hangzhou, China, said it “has never used Equifax code, scripts or algorithms in the development of its own products and services.”

Mr. Zou, in a sworn statement provided by his lawyer, said, “I deny that I worked with or consulted with a network of Equifax colleagues to steal Equifax code for Ant Financial or that I provided any such code to Ant Financial.”

Interviewed by The Wall Street Journal in Washington, Mr. Zou, a 35-year-old Chinese-born Canadian citizen who graduated from the University of Toronto, repeated his denial and said that learning from the Journal of Equifax's suspicions had been “a nightmare.”

Those suspicions arose in 2015, a few months after Mr. Zou left his job as an Equifax product manager to join Ant's new credit-scoring business, which is known as Sesame Credit in English. Ant was among the companies asked by China's central bank to develop credit-scoring services. Sesame launched its service in January 2015, several months before Mr. Zou came aboard.

Equifax's data-loss prevention system, which guards against sensitive information leaving the corporate network, flagged the activities of Mr. Zou, according to people familiar with the investigation. The system alerted that an employee might have taken data off the network, and initially registered it as benign, they said.

Mr. Zou said in his interview that, according to his understanding of how the system works, it would warn the person removing the data on the spot. He said he never received such a warning. Equifax declined to say whether that is how the system works or whether Mr. Zou received a warning.

Approach to FBI

At the same time, Equifax officials also had suspicions about a different employee, in another city. Equifax's security chief, Susan Mauldin, approached the FBI with a question: What would it look like if we were being targeted by China?

FBI officials told her in one technique, a group makes plans to visit a company's office to pitch a partnership, then at the last minute replaces delegation members with spies. Around this time, a delegation from a Chinese business visited Equifax and swapped out some members at the last minute, fueling Equifax's suspicions.

Company security officials decided to examine Mr. Zou's computer activity. They discovered he had printed out thousands of pages of company information. The material related to the way credit scores are obtained, what different pieces of data mean and how to apply algorithms to assess troves of data, according to the people familiar with the investigation. They said some was information that could help explain products Equifax was working on.



Former Equifax CEO Richard Smith, center, was told in 2015 of a possible theft of business data.

KEVIN LAMARQUE/REUTERS

Sudden Breach

Equifax's disclosure that consumer data had been hacked hit the stock hard.

Equifax stock price



At around the same time they were examining Mr. Zou's systems, investigators discovered what they believed to be a major infiltration campaign. They found that other employees had sent code to their personal email and uploaded it to software-development platforms others could access.

According to the people familiar with the probe, the investigators, by talking to Equifax employees and examining email accounts and LinkedIn messages sent to them, saw indications that recruiters purporting to represent Ant affiliate Alibaba had offered to triple salaries for certain ethnically Chinese Equifax employees—and provided instructions on specific Equifax information they should bring along if they jumped ship.

The investigators saw, as well, that Mr. Zou had searched the Equifax HR system to look up data analytics teams in the U.S. He had printed out contact information for many ethnic-Chinese employees, according to people familiar with the probe. They said some of those employees told colleagues they were later contacted by recruiters who claimed to be working on behalf of Alibaba.

The investigators found notes on Chinese messaging service WeChat in which another group of Equifax employees in North America, using company-issued phones, arranged off-hours meetings to discuss work projects and left Equifax soon after, saying they were going to Ant or Sesame for big raises.

Mr. Zou said Mr. Zou is the only former Equifax employee it has hired since it began collecting employment history information in 2011. Ant said Mr. Zou began at its credit-scoring business in May 2015. It listed a five-figure

starting salary for Mr. Zou and said he wasn't promised any large bonuses.

Ant said it didn't “directly or indirectly through third-party recruiters” encourage job applicants to steal Equifax information. Ant prohibits employees and recruiters from requesting such activity, the company said, adding that third-party recruiters aren't authorized to make job offers on its behalf.

Ant said it hadn't been contacted by Equifax or any government investigators about such matters. After receiving an inquiry from the Journal about Mr. Zou, Ant said, it investigated his information-technology activities and found no evidence he had ever provided Ant with any Equifax code, scripts or algorithms.

Mr. Zou said he worked in marketing and didn't have access to Equifax code, algorithms and other proprietary information; never took any to Ant; wasn't asked to; and never encouraged others to.

“I deny that I searched an internal Equifax human resources database to recruit Equifax employees to join Ant Financial,” Mr. Zou said in the sworn declaration provided by a lawyer. “I further deny that I printed contact information for ethnic-Chinese Equifax employees as part of an effort to recruit such employees to join Ant Financial.”

In the Journal interview, Mr.

Zou said, “I think [where] this might come from is that during my time at Equifax I had a habit of sending work-related documents to my own email so that I could work at home. If any of those contain [any] of what they call the alleged proprietary information, right after I left Equifax and before I went back to China, I deleted them all. And I did not share that with anybody.” If investigators were alarmed by his email practices, Mr. Zou said, “I think that's a huge misunderstanding.”

Mr. Zou also said he printed out employee contact information for projects that required him to work with global colleagues. “Equifax Canada did not want to reinvent the wheel from beginning,” he said, “so my job was to piggyback the success case” from the company's U.S., U.K. and Latin American regions.

He said he disposed of all the documents before moving to China and joining Ant, and he denied targeting any ethnicity.

“If you search a data analytics team, the likelihood is high that you will reach a Chinese employee,” he said.

Mr. Zou said he had never been contacted by Equifax or any government authorities about data theft, and learning he was suspected caused him “emotional turmoil.”

The inquiry slows

Although Equifax had gone to the FBI—and although the bureau was eager to pursue the matter—Equifax officials by the middle of 2016 had grown wary of providing more information to federal investigators.

Equifax worried that doing so could trigger requirements under securities law for disclosure of material information, said the people familiar with the investigation. They said Equifax also was concerned that handing over access to its entire network, including international operations, as the FBI had requested, could run afoul of obligations in some countries where Equifax operates.

Around the middle of 2016, Equifax told its internal investigators to comply with any potential subpoenas, but to stop proactively providing information to law enforcement, said the people familiar with the investigation. The person familiar with Equifax's thinking said the hack involved both human error and technological failure, and Equifax was forthcoming about it.

In the weeks following the disclosure of that breach, Mr. Smith resigned, as did Ms. Mauldin and Equifax's chief information officer, David Webb. All couldn't be reached or didn't respond to comment requests.

In January 2018, Chinese officials rolled out a state-backed credit-scoring company and gave Ant Financial an 8% stake.

Mr. Zou has returned to Canada. Ant transferred him from Sesame Credit to its Alipay international business unit in Hangzhou in mid-2017. On June 1 of this year, he moved to Alipay Canada in Vancouver.

—Jim Oberman and Lisa Schwartz contributed to this article.

GREATER NEW YORK

More Correction Officers Are Leaving

Citing safety and job security, New York City officials say that recruitment is tough

By KATIE HONAN

The number of New York City Department of Correction officers who leave their jobs each year has more than doubled since 2013, and many are new recruits who have only been with the department a short time, according to city data and interviews with city officials.

In 2017, 999 officers left the department, with 536 of them quitting or being terminated as opposed to retiring. By contrast, 425 officers left the department in 2013. Of that number, 226 retired and 199 either resigned or were fired.

While the number of correction officers leaving the job has risen in recent years, the

department at the same time has increased hiring.

In 2013 the agency hired 1,013 officers. In 2016, it brought on 2,337 new officers and in 2017 the Department of Correction hired 1,222 officers.

However, the average number of departing officers has steadily increased since 2013, when an average of 35 officers left each month. So far in 2018, an average of 91 officers a month have departed.

The increase in officers leaving their posts comes as the Correction Department—which oversees the city's jail system, including Rikers Island—has boosted recruitment efforts as part of a 14-point plan for jail safety that Mayor Bill de Blasio, a Democrat, instituted in 2015.

It also comes as the city's jail system is set to undergo a massive transformation in the decade ahead. The mayor has moved forward on a plan to close Rikers Island—which

houses most of the city's inmates—and replace its jails with four detention centers in neighborhoods in Manhattan, the Bronx, Queens and Brooklyn.

His plan aims to reduce the city's overall jail population to 5,000. It currently stands at more than 8,000.

Correction Department officials acknowledged in an interview the challenges of recruiting for the job, citing safety and job security.

Some prospective applicants also have been reluctant to join the department because of the announcement of the closure of Rikers Island, fearing that staffing levels might be cut from the current total of more than 9,600, said Mychele Gayle, director of recruitment strategy at the department.

But Natalie Grybauskas, a spokeswoman for Mr. de Blasio, said there won't be a reduction of officers with the new facilities. The plan to

Heading Out

Number of new hires and departures at NYC Department of Correction



Note: 2018 is through August.
Source: NYC Department of Correction
THE WALL STREET JOURNAL.

shutter Rikers, which is expected by 2027, is about safety, she added.

"The mayor's made very clear through investments in officer safety that supporting

our staff is key to our core mission—safer jails," Ms. Grybauskas said in a statement. "No one will lose their job because of the closure of Rikers."

A spokesman for the agency said many recruits leave after graduating from the New York City Correction Academy when they realize the job isn't for them. Others depart to pursue different civil-service jobs including those on police or fire departments.

Salaries are comparable to the New York City police and fire departments: Roughly \$45,000 to start and up to \$90,000 or so after 5½ years.

Elias Husamudeen, the president of the Correction Officers' Benevolent Association, which represent officers at city jails, said some experienced employees are leaving the job before retirement because they don't believe they get enough support from the city to protect themselves from violent inmates.

"A lot of my senior officers are now running out the door because the jails have become so crazy, so unsafe, that most of them, 40 or 50 a month, are retiring," he said in an interview. "A lot of the newer people when they get here, when they realize what they signed up for—they quickly leave."

Members of the Department of Correction's expanded recruitment office said they continue to search for new officers, attending about 400 events a year, working with city agencies at job fairs and setting up tables at parades, street fairs and festivals.

Their goal is visibility and educating the public about what a correction officer does.

"The department is very proud of our recruitment efforts," Nadene M. Pinnock, the deputy commissioner of human resources, said in an interview. "We're trying to make the department more visible to the public."

Seven in NYPD Face Prostitution, Gambling Charges

By ZOLAN KANNO-YOUNGS

Seven New York Police Department officers, including a member of the department's vice squad, were arrested in connection with a gambling and prostitution ring, according to law-enforcement officials.

Officers from the Internal Affairs Bureau arrested the three sergeants, two detectives and two officers on Wednesday morning after a three-year probe into the alleged operation, officials said. Investigators also arrested 40 civilians. The officers are suspected of providing protection for the enterprise, an official said.

The probe into the alleged ring began in April 2015 after another officer tipped off Internal Affairs. The officers worked in units based in Queens and Brooklyn, including a vice squad investigating prostitution in South Brooklyn, an official said. One of the civilians who was arrested is a retired vice detective who was "heavily involved" in the alleged ring, an official said.

"Today, those who swore an oath and then betrayed it have felt the consequences of that infidelity," NYPD Commissioner James O'Neill said. "The people of this Department are rightly held to the highest standard, and should they fail to meet it, the penalty will be swift and severe."

The Queens District Attorney's Office is handling the case, according to the commissioner. A spokeswoman for the office declined to comment.

The inquiry included multiple wiretaps, as well as undercover work, an official said.

"It is deeply disturbing to learn about the allegations of a prostitution and gambling ring involving NYPD detectives, sergeants and officers,"

Three sergeants, two detectives, two officers and 40 civilians were arrested in the probe.

said New York City Councilman Donovan Richards, who chairs the council's Committee on Public Safety.

In May 2017, a retired NYPD officer was sentenced to 15 months in prison for running a multimillion-dollar online escort service. Another former NYPD officer was sentenced to 66 months in prison that September for conspiring to engage in sex trafficking of a minor. And in October 2017, two detectives were charged with raping an 18-year-old woman in Brooklyn. Both have pleaded not guilty.

Public Library Gets \$12 Million Donation

By MELANIE GRAYCE WEST

Like many space-constrained New York City institutions, the New York Public Library has an abundance of literary and historical artifacts and not enough room to display them properly.

That will soon change.

Leonard S. Polonsky—who founded Liberty Life Assurance Company, currently known as Hansard Global PLC—has donated \$12 million to fund a permanent exhibition to show off the library's treasures at its main Fifth Avenue location, the board of trustees announced Wednesday. The exhibit will open in 2020.

The library hasn't yet deter-



A worker pushed a cart with salmon in brine on Fish Friday at Acme Smoked Fish in Brooklyn. Below, lake whitefish in a hot smoker.

Brooklyn Fish Factory Reels Them In

By CHARLES PASSY

If you visit Acme Smoked Fish's headquarters in Brooklyn's Greenpoint neighborhood on Friday mornings, you'll find a scene that is anything but corporate.

A line of customers snakes out the door, with a wait-time that can run upward of 30 minutes. Inside, controlled chaos prevails as patrons grab package after package of smoked salmon or put in requests for unwrapped fish that is sold by weight, all at prices that can be up to 50% under retail.

And that is to say nothing of special items such as a dish of salmon poke dressed with mangoes and jalapeños.

This loxapalooza is a weekly event that goes by the formal name Fish Friday. The tradition extends back at least a few decades at the family-owned company, which traces its roots to the beginning of the 20th century. Acme now calls itself the largest producer of smoked fish in the country.

The company expects the lines for Fish Friday to be even longer this Friday, which comes a few days before Yom Kippur. The Jewish Day of Atonement entails a 24-hour period of fasting, followed by a hearty spread that for many traditionally includes smoked fish.

For scores of Fish Friday regulars, however, no holiday is needed to justify stocking up on lox and sable and herring and whitefish and...well,



you get the idea.

The attraction, of course, is the bargain pricing. Salmon sold by the pound generally runs \$16 to \$18, with the cost varying slightly depending upon the type (nova, gravlax, etc.). At stores in the city, prices can

easily top \$40, particularly for salmon that is hand-sliced.

And yet, Moshe Shmueli, a 32-year-old resident of Brooklyn's Crown Heights neighborhood, said Fish Friday is about more than a deal. "It's the atmosphere," he said.

Another plus, Mr. Shmueli said: The product is super-fresh because it is prepared on site. He inevitably purchases more than he had planned. "Instead of buying a half pound, you buy 3 pounds."

Another group of regulars sees Fish Friday as a reward after a morning's labor. The North Brooklyn Runners club stops by once a month after completing a run of 1½ miles.

"I mean, who doesn't love fish?" asked Jennifer Herr, the club's president.

This is all a far cry from when Fish Friday started, says Emily Caslow Gindi, Acme's director of customer service and one of the family members behind the company. In the early days of the event, the idea was just to sell some leftover items to neighborhood residents.

But in the past decade, word has gotten out. "I still think we must be in some Japanese tourist guide," said Richard Schiff, an Acme vice president.

Acme won't discuss the company's sales in general and Fish Friday sales in particular. But the company says the weekly event isn't a significant income generator compared with its broader nationwide business.

The company doesn't plan to expand Fish Fridays beyond five hours—8 a.m. to 1 p.m.

There is something special about a "store" that comes to life once a week, said Mr. Schiff. In its own way, he added, "it is still this secret New York experience."

mined the final list of items that might rotate into the exhibition, but said it could include a copy of the Declaration of Independence handwritten by Thomas Jefferson, the original Bill of Rights and original sheet music from Beethoven and Mozart.

The New York Public Library's most noteworthy treasures have been available to researchers, and rotated out of storage and into other special exhibits over the years. The new Polonsky Exhibition will make them more readily accessible to the general public.

The upgraded exhibition space is part of an overall \$317 million master plan to renovate the flagship building.

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GREATER NEW YORK

Candidate Accuses Netanyahu Staffer Of Sexual Assault

BY JIMMY VIELKIND

A New York state Senate candidate has said that a spokesman for Israeli Prime Minister Benjamin Netanyahu sexually assaulted her in his New York City apartment in 2013.

Julia Salazar, 27 years old, said Tuesday on Twitter that she "was a victim of sexual assault by David Keyes," who has worked for Mr. Netanyahu since 2016.

A spokesman for Ms. Salazar's campaign said that in 2016

district—including the Williamsburg and Bushwick neighborhoods—since 2003.

A member of the Democratic Socialists of America, Ms. Salazar has criticized Mr. Dilan about a 1994 New York City Council vote enabling apartments to be moved out of rent regulation. She also favors a single-payer health-care system and changes to the state's campaign-finance laws.

Ms. Salazar is one of eight insurgent candidates in New York City challenging incumbent Democrats in the state's 63-seat upper house, which is controlled by Republicans.

The race has drawn national attention after Ms. Salazar acknowledged making untruthful statements. In speeches and interviews, she said she emigrated with her family from Colombia to the U.S. as a young woman, and worked as a nanny to put herself through Columbia University. Her campaign later said she was born in Florida and didn't graduate from the university.

A spokesman for Mr. Dilan, who is backed by the Democratic Party in Brooklyn, said he has consistently sided with tenants in Albany and didn't believe voters would judge Ms. Salazar based on the "fanciful creations" in her biography.

Later on Tuesday, Shayndi Raice, a reporter for The Wall Street Journal, responded to Ms. Salazar's tweet about Mr. Keyes by posting on Twitter that she "had a terrible encounter with Keyes" in 2013.

"No matter how often I said no, he would not stop pushing himself on me," Ms. Raice said of Mr. Keyes.

In an interview, she said the "brief and uncomfortable moment" occurred in a social setting in New York City.

—Felicia Schwartz contributed to this article.

Ms. Salazar faces state Sen. Martin Malavé Dilan in a Democratic primary Thursday. Mr. Dilan, 68, has represented North Brooklyn's 18th Dis-

trict since 2003.

she first posted about the alleged encounter on Facebook. That post was deleted, the spokesman said, but prompted reports in the Israeli media about the alleged incident. Mr. Keyes, who was born in the U.S., worked for a New York City nonprofit organization in 2013.

"All of the accusations are deeply misleading and many of them are categorically false," Mr. Keyes said in a statement. He previously denied news reports about the alleged incident in 2016.

Ms. Salazar said on Twitter

she came forward this week because she feared she would be "outed" after her campaign received an email from a U.S. news organization seeking comment.

She said she previously didn't come forward because of the "vicious responses that follow."

Ms. Salazar faces state Sen.

Martin Malavé Dilan in a Democ-

ratic primary Thursday. Mr.

Dilan, 68, has represented

North Brooklyn's 18th Dis-

Renoir Looted by Nazis Is Returned to Collector's Granddaughter



JUSTICE AT LAST: Sylvie Sulitzer received 'Two Women in a Garden' on Wednesday, 77 years after it was seized by the Nazis. Geoffrey Berman, the U.S. attorney for Manhattan, helped unveil the painting in a ceremony at the Museum of Jewish Heritage.

MIKE SEGAR/REUTERS

GREATER NEW YORK WATCH

NEW YORK CITY

Pension Funds Invest More in Green Tech

New York City will invest \$4 billion of its pension funds in climate-change solutions such as renewable energy and clean water during the next three years, more than doubling its current investment, city officials said.

Mayor Bill de Blasio and Comptroller Scott Stringer, who oversees the city's more than \$195 billion pension fund, are set to announce the reinvestment plan on Thursday.

"We believe the market will respond, leading to greater access and lower cost for green technologies that will help us build a cleaner, safer and fairer city," Mr. de Blasio, a Democrat, said in a statement.

The pledge to double the

city's holdings is good for the environment, but also retired city workers receiving a pension, Mr. Stringer said.

"Today we're showing that New York City will continue to lead the way in investing in sustainable investments that offer strong returns for New York City beneficiaries," he said in a statement.

Earlier this year, Mr. de Blasio and Gov. Andrew Cuomo announced they would divest billions of dollars from fossil-fuel companies. The mayor also has agreed to commit New York City to the principles of the Paris Agreement, a 2016 global accord to reduce greenhouse gas emissions.

Mr. de Blasio co-wrote on Monday an op-ed in the Guardian with Sadiq Khan, the mayor of London, to encourage other cities to divest from fossil fuels.

—Katie Honan

MANHATTAN

Judge Wipes Out 3,000 Pot Cases

More than 3,000 low-level marijuana cases were thrown out Wednesday as Manhattan's top prosecutor furthered a shift away from arresting and prosecuting many people for small-time pot offenses in the nation's biggest city.

Misdemeanor and violation-level pot possession cases that had sat open for as long as 40 years were dismissed in a matter of minutes after Manhattan District Attorney Cyrus R. Vance Jr. asked a court to scrap 3,042 warrants for people who missed court dates and to toss out the cases themselves. He recently decided to stop prosecuting many minor pot-possession cases and argued it made sense

to spare people potential arrests in old ones.

"If anyone was brought in today on one of these warrants, my office would dismiss the case," said Mr. Vance, a Democrat. He called the mass dismissal "something that is off-script but actually serves the interests of justice enormously."

None of the people charged in the cases were there to hear Criminal Court Judge Kevin McGrath wipe them out. Some may long since have forgotten about the cases.

But now they no longer face potential problems getting jobs or housing if the warrants pop up during background checks, or possible arrest if their identification is checked during otherwise routine interactions with police—after a fender-bender, for instance, or while reporting a crime.

—Associated Press

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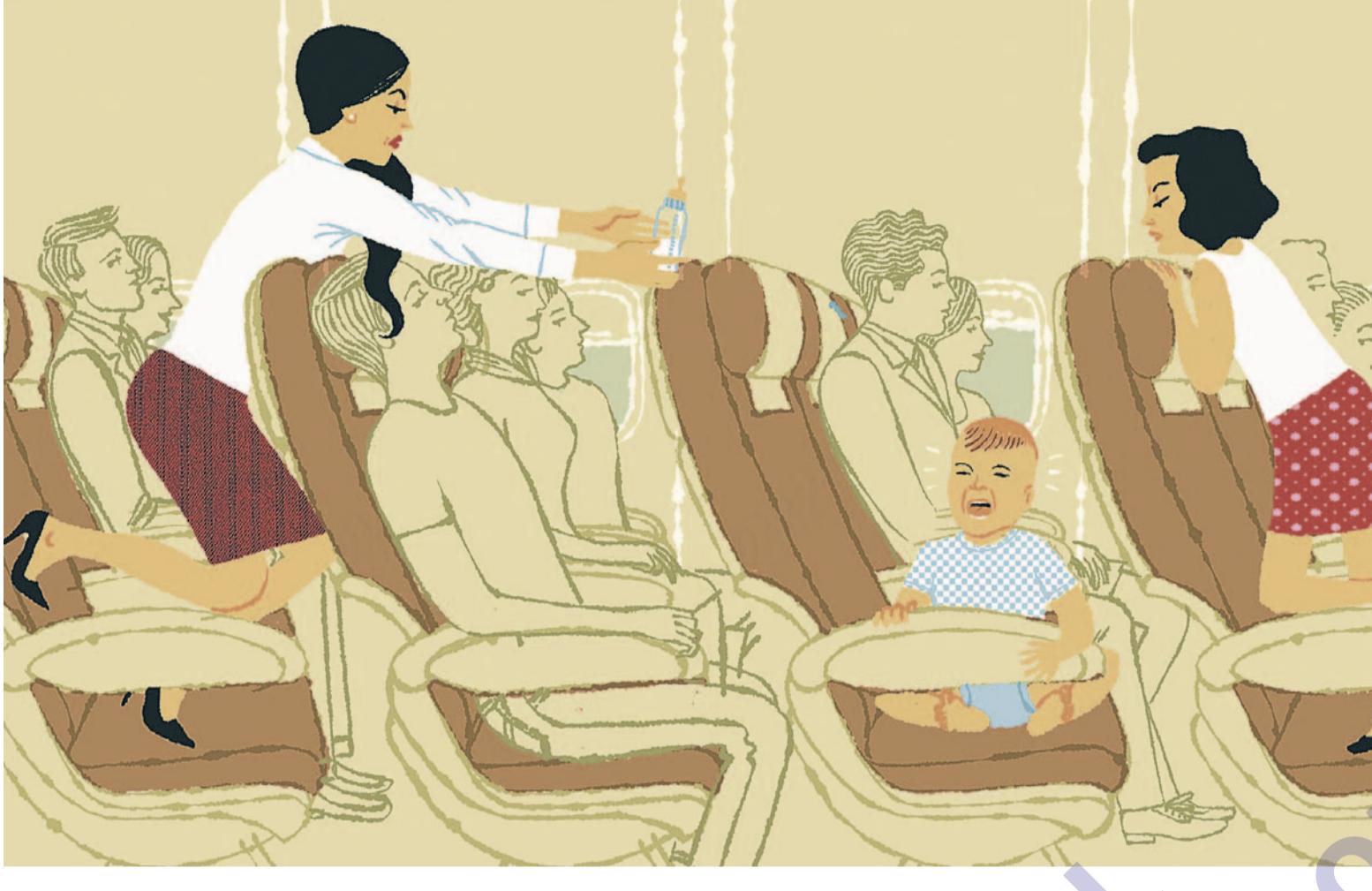
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LIFE & ARTS

THE MIDDLE SEAT | By Scott McCartney

More Separation Anxiety in the Air



Parents have always stressed about flying with small children. Airlines are ratcheting up that stress now by making it harder for parents to sit with them.

This fall, United Airlines will make it a bit tougher, or at least more expensive, to get seats together by joining Delta and American in reserving more seats for corporate customers and requiring fees for many regular-legroom seats.

On airplanes, everything has a consequence. Reserving more seats for some means fewer seats for others. On some flights with heavy numbers of seats reserved, the only seats open to being reserved for free may be middle seats, limiting options for families except to pay extra fees for seats together.

Parents won't be getting help from the feds, either. Under orders from Congress, the Transportation Department reviewed the family seating issue and determined, based on a low number of complaints, that new rules aren't necessary, an official says. Congress had ordered a review in 2016 and directed DOT to come up with regulations forcing airlines to provide

children with seats next to parents "if appropriate."

The agency recently determined "issuing a policy was not appropriate at this time," a DOT official says. To be sure, parental complaints about airline seating issues are widespread, even if not many have filed official complaints with DOT. But the Trump administration has moved to reduce regulation and new regulations on air-lines face a high hurdle.

Some parents report unusual seat switches by gate agents this summer that created problems even when they had reserved seats together in advance and in many cases paid the seat fees to stay together.

Ashley Piper of Memphis, Tenn., travels frequently with her two children, and always has seats reserved together, including on a vacation to Vancouver, British Columbia. When the family reached Minneapolis for their connecting flight, she checked seat assignments on the Delta app and discovered she and her 5-year-old son had both been separated from her husband and 7-year-old daughter. (Their seats were unchanged.)

She had a seat in the same row

as her son's middle seat, but on the other side of the aisle. Gate agents and flight attendants said they couldn't help. She asked passengers on either side of the 5-year-old to switch and no one would move. "He did fine," Ms. Piper says. "Part of me kind of wanted him to spill his Sprite on them, but he didn't."

Becca Brownstein and her husband were taking their three children to Tampa, Fla., in July and had paid fees to get five seats across one row on Delta. When they checked in for their flight from Las Vegas, the seat assignments were the same. But in Salt Lake City, when they went to board a connecting flight to Tampa, Ms. Brownstein's 5-year-old daughter's seat was moved several rows away. So was her 8-year-old son's. She looked incredulously at the gate agent and said: "She's 5! How did you move her somewhere else?"

Flight attendants brokered a

swap so her daughter could sit with her. But her son sat seven rows in front of them for the four-hour flight. Similar problems arose on their connective flight home.

"Why is it OK to separate them at any point in the travel experience?" Ms. Brownstein says. She also wonders why gate agents couldn't ask for volunteers to be reseated so families aren't broken up—or at least inform parents earlier of the switch and ask if it's OK.

Delta says it doesn't know why the family got separated.

"Delta's intent is to ensure that all ticketed passengers on the same record are seated together, especially families," a spokesman said in a written statement. "When that doesn't happen prior to boarding, flight attendants, as they are able, will work to resolve the situation."

Other families say sitting together got tougher this summer after their seats on Delta, United and American flights were shuffled. In some cases they were told they had

new seat assignments because the aircraft for the flight had changed. Others received no explanation, just new boarding passes.

The root of the problem is how few free seats airlines make available anymore.

American's Flight 349 from New York LaGuardia to Chicago O'Hare the day before Thanksgiving is an extreme example given the high demand, but shows how airlines work. On a Sept. 10 search, there were plenty of tickets available starting at \$211 one-way. Only 29 of 144 seats in coach were reserved. Without elite status, the only seats available to reserve in coach at no cost were middle seats. Everything else was reserved for travelers with elite status, extra-legroom rows or regular rows designated as preferred.

"If you're traveling with a 4-year-old, it's not a convenience [to have seats together]. It's a necessity," says Rainer Jenss, president of the Family Travel Association, an industry group that works with cruise lines, hotels, airlines, travel agents and others to promote family-friendly accommodations. "If you're forced to pay a premium because you're traveling with a child, it's discrimination."

American says its automatic booking system tries to seat families together before boarding. Each flight has roughly 12 seats that gate agents control and can use to put families together.

Family travel advocates say some airlines handle the issue effectively. Southwest lets families with small children board after the first 60 passengers. Ironically, ultradiscount airlines that started the pay-for-seat-assignments trend can often put families together more easily because they don't have legions of elite-level frequent fliers and corporate customers with priority for aisle and window seats.

Overall, the problem is getting worse and more complicated, especially with United's pending move this fall to restrict free seats, says Summer Hull, founder of the travel blog Mommy Points. When Delta, American and now United put the low-cost model on top of their preferential system, families are left out. She thinks more families are resigned to paying extra fees to sit together. For those that don't or get switched, that sometimes means begging.

"Most of the time it will work out, at least to get some parent next to some younger child. But it's going to require drama. It's going to require effort on the part of other passengers willing to trade sometimes," she says. "It's not a great solution that they have right now."

ART

ANCIENT HASHTAG REVEALS ORIGINS OF DRAWING

A cave in South Africa yields the world's oldest known line drawing by early humans, a cross-hatched made with a stylus 73,000 years ago

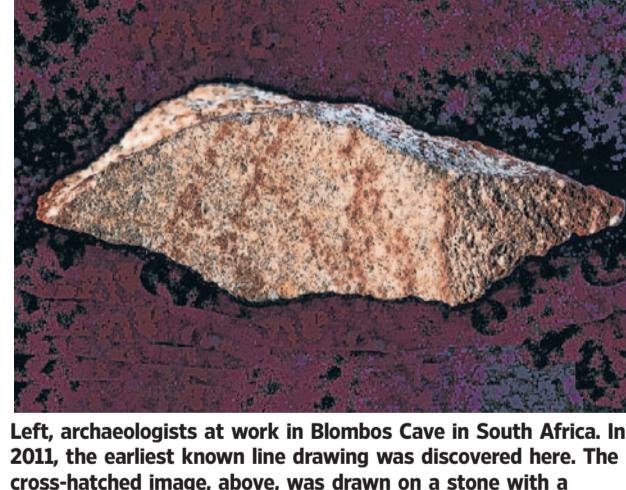
BY ROBERT LEE HOTZ

RESEARCHERS SAY they've found the world's oldest known line drawing in a seaside cave in South Africa—a red cross-hatched grid sketched on a broken grindstone by early humans 73,000 years ago.

The discovery, made public Wednesday in *Nature*, offers evidence of an important addition to the artist's tool kit, the scientists said. Experts in human origins have discovered many images of greater antiquity made by engraving or by painting, but this appears to be the oldest example of a picture made by using a stylus.

"It was definitely drawn with a pen or pencil," said archaeologist Christopher Henshilwood at the University of Bergen in Norway, who led the team that analyzed the drawing. If so, the abstract image appears to be about 30,000 years older than other early drawings in Europe, Africa and Southeast Asia.

The graphic design also highlights the roots of the hashtag symbol, which today has become an international social-media signal used to organize online Twitter conversations. At the dawn of humankind, this geometric pattern was frequently drawn, etched and painted on rocks, cave walls and egg shells, perhaps as a primordial



Left, archaeologists at work in Blombos Cave in South Africa. In 2011, the earliest known line drawing was discovered here. The cross-hatched image, above, was drawn on a stone with a pointed crayon made of hardened ochre, researchers found.

symbol for communication.

"It is strange," said Dr. Henshilwood. "They kept reproducing these hashtag patterns. I think this hashtag had a meaning as a symbol."

In the prehistory of human creativity, the invention of drawing combines a new skill and a new tool. Drawing with a stylus of some sort is a breakthrough in portability and spontaneous expression that can turn any surface into a message board. "If you can draw, you can walk across a landscape and leave a message or a symbol anywhere you want," Dr.

Henshilwood said.

Through eons of incremental innovation, a cave dweller's sketching stick evolved into the No. 2 lead pencil, the ballpoint pen and the computer touch-screen stylus.

So far, though, the scientists have yet to discover the primordial drawing tool itself. They know of it only through the telltale marks it left on a stone unearthed from an archaeological site called Blombos Cave, on the Indian Ocean shore 300 kilometers east of Cape Town. Dr. Henshilwood and his colleagues have been excavating the site since 1991.

Among the bone awls, shell

beads and spear points left by early hunters who once camped there, the scientists discovered an artist's studio dating from 100,000 years ago. There, the archaeologists found abalone shells used to mix seal fat, charcoal and minerals into a red pigment called ochre. One paint-pot still contained a brush.

Scattered around them were pieces of hardened ochre engraved with geometric designs, including the distinctive cross-hatched motif, the scientists said.

In 2011, Luca Pollarolo, an archaeologist from the University of Geneva, was washing dirt and ash

from a broken grindstone found in a more recent layer of Stone Age artifacts when he noticed a pattern of bold red strokes on its surface.

Microscopic scanning and chemical tests revealed them to be ochre lines made by physical abrasion. Through a series of experiments, the researchers deduced that a pointed crayon made of hardened ochre had produced the marks.

"They drew that sharp point across the stone three ways in one direction and six ways in another direction," Dr. Henshilwood said. "There is no doubt it is a drawing."

LIFE & ARTS

BY ANNE MARIE CHAKER

Akissing cousin to pot is showing up in your coffee, candy and chocolate bars. Companies are selling a growing number of products that contain cannabidiol, or CBD, a chemical found in hemp. It's being added to everything from gumdrops to beverages, as marketers claim benefits such as pain relief and stress reduction.

Proponents say CBD gives users a wash of calm but is "non-psychoactive." It doesn't produce a high like marijuana, hemp's sister in the cannabis plant family. Consumers credit CBD with benefits such as anxiety relief and inflammation reduction, but researchers say it's unclear what causes those effects—or even whether they are real. The legal status of CBD products is often murky too.

They are sold on the margins of the big-box retail establishment and are typically found in health food stores, boutiques and regional store chains. Lord Jones CBD gumdrops sell for \$45 in boutiques, spas and natural foods stores. A Veggimins chocolate bar with 100 milligrams of CBD retails for \$25 at health food and grocery stores. A cup of "flower power" CBD coffee at Moorenko's Ice Cream Cafe in Silver Spring, Md., costs \$5.95. A counter display promises it "will not make you fail a drug test."

"It's like taking a Xanax without the Xanax," says Stein Willanger, a 38-year-old event producer in Los Angeles. He takes a peppermint-flavored CBD oil purchased over the phone anywhere from once to three times a day, sometimes after a workout, other times before bedtime. "My shoulders relax and there's an easiness that overcomes you."

Alexandra Coppola, a 27-year-old server at a restaurant in Cambridge, Mass., first picked up a bottle of CBD oil at Cambridge Naturals, a health-food store. She tried 9 milligrams—about three droppers full—directly into her mouth on her way to work. "The effect was amazing," she says. "What I was worried about didn't matter as much. Not in a way that I was forgetting my responsibilities. But it gave me peace of mind and an overwhelming sense of calmness."

CBD comes from the cannabis plant, which has different varieties. Cannabis grown for marijuana use is bred to have high levels of tetrahydrocannabinol, or THC, which produces the "high" people feel. Hemp is a different variety of cannabis that is very low in THC but can be high in CBD. Proponents of CBD are quick to point out that it is not THC.

Jeff Chen, director of the UCLA Cannabis Research Initiative, says much is still unclear on the science behind CBD's purported effects. "We are trying to understand what is happening, why it's happening or even if it is a true phenomenon versus placebo," he says. CBD's function as a so-called cannabinoid—a unique group of compounds found in cannabis that can interact with brain and body receptors—may contribute to self-reported effects such as anxiety relief and inflammation reduction, he says.

The legality of CBD products is also a gray area. For years, federal law regulated hemp alongside marijuana as a "controlled substance," making it illegal to sell certain extracts or derivatives. In 2014, a federal farm bill let states start pilot programs to study the growth, cultivation and marketing of hemp. Some



FOOD

The CANNABIS In Your Candy

companies interpreted that as a green light to sell CBD-containing products.

Sales of hemp-derived CBD in food, supplements and personal-care products grew 88% to \$327.4 million in 2017, according to Brightfield Group, a cannabis market research firm based in Tampa, Fla., that predicts the market will grow to nearly \$600 million this year. Brightfield believes the business could explode to \$5.7 billion next year if Congress passes legislation from Sen. Mitch McConnell (R., Ky.) that would more clearly allow companies to sell hemp-derived products, including CBD. Its prospects for passage are unclear.

For now, nine states and the District of Columbia have broad laws allowing recreational use of cannabis, which may include hemp. Even in states with the broadest language, that doesn't necessarily mean it's always legal to sell CBD-containing products. At least one of those states, California, has recently said that hemp-derived CBD isn't generally allowed in food or beverages.

Nationwide, a Food and Drug Administration spokesman says



CBD cannot be sold in dietary supplements or added to food that is being sold between states. "We remain concerned about the proliferation and illegal marketing of unapproved CBD-containing products with unproven medical claims," FDA Commissioner Scott Gottlieb said in a statement. The agency referred questions about CBD sales confined to states where cannabis is legal to the Drug Enforcement Administration.

DEA spokesman Melvin Patterson says CBD-containing product appearing on shelves "is there illegally," but enforcement is not a priority for the agency, which is focused on the opioid crisis. In the states that have legalized cannabis use, "DEA is not after that. That would take a lot of manpower that DEA doesn't have," he says.

The legality of selling CBD to minors is another gray area. In states where cannabis is legal, there is usually a minimum age requirement of 18 to 21 for purchasing, says Dr. Chen. CBD products appearing on store shelves, however, often carry no age restriction, he says.

CBD entrepreneurs have navigated the legal landscape in different ways. Joseph Dowling, chief executive of CV Sciences Inc., says the company ships its CBD oils and capsules to all 50 states, including where cannabis is illegal. "We think we're still covered under the 2014 Farm Bill."

"It's more nuanced than that," says John Puckett, chief executive of Barlean's, a Ferndale, Wash.-based supplements manufacturer. He says the company initially avoided shipping to certain states where cannabis isn't legal, but starting this summer ships to all 50 states.

Some CBD marketers go out of their way to note that their products don't contain the psychoactive THC. Beekeeper's Naturals, a Los Angeles-based brand of honeys and supplements, invites consumers to "take the edge off during a stressful day" with its B.Chill honey, which it says contains "0% THC." (Chief Executive Carly Stein says it contains CBD, though it is not on the label.)

Big retailers are largely staying away. Target spokesman Joshua Thomas says it sold "a select assortment of CBD oil products" for "a brief time last fall," but it pulled the plug. "We no longer offer them." He declined to say why. A Walmart spokeswoman says the company "does not currently offer CBD products."

Some smaller chains are forging ahead. Lucky's Market, a Niwot, Colo.-based chain of more than 30 grocery stores in 11 states, says it carries "a variety of products that contain CBD in our stores where it is legal to do so," selling CBD in states where cannabis is legal, according to an emailed statement from spokeswoman Krista Torvik.

At parties and school pickups across the U.S., CBD is a topic of conversation. Michelle Steiner, a distributor for Kannaway, a network sales unit of Medical Marijuana Inc. focused on hemp-based CBD products, says she has 100 clients—most of them fellow moms and neighbors—near her home in Demarest, N.J., and has hosted CBD cocktail events at local bars and restaurants.

"It comes up in conversation all the time," says Erin Lafond, a 44-year-old elementary-school teacher's aide and a Kannaway client, who says a daily 25 milligram capsule of CBD has helped her sleep better. "It's like the answer to everyone's prayers."



Left to right: A dropper of CBD oil; B.Chill honey notes that it has '0% THC'; a Veggimins CBD chocolate bar; 'flower power' coffee for sale at Moorenko's Ice Cream Cafe in Silver Spring, Md.

FILM REVIEW

HOW JONI MITCHELL MANAGED A ROWDY CROWD

BY MARC MYERS

IN AUGUST 1970, one of the era's largest rock and folk concerts was held on an island several miles off the southern coast of England.

Staged on sprawling farm fields, the Isle of Wight Festival attracted between 600,000 and 700,000 people.

As the five-day event unfolded, the audience became restive over promoters' attempts to bar non-paying attendees. Corrugated metal fences had been erected, and security guards with dogs patrolled the interior perimeter.

By the afternoon of Aug. 29, the festival's fourth day, acts had pulled out or hadn't shown up. Lacking a band to send out on stage to occupy the crowd, promoters begged Joni Mitchell to go on immediately rather than at 9 that night. She obliged.

Ms. Mitchell's 11-song set, the audience drama and her anxious pleas for respect are all captured on "Joni Mitchell: Both Sides Now—Live at the Isle of Wight Festival 1970," due Sept. 14. Directed by Murray Lerner (who died in 2017), the 132-minute documentary on DVD and Blu-ray features for the first time Ms. Mitchell's uncut performance. Interspersed are interviews with concertgoers, audience footage and Ms. Mitchell's reflections from a 2003 interview.

The result is a chilling look at a critical moment in rock concert history. Folk-rock singer-songwriter

ers were newly flush from album sales, concert promoters hadn't yet figured out how to make money, and audiences grew ever more beligerent.

In the film, Ms. Mitchell performs powerfully at a transitional moment in her career. Fresh from an extended stay in Crete, she was just months away from recording "Blue," her highly personal and seminal album.

On stage, she sang three songs that would appear on "Blue"—"My Old Man," "California" and "A Case

of You." The rest were from her prior "Clouds" and "Ladies of the Canyon" releases. Only "Hunter" has never been released on a studio album.

But the documentary is more than a concert film. We learn that by 1970, post-Altamont audiences deeply resented paying for outdoor concerts. Many of those interviewed in the film wrongly believed artists wanted to play for free but were captives of money-minded managers.

The documentary opens with a

26-year-old Ms. Mitchell being rushed up the backstage ramp by the festival's promoters. She then was placed in front of what she called a "Ben-Hur" audience that stretched to the horizon.

Initially, only ticket-holders were admitted to the grassy central area. But arriving radicals kicked down the metal fences and allowed masses of arriving concertgoers to flood the fields.

Ms. Mitchell's first complaint came when she finished "For Free." Annoyed at the "growling" and

shouts from the audience, she said they were causing her to forget her lyrics. Her pleas now seem whiny. But soon the event turned more ominous. When she launched into "Woodstock," a fan climbed onto the stage uninvited to play along on a drum.

After the song ended, he tried to take her microphone to rant about the injustice of fences and festival fees. He was finally removed.

"Shoes aren't free, tobacco isn't free, why should music be free?" Ms. Mitchell asked rhetorically in 2003.

Promoters tried multiple approaches to defuse the situation, including sending out an Anglican minister, who was ignored.

The turning point came just before Ms. Mitchell sang "My Old Man." Visibly shaken and fed up, Ms. Mitchell raised her voice. She accused the audience of "acting like tourists"—perhaps the lowest insult one could level at 600,000-plus hippies in 1970.

Amazingly, the approach worked. The audience mellowed and listened more intently to Ms. Mitchell's music, cheering her loudly after each remaining song.

"An audience is a beast," she said in 2003. "The first five rows are the eyes and they telegraph all the way back to the tail, emotionally. The ones in front softened and then warmed up. And they were quiet!"

The 1970 event would mark the era's final Isle of Wight Festival. Burdened by costs, escalating risks and pushback from locals, mass outdoor concerts in Britain and the U.S. soon headed for large sports arenas, speedways and stadiums. There, tickets, seating, security, sound systems and crowds could be better controlled.

"Both Sides Now" documents the thrill and terror associated with freewheeling outdoor concerts. As for Ms. Mitchell, she learned quickly how to tame a runaway audience.

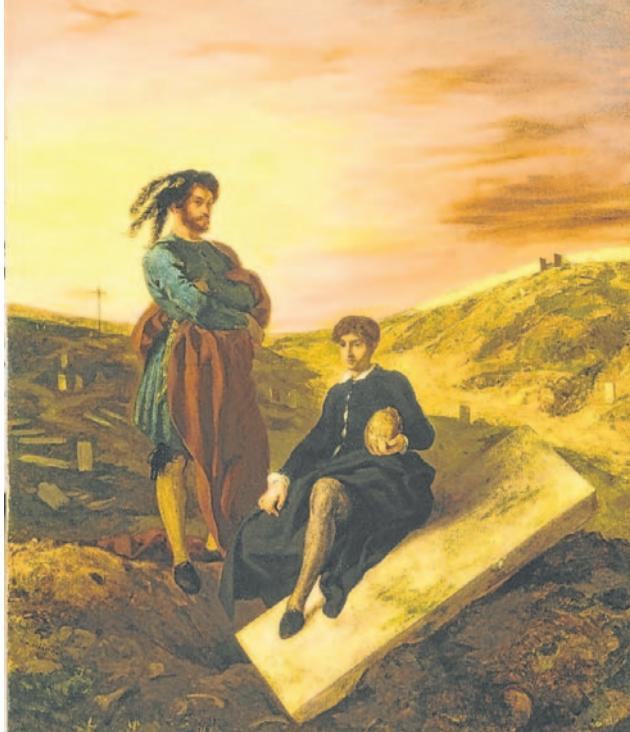
Mr. Myers, a regular Journal contributor, is writing a history of the rock concert.



Joni Mitchell performing at the 1970 Isle of Wight Festival

CLOCKWISE FROM TOP: LEAH LATTELLA/THE WALL STREET JOURNAL (2); OLIVIA WOHLERS; VEGGIMINS; BEEKEEPER'S NATURALS; ERIC MAGNUSEN

LIFE & ARTS



ART REVIEW

Manifesting Passionate Feeling

BY KAREN WILKIN

New York

IN 1963, when I was a student, I visited the great exhibition at the Louvre honoring the centennial of the death of Eugène Delacroix (1798–1863). Sadly, I wasn't up to the challenge of those lush, swirling crowds of horsemen, those abductions inspired by Walter Scott, or those terrifying animals tearing each other apart. For decades I've wished that I could have seen that show armed with what I've learned since. Now, my wish has been granted by "Delacroix," the first full retrospective devoted to the artist in North America, seen earlier this year at the Louvre and opening at the Met on Monday. This sumptuous

exhibition was organized by Asher Miller of the Met, in collaboration with Sébastien Allard and Côme Fabre, both of the Louvre. Some of Delacroix's best-known works are missing, being too fragile or too important to travel, but there's no lack of celebrated and ravishing paintings. The cult of passionate feeling termed "Romanticism" comes vividly alive through the excellent selection.

"Delacroix" begins with early assertions of the eager young artist's intensity and ambition. The paintings he initially submitted to the Salons, the enormous, state-sanctioned equivalents of today's art fairs, absent the dealers, were calculated to attract attention. One early offering "Greece on the Ruins of Missolonghi" (1826),



Eugène Delacroix's 'The Combat of the Giaour and Hassan' (1826), above, and 'Hamlet and Horatio in the Graveyard' (1835), above left

for example, has everything: a horrifying but safely remote current event as subject; a voluptuous figure with a suggestive décolletage; the creepy hand of a corpse; and an exotically clad evil-doer in the background, all evoked with suave brushwork and theatrical light. The strategy worked. Despite a fair amount of critical scorn, Delacroix's very first submission ("The Barque of Dante," absent from the Met show) was purchased by the nation, ensuring his future.

Delacroix's student paintings of nudes reveal why he relied on the Salons, rather than competing for the Prix de Rome, the Academy products' usual route to fame. From the start, he rejected the Academy's clear outlines and sleek modeling, preferring to suggest mass and weight with generous touches of the brush. His student copies of works in the Louvre, bearded heads after Veronese and a fleshy nymph after Rubens, confirm his commitment to broad modeling with nuanced hues. Throughout his career, Delacroix was praised for his color, glowing against dark or neutral backgrounds, but his drawing was deemed inadequate by Academy standards.

A seated figure in a luscious cinnabar-red Turkish costume, painted c. 1827–1830, signals Delacroix's early fascination with exotica, cemented in 1832 when he accompanied a diplomatic mission to Morocco. There, he recorded street scenes, inhabitants and animals in fresh, lively watercolors. He never returned to North Africa, but ever after it remained a potent stimulus. Witness the opulently dressed odalisques in "Women of Algiers in Their Apartment" (1834) or the plunging energy of "Arab Horses Fighting in a Stable" (1860). When Delacroix was commissioned to create a work for his retrospective, organized for the 1855 Universal Exposition, he painted an enormous, ferocious Arab lion hunt. Only the bottom half survives to end the Met's installation, but it's still gorgeous—and scary.

If Delacroix's sensual approach to painting separated him from his chilly Neoclassical contemporaries, his love of the esoteric and dramatic separated him from the younger Realists. Literature, as opposed to observation, triggered superheated narratives. In his introspective journals, Delacroix urged himself to read more, for painting ideas. The result was a wealth of images, in various mediums, provoked by Dante, Shakespeare, Goethe, Byron and Walter Scott, ranging from horseback duels to scenes from "Hamlet," always depicting moments of maximum ferocity or pathos. The Met's installation includes some of the journals themselves, with their densely filled pages of ruminations about light and color, his so-

cial life, and why he preferred sketches to finished work. (The viewer mentally completes the sketch, he concluded, which keeps it alive.) A few sketches for paintings, such as the explosive c. 1836 study for "Medea About to Kill Her Children," prove the point.

Delacroix's religious paintings are as dramatic as those inspired by novels. In the exhibit's several versions of "Christ on the Sea of Galilee," tipped perspective and flickering color become metaphors for the instability of storm-tossed water. Viewing these—and just about everything else in the show—we become increasingly aware of how emotion and mystery are carried not by narrative, but by vigorous paint-handling and fractured color. We for-

get Delacroix's nominal subjects and revel in the seduction of his materials and his virtuoso touch. That's why modernists like Cézanne, van Gogh and Picasso admired him, and why he still astonishes today.

The last entry Delacroix's journals reads: "The first quality in a picture is to be a delight for the eyes....Not every eye is fit to taste the subtle joys of painting. The eyes of many people are dull or false; they see objects literally, of the exquisite they see nothing." We can educate and delight our eyes at "Delacroix."

Delacroix

The Met Fifth Avenue, Sept. 17-Jan. 6, 2019

Ms. Wilkin is an independent curator and critic.



Eugène Delacroix's 'Women of Algiers in Their Apartment' (1834), below



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OPINION

Serena Williams's Time Out



WONDER LAND
By Daniel Henninger

In these oh-so-kn o w i n g times, it is commonplace to mock the suggestion that events in sports can be a metaphor for real life. Cynics call it a sports-metaphor alert. But maybe it's the other way around. Given the confused state of real life, we should consider ourselves lucky that sports exist as a mirror for reflection. Exhibit A this week, bigger than the NFL, is "the mother of all meltdowns."

Unsportsmanlike conduct has become routine in sports, life and in our politics.

That was the New York Post's apt description of Serena Williams's hyperemotional stoppage of play in the second set of the U.S. Open tennis final between her and Naomi Osaka. It was one of those incidents that transcended Twitter. People grabbed the phone. I got two calls. "Did you see that!!!!?"

The best thing about this incident is that Donald Trump didn't tweet. It was already beyond the explosion point. Still, a major national controversy that doesn't involve Donald Trump—hard to believe.

It would take up half the space available here to describe in detail what happened. The short version:

Ms. Williams lost the first set to Ms. Osaka, who is 20

years old and moved to the U.S. from Japan when she was 3. In the flexible national-origin rules of professional tennis, she represents Japan. Growing up in New York and Florida, Ms. Osaka idolized Ms. Williams.

In the second set, the chair umpire, Carlos Ramos, gave Ms. Williams a warning for being coached from the stands. Patrick Mouratoglou, her coach, said of course he was coaching her, which is against the rules, but it shouldn't matter because everyone does it, including Rafael Nadal's uncle Toni.

After losing her serve, Ms. Williams pulped her racket against the ground and then walked to the chair to have it out with Mr. Ramos. "You owe me an apology," she said. "I have never cheated in my life. I have a daughter and I stand for what's right for her." Mr. Ramos gave her a point penalty for the crushed racket.

Ms. Williams won the next game, and then the 2018 women's final pretty much imploded. For what seemed like 10 minutes, Ms. Williams attacked Mr. Ramos, calling him a "thief" for stealing points from her. Staring at them, Ms. Osaka forlornly dropped the two balls she thought she was supposed to serve and walked away. Mr. Ramos then imposed a rare game penalty on Ms. Williams. It escalated. All over America people were calling in family members to see this.

Ms. Williams demanded the on-court presence of the tournament referee and the Grand Slam supervisor. They appeared. She told them: "There



At the U.S. Open, Sept. 8.

CYNTHIA LUM/ZUMA PRESS

are men out here that do a lot worse, but because I'm a woman, because I'm a woman, you're going to take this away from me? That is not right."

She said repeatedly, "This isn't fair." It went on, seemingly forever.

Nonspoiler alert for a spoiled event: Ms. Osaka finally served out the match to win the U.S. Open, for which she essentially apologized at the award ceremony. The New York crowd lived up to its low reputation by boozing Ms. Osaka's victory even into the awards event until Ms. Williams told them to stop.

Tennis can sort out the gender, fairness and umpiring issues Ms. Williams raised during her courtside negotiation session. Let the rest of us return to the real world.

In the real world, public tantrums have become commonplace and even ratified as legitimate expressions of polity grievance.

One thinks of the screaming audience members carried out of Brett Kavanaugh's Supreme Court confirmation hearing. Or the routine shout-downs of speakers on campuses. After the last presidential election,

the advance guard of the resistance sat during rush hour in the middle of intersections. Members of Congress routinely throw tantrums now, as in the Peter Strzok hearing. Seen a White House press briefing lately?

Sports, most of the time, doesn't put up with this stuff.

The famous anti-umpire tirades of baseball managers Earl Weaver and Billy Martin make

Serena Williams look like Little Bo-Peep. But in baseball you know you will get thrown out, and the game goes on.

In basketball, you'll get hit with a technical foul and ejected if you persist.

Soccer imposes yellow-card warnings and then a red-card exile from the playing field.

The game is bigger than the grievance, which can get chewed over later.

Finally, there is football, whose rule book describes Ms. Williams's extended shutdown of her opponent in two words—"unsportsmanlike conduct."

A fine line exists between gamesmanship and unsportsmanlike conduct, and there was a time when everyone knew where that line was. It was an informal modus vivendi for intense competitions, and it worked. No longer.

Whether in real life, sports, entertainment or, heaven knows, our national politics, unsportsmanlike conduct and self-indulgence have become routine. The late Tom Wolfe called the 1970s the Me Decade. Today, we are living, nonstop, in the Me Minute.

Write henninger@wsj.com.

Republicans' Turn in the Barrel

By Karl Rove

With the last primary in New York this Thursday, the 2018 general election is fully under way. Let's take stock of the political landscape as the contest enters its final eight weeks.

President Trump's approval rating in the Real Clear Politics average is 40.6%, while 53.6% disapprove. That's a deterioration from 43.6% and 51.8% in late August. The explanation is hardly a secret: Mr. Trump recently received a barrage of bad news, including the plea deal of his former personal lawyer, the conviction of his former campaign manager, and high-profile criticism of his administration by current and former insiders.

Presidential approval is the most important indicator of voter sentiment in midterms. Yet Mr. Trump's numbers vary by state and district. He remains popular in red states like Missouri, North Dakota and Tennessee and in congressional districts that typically lean Republican by 5 points or more.

Even as the president's personal approval has declined, attitudes toward the economy remain positive. Mr. Trump's rating on handling the economy is 50.7% approve, 42% disapprove in the Real Clear Politics average. Stronger consumer confidence and small-business optimism—which recently hit a

45-year high in the National Federation of Independent Business Index—could help some Republican candidates overcome the burden of Mr. Trump's unpopularity.

Yet the Democratic advantage in the generic ballot has expanded from 3.9 points in the Real Clear Politics average on Aug. 11 to 8.2 points now. It's generally thought Republicans can keep the House with a 4- to 6-point deficit. If the numbers don't improve by Election Day, Nancy Pelosi will become House speaker.

The volatile polls have swung against the GOP. But there is room for recovery.

The polls have been swinging back and forth all year, and Republicans are now having their turn in the barrel. The question is whether the polls swing again so that Mr. Trump's numbers rise and the generic ballot tightens before Nov. 6.

This won't happen by itself. It will require deliberate effort by the White House political operation and the president. He enjoys rallies and controversies—but it's no accident his numbers improved following the announcement of the Singapore summit with North Korea's Kim Jong Un in June. Mr. Trump is a more formidable political force

when he's viewed as a world leader and president. He diminishes himself when all his energy is focused on stumping for candidates and tweeting about critics. Bob Woodward's new book criticizing his presidency and the New York Times op-ed by an anonymous "senior administration official" were bound to draw attention. The White House could have limited the damage if it had responded with a short, restrained and dismissive statement and moved on.

Of course, as Mr. Woodward's book intimates, containing the president's self-destructive tendencies is not easy.

Brett Kavanaugh's impending Supreme Court confirmation is an opportunity for Mr. Trump and congressional Republicans to pivot to more constructive messaging. The dignified Judge Kavanaugh creates a contrast with Democratic senators' histrionics.

Recent polling also suggests that Republican House and Senate candidates are doing better where they have emphasized substantive differences with their Democratic opponents rather than boilerplate. For example, the wave of ads from the Paul Ryan-sponsored Congressional Leadership Fund super PAC over the past month improved the images of some vulnerable Republican House candidates in races across the country.

Florida Gov. Rick Scott's disciplined Senate campaign should be a model for Republi-

cans nationwide. In a state Mr. Trump carried by only 1.2 points, a recent Quinnipiac poll shows a dead heat—49% to 49%—between Mr. Scott and three-term incumbent Sen. Bill Nelson. Mr. Scott has an independent brand and has focused like a laser on the small number of voters who are undecided or weakly attached to their current choice.

The Florida contest proves there are two very different types of terrain in 2018. In Senate and House contests in states that lean Republican by 5 points—or voted for Trump by 10 points—the normal rules apply.

If a GOP incumbent runs a solid race, the state or district's underlying nature will express itself.

But GOP Senate and House majorities require victories in less rock-ribbed Republican turf like Florida, too. In these places, the key voters are soft Republicans and Republican-leaning independents who approve of Mr. Trump's policies

but not the man, as well as the even smaller number of undecided voters. The big tactical challenge for GOP candidates is balancing the needs to generate high Republican turnout and to reach those pockets of swing voters. Mr. Trump's volatility makes this a daunting challenge.

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

Thank Heaven for Bigger Boys

By Angela Rocco DeCarlo

Some time after my eldest brother, Christy, had died, I was visiting our Chicago Far West Side neighborhood, affectionately known as "The Island." A three-square-block enclave corralled by the towns of Cicero, Berwyn, Oak Park and a factory district, including a facility that manufactured asbestos gaskets. In windows-open summers sometimes the detritus could be seen floating along. No one seemed worried. It was like living in Disneyland where you thought nothing bad could happen to you.

But walking alone on the sidewalk past our school after the funeral, I felt out of kilter. I became aware of a feeling I'd never experienced as a child. I felt afraid. Alone. I no longer

felt protected as I always had.

In our area, where everyone knew each other, there were many relatives—a cohort of older brothers, including my two, Christy and Peter, and cousins and other boys. Thinking back, the sound of the boys' corduroy pants, whooshing, as they ran, was the sound of safety.

Like good men, they protected us when I was a little girl.

We little kids were not overtly aware of this shielding. No one spoke about it. Yet at Christy's funeral, a cousin, Anna Mae, who was close to my brother, told me, tearfully: "He was our protector."

I had been totally oblivious to the canopy of safety the neighborhood males had provided. The boys were simply there. They were nice to the little kids. In reflecting on all this, I looked at Richard Gambino's excellent book on Italian-Americans, "Blood of My Blood."

"The sons of the family," Mr. Gambino writes, "were expected to defend any undermining of the welfare of the females of the family, or worse, any insult to their reputation, or status, this being synonymous with an insult to the family's honor."

This was never articulated by my parents. Yet somehow the message that boys were to protect permeated the neighborhood. I don't recall any bullying, fights or expressed threats. The boys somehow

knew they were to act as good men—as protectors of girls, little kids and probably old people too.

Walking that day past my old school, now greatly enlarged with lunchrooms, playgrounds, libraries and computers, I wondered about the changes. I hoped the new educational facilities might include something of the "old school" where boys were encouraged to think of themselves as protectors.

But who am I kidding? From what I hear boys are not encouraged to act like strong, protecting men. Too bad. The little kids probably miss them.

Mrs. DeCarlo covered travel, entertainment, culture for the Chicago Tribune, Las Vegas Review Journal and Disney Magazine.

BOOKSHELF | By Judith Martin

A Number-One First Lady

Betty Ford

By Lisa McCubbin

(Gallery, 411 pages, \$28)

Right after Richard Nixon was brought down by the Watergate coverup, the wife of his successor was elevated by an unprecedented exposure of her frailty. In September 1974, she was diagnosed with breast cancer. Four years later, she would make news again by admitting that she was a drug addict and an alcoholic.

Betty Ford's addictions persisted throughout her husband's administration, and her recovery only happened after it was over. But the achievements listed in the subtitle of Lisa McCubbin's "Betty Ford: First Lady, Women's Advocate, Survivor, Trailblazer" were applied to her subject even before Ford overcame her extremely serious problems. And it was while she was a sporadically dysfunctional abuser of drugs and alcohol, presiding as hostess in the White House, that she became immensely popular with the public.

Women reporters (of whom I was occasionally one) in the gender-segregated White House press corps of the time couldn't fail to notice that something was wrong. The first lady habitually canceled appointments or showed up late, sometimes with glassy eyes and slurred speech. But by then she had earned trust and respect by going public with her mastectomy in an era when cancer, and especially breast cancer, was considered too embarrassing to mention. (Obituaries would use "died after a long illness" as a euphemism for cancer fatalities.)

There was an erroneous presumption that her symptoms were merely the effects of medication relating to her cancer. And on the occasions when she was able to function, she displayed a freedom and frankness that contrasted favorably to the tight-lipped Patricia Nixon and her carefully managed predecessors.

Ms. McCubbin, a journalist who has previously written books about the Secret Service and the Kennedys, presents her subject according to a familiar pattern, as a plucky woman overcoming adversity. She variously attributes Betty Ford's addictions to a "feminine mystique" situation of being trapped in overwhelming domesticity, a pinched nerve, stress, a bad back, over-scheduling, depression, arthritis, stage fright, and a doctor willing to prescribe whatever was requested—neither the first nor the last Dr. Feelgood serving the White House.

The author credits the eventual recovery to the support of a loving family, rosily pictured in this book. Yet almost incidentally, she quotes one of the Fords' sons, Jack, saying that he was embarrassed to bring friends home; their daughter, Susan, declaring that her mother "had taken everything away from me. I never had a chance to be a kid. I was always covering for her"; and her husband, "a classic enabler," admitting that even after his presidency, he traveled more than necessary to escape the problems at home.

Evidence from all, including Betty Ford herself, confirmed that a compassionate servant "pretty much raised those kids."

Betty Ford's most enduring legacy may be to have helped destigmatize the twin scourges of cancer and drug-and-alcohol addiction.

This biography is cast as what we recognize as an "inspirational survivor story"—personally faultless people courageously triumphing over disease in the family. It has an unusually happy conclusion in the worthy achievement of establishing the Betty Ford Center in California to treat other addicts. But it would have been more interesting—and relevant to the world of today—to have explored more deeply how Betty Ford's experiences shaped the national discourse.

All the while, the vast image-making machinery of the White House was locked in a revolutionary clash over how to handle this conspicuous and erratic figure. In the West Wing, the president's press secretary, Ron Nessen, and presidential staff members Donald Rumsfeld and Dick Cheney demanded the traditional presentation of the president's wife as the ideal woman, which to them meant a picture-perfect and supremely contented wife and mother, mostly invisible and with nothing to say except that her husband was always right.

From the East Wing, the first lady's press secretary, Sheila Weidenfeld, fought back in favor of using the position to deal with issues of importance to women. When a mere disagreement with one's husband was perceived as a character flaw, she persuaded Mrs. Ford to give her public support to the Equal Rights Amendment and to speak out on behalf of such controversial issues as legal abortion.

The amendment hasn't passed yet, and abortion is still a hot issue, but Betty Ford's outspoken approach was a success. It extended to her replying, when a reporter asked if she was "on something," that yes, she was popping Valium. (Since there was no follow-up question of "What else?" she didn't disclose her extensive arsenal of pills.) Surprisingly, all this unconventional led to her developing her own political constituency. Far from being the liability that the president's men feared, she inspired slogans and campaign buttons proclaiming "Betty's Husband for President" and "Keep Betty in the White House."

The wider and more lasting effect of her candor was that cancer was no longer hidden—legions of women volunteered for mammograms—and later alcoholism and drug addiction began to be spoken of with less scorn and more sympathy. Even among those without such problems, the shift among prominent individuals from idealization to revelation made people rethink how to present themselves.

These opposing forms of public relations are being played out every day on social media. With citizens acting as their own press secretaries, some take the approach of presenting enviable perfection and others of pouring out intimate pathos. As always, when such ideas spread, they become exaggerated: Unwarranted shame has been eroded, but so has dignified privacy. That can be added to the traits that Betty Ford blazed, if unintentionally.

Mrs. Martin is the author of the Miss Manners columns and books.

OPINION

REVIEW & OUTLOOK

Narrow Odds for Narrow Banks

Can a regulator deny key services to a bank merely because it doesn't like its novel business model? That's the question in a lawsuit filed in federal court recently by TNB bank, which claims the Federal Reserve Bank of New York is shunning it out of existence.

James McAndrews, who worked at the Philadelphia and New York Fed for 28 years, co-founded TNB after spotting an opportunity for arbitrage in interest-rate disparities. Since 2008 banks have received billions of dollars in interest payments from their excess reserves deposited at the Fed, which now pays a 1.95% interest rate on those reserves.

Yet most banks aren't passing on that rate in higher interest payments to their depositors. This week the national average interest rate on savings accounts is 0.09%, according to Bankrate. A small number of institutional money-market investors can circumvent banks and deposit money directly at the Fed, but even they earn 1.75%, or 20 basis points less than banks.

Enter TNB, which stands for "the narrow bank." The simple TNB business model is to accept deposits from institutions like pension funds or money-market funds and park the money at the Fed on their behalf.

TNB would take a sliver of the interest-payment revenue as a fee, but it would still offer its customers a higher rate than they could earn elsewhere. This intermediation would also put pressure on banks to pay higher interest rates to depositors. TNB would not lend money or trade securities.

TNB has been vetted by Connecticut regulators, who approved a temporary certificate to operate in August 2017. The state is prepared to grant a permanent charter but only after TNB overcomes its last big hurdle: securing a master account from the Fed so it can start depositing money and earning interest. TNB applied to the New York Fed, filling out a one-page form. Applications for a master account are usually approved in a week or less, but the Fed has kept

it waiting for more than a year.

An official at the New York Fed told TNB that the Fed's Board of Governors blocked its master-account approval because of unexplained "policy concerns," according to the complaint. This was "reportedly at the specific direction of the Board's Chairman," Jerome Powell, TNB claims. The

complaint says the Fed is "discriminating against small, innovative companies like TNB and privileging established, too-big-to-fail institutions."

The New York Fed declined our request for comment and hasn't publicly explained the delay. Maybe the Fed is concerned that if narrow banking becomes popular and inspires copycat businesses, depositors would flee established banks that would then have less money to lend. Or maybe the Fed is concerned that adding to excess reserves could interfere with its ability to conduct monetary policy. In any case, the practical effect is that the Fed is shielding other banks from competition.

The Fed has a legal obligation under the 1980 Depository Institutions Deregulation and Monetary Control Act to equitably offer its services to depository institutions that meet certain criteria. The Tenth Circuit Court of Appeals ruled on the Fed's lack of discretionary authority in a 2017 case involving Fourth Corner Credit Union, a Colorado-chartered credit union that planned to serve marijuana businesses.

The law is "not ambiguous" and clearly indicates that nonmember depository institutions are "entitled to master accounts," Judge Robert Bacharach wrote. Fourth Corner reapplied, and the Fed gave it a master account this year.

TNB's business model poses no threat to the financial system or to depositors that we can see. Established banks can offer competing rates to re-attract deposits if TNB is successful, and in the meantime depositors earn more on their money. The Fed's failure to fulfill its legal duties, or even explain itself, is an example of the arrogance that too often prevails among regulators, especially the Fed.

The Fed's disparate treatment of TNB hurts depositors.

Ninth Circuit vs. Free Speech

The Senate will soon vote on Supreme Court nominee Brett Kavanaugh, even as events highlight the constitutional stakes. The Ninth Circuit Court of Appeals struck again Tuesday, handing California's Attorney General the power to intimidate political donors.

The Americans for Prosperity Foundation in 2016 convinced a federal judge to impose a permanent injunction against the California AG's demand that nonprofits hand over the unredacted names of their donors. The group, which is connected to businessmen Charles and David Koch, argued that the state had no legitimate law-enforcement interest in obtaining the names.

Judge Manuel Real agreed and found that the AG's failure to protect donor names put the foundation's members and donors at risk of harassment and retaliation.

A Ninth Circuit panel swept past the trial evidence to vacate the injunction and reverse Judge Real. The judge had noted that the Attorney General struggled "to find a single witness who could corroborate the necessity of [donor names] in conjunction with their office's investigations." The Ninth Circuit panel brushed this aside on grounds that the AG had a "strong inter-

est" in donor names to investigate fraud.

The lower court also found that the Attorney General had "systematically failed to maintain the confidentiality" of donor names, noting that thousands were posted on the AG's public website. No less than the progressive NAACP filed an amicus brief on behalf of the foundation, listing the Su-

preme Court's precedents on the damage to speech rights that can accompany forced disclosure. Most famously, in *NAACP v. Alabama* in 1958, the High Court protected the NAACP's membership lists from disclosure to the state government.

The Ninth Circuit waved aside the security lapses and dismissed the "undeniably" real threats against foundation supporters, claiming it isn't a "foregone conclusion" that harm would result from disclosure. Nothing like judicial nonchalance about the Constitution.

The polarization of American politics is raising the risks of disclosure for donors, though the judicial left won't admit it. Americans for Prosperity says it will seek a rehearing before the full Ninth Circuit, and if necessary the Supreme Court. A reaffirmation of the constitutional burdens of disclosure is overdue.

The liberal judges rule that donor disclosure is no big deal.

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Trump's Income Bump

Remember those warnings of an economic implosion if Donald Trump was elected President? Well, instead, the economy has broken out of the 2% growth doldrums from 2009-2016, and Barack Obama is suddenly elbowing his way back into the public debate to claim credit. Yet the U.S. Census Bureau's annual report on U.S. income released Wednesday underscores how the Obama policies of redistribution retarded growth for so many years.

Real median household incomes ticked up 1.8% to \$61,372 between 2016 and 2017 while the poverty rate dropped 0.4 percentage points to 12.3%, according to the Census Bureau. Income gains were strongest among Hispanic households (3.7%). The poverty rates for blacks and Hispanics fell to 21.2% and 18.3%, respectively, the lowest since at least 1972.

Incomes increased across the distribution range with the share of people earning less than \$15,000 declining 0.3 percentage points to 10.7%, the lowest level since 2007. The proportion of households earning more than \$150,000 increased by 0.7 percentage points to 14.7%.

Surging investment earnings have driven up incomes at higher incomes. But at lower levels the income growth appears due to more people working more. While the number of people with employment earnings rose 1.7 million last year, the number working full-time and year-round grew 2.4 million. This lifted nearly one million people out of poverty in 2017.

Mr. Obama last weekend touted the employment growth during his Presidency, but the slower growth over eight years kept marginal workers on the sidelines. As economic growth has picked up over the last 18 months, lower-skilled Americans who were working part-time

have moved to full-time employment, which appears to have slightly depressed the growth in median earnings for full-time workers.

The Labor Department's monthly survey for August showed that 681,000 fewer Americans over the last year were working part-time because of slack business conditions and 266,000 fewer because they couldn't find full-time jobs. Employers are scrounging for workers with job openings hitting a record high of 6.9 million in July.

Painful as it may be, recall the languid Obama years. Between 2009 and 2014, median household incomes stagnated and poverty increased as the expansion of welfare programs reduced the incentive to work. More than 1.5 million workers were added to the disability rolls. It wasn't until the end of 2013, more than four years after the recession ended in June 2009, that 99 weeks of unemployment benefits were allowed to expire and the Social Security Administration began to tighten review of disability applications.

Meantime, regulatory policies aimed at punishing businesses loathed by liberals from fast-food franchises to coal mining hampered investment and hiring, particularly among less educated workers.

President Trump's deregulation has unshackled business animal spirits while tax reform has boosted capital investment, which is starting to show up in greater worker productivity and higher wages. Minorities and less skilled workers left behind by the Obama economy are finally catching up.

The Obama years demonstrated how sensitive U.S. businesses and workers are to anti-growth policies while the Trump economy is demonstrating their pro-growth liberation.

LETTERS TO THE EDITOR

Hensarling's GSE Reform Is the Wrong Move

compromising the American dream of homeownership for a generation.

JESSE VAN TOL
CEO, National Community Reinvestment Coalition Washington

With all due respect, Rep. Hensarling's criticism of low-down-payment loans is wrong. From 2007 to 2010, low-down-payment-loan (0% to 3.5%, VA and FHA) delinquency rates only increased from 6.49% to 7.96%, while large-down-payment subprime loans at Fannie and Freddie rose from 13.77% to 25.69%. The larger-down-payment loans went bad because Fannie lowered minimum FICO scores from 650 (subprime) to 530 and introduced stated-income loans (liar loans), whereby borrowers' incomes were no longer verified. Low-down-payment loans are the first step of the ladder into homeownership, and we are having enough problems getting young couples into the market as it is. In my opinion, low-down-payment loans are safer because incomes of couples increase rapidly when they are young. The risk to the lender is: Will they pay (FICO score) and can they pay (income-qualifying formula)?

Any GSE reform that abolishes or weakens affordable-housing goals will be disastrous for millennials. It will extract a lifetime of rent from families who currently qualify for mortgages. Meanwhile, millions of lower-income Americans are paying 70% or more of their incomes for shelter. In 2017 homelessness rose in America for the first time since 2010. I understand the desire to tackle GSE reform, and to end the conservatism, but GSE reform should not get sidetracked by convoluted myths and debunked false narratives. The GSEs didn't cause the 2008 financial crisis. They aren't costing taxpayers money and are profitable. But the U.S. Treasury has absorbed those profits when they should be reinvested in homeownership opportunities. I also understand the value of bipartisan compromise, but not at the cost of

CLAIREE BARNETT, REALTOR
Lake Forest, Calif.

No Tea Party on the Democrats' Left Wing

Regarding Kimberley Strassel's "Tea-Party Turnabout" (Potomac Watch, Sept. 7): Ms. Strassel sees echoes of the 2010 tea-party takeover of the GOP in this year's progressive uprising within the Democratic Party. Tea-party resistance to President Obama's agenda produced GOP disarray in Congress, with gridlock resulting from internecine battles between tea-party upstarts and the Republican establishment. Even if Democrats are more disciplined than the GOP, their disgraceful performance at Judge Brett Kavanaugh's confirmation hearings was a harbinger of the harm that a progressive surge will do to the country.

The Democratic Party's old guard is fading fast. Progressive Democratic candidate Ayanna Pressley crushed a 10-term incumbent in a Massachusetts Democratic primary for a U.S. House seat. Ms. Pressley faces no opponent in the general election. Her win was similar to progressive Alexandria Ocasio-Cortez's recent primary victory over a 10-term Democratic congressman in New York. She is expected to win the general election in a district where registered Democrats outnumber Republicans 6 to 1. Ms. Pressley and Ms. Ocasio-Cortez want to impeach President Trump and abolish U.S. Immigration and Customs Enforcement.

The Democratic establishment can

embrace Trump derangement syndrome and surf on the progressive blue wave or sink. Sens. Kamala Harris, Bernie Sanders and Elizabeth Warren, along with their progressive colleagues and supporters, have the upper hand and are tugging reluctant centrist Democrats into the rabid Trump resistance. Conservatism is constrained by commitment to traditional values and principles that favor caution and deliberation and, if necessary, internal gridlock. Liberalism and progressivism have few philosophical constraints on striking while the political iron is hot, so internal squabbles over substantive policy matters are less likely. Establishment resistance to unconditional resistance to President Trump is futile.

JAY CARTER
Silver Spring, Md.

There are stark differences between the culture of the tea party of 10 years ago and today's resistance movement. One was flamboyant, garrulous and costumed and the other is malevolent, violent, threatening and destructive. The former was ridiculed by its party of identity. The Democratic Party hasn't been overtly supportive of its leftist dissidents. The across-the-board, multigenerational deterioration, some would say debasement, of the institutions of governance has left the major parties with dirty hands. It is said that history repeats itself as farce, but sometimes it ends in tragedy.

BRAD LENA
Franklin, Pa.

When They Came for the Jews, I Remained Silent'

Regarding David Efune's "British Jews Have Reason to Fear Corbyn's Labour Party" (op-ed, Sept. 6): Every rational-minded individual must stand up and denounce anti-Semitism when and wherever it raises its monstrous head, and as often as necessary. Unfortunately, it has again been resurrected, or perhaps it was only driven underground for a time. Mr. Efune is right to reiterate this.

As Rabbi Jonathan Sacks often points out: "The hate that begins with Jews never ends with Jews."

OSKAR WEG
New York

Pepper ... And Salt

THE WALL STREET JOURNAL



"Four bills, two catalogs, and a pre-approved credit card for the dog."

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KEN DROPEK
Houston

OPINION

The U.S. Can Defuse Iraq's Crisis

By Kimberly Kagan
And Frederick W. Kagan

Iraq may be on the brink of its biggest crisis since 2006, when a civil war threatened to topple its nascent democratic system. Government formation talks have dragged out as pro- and anti-Iranian factions jockey for influence. Corruption and basic governance failures have triggered mass protests—particularly in Basra, Iraq's second-largest city and primary oil-export hub. Armed militia factions are mobilizing. Iranian proxies have fired the first shots at the U.S. Embassy since 2014, showing their intent to use force to accomplish political goals. All this raises the prospect of an intra-Shiite civil war.

Help prevent a civil war among the Shiites by providing water, energy and medical assistance.

Such a conflict could lead to the collapse of the Iraqi state and allow Islamic State to re-emerge. It also could allow Tehran to consolidate control over the government in Baghdad while targeting American personnel throughout the country. A weak American statement telling Iran to control its proxies in response to two instances of mortars fired at U.S. facilities shows a lack of seriousness. Washington must act now to manage this crisis and deter further Iranian attacks.

The unfolding crisis results from two processes converging. On the political side, pro-Iranian leaders have

tried to form a government that would include Hadi al-Ameri, leader of the Iranian-established and -controlled Badr Corps. The Tehran faction also backs Qais Khazali, a U.S.-designated terrorist who played a role in the murders of American servicemen and who has facilitated the training of Iraqi Shiite militias by Hezbollah. An anti-Iranian coalition that would exclude these Tehran proxies is fraying. American support for Prime Minister Haider al-Abadi enabled him to block Iran's initial play, but neither side now has enough votes to form a government.

On the populist side, major failures of government service provision have been driving large, violent protests since early July. Iraq's electrical grid has failed to provide consistent power during the hot summer. And the Basra water-treatment facility has failed, leading to as many as 30,000 hospitalizations for waterborne illnesses. The electrical crisis has been exacerbated by Iran's decision to withhold the power it usually provides southern Iraq to service the restive population in its own Khuzestan province. Power outages there also have caused violent protests.

The first deadline for Iraq's government formation passed on Sept. 3 without a resolution. The protests in Basra turned violent around the same time, merging the two crises.

Basra largely has been denuded of security forces other than police since 2014 as army units went north to fight ISIS. As a result, rival armed militias have proliferated. Those groups have been strong enough to prevent attempts by the Iraqi government to send armored military units back into Basra.

Iraqi security forces attempting to



HAIDAR MOHAMMED ALI/AP/GETTY IMAGES

Outside a burned-down government building in Basra, Iraq, Sept. 7.

manage the protests do not have anything like a monopoly on the use of force—they aren't even always the most powerful military forces present. They have also fired on protesters repeatedly, fueling the protest movement and driving it further toward violence. Mr. Abadi has gone to Basra multiple times but failed to quell the protests.

Iran's proxies fired munitions at the U.S. Embassy in Baghdad and the U.S. Consulate in Basra on Sept. 6 and 8, respectively. Nationalist Shiite cleric Moqtada al-Sadr has reportedly directed his militia to fight for his interests. Mr. Abadi deployed reinforcements to Basra on Sept. 10 in an effort to prevent further violence. Iranian proxies may target these forces. The situation is reminiscent of early 2008, when then-Prime Minister Nouri al-Maliki launched what became a massive operation to regain control of Basra. But there are

three critical differences.

First, there is no American military presence in Iraq sufficient to support Baghdad as there was in 2008. Second, Mr. Abadi does not have enough Iraqi army forces reliably under his command to wage such a battle. Third, the populist protests are so widespread and violent that they have developed their own momentum even without militia support. Protesters have burned political party headquarters, the governor's residence and the Iranian Consulate. They have attacked state-run television stations, oil facilities and hospitals. The odds are very high that the violence will escalate and possibly become uncontrollable.

Yet the news is not all bad. A strong and determined anti-Iranian movement at the populist and elite political level is coalescing and appears determined to resist Iranian domination. The U.S. must assist it.

Washington should not send military forces into this effort. But it has the technical and financial capacity to respond to the humanitarian disaster in southern Iraq, which Iran and its proxies have exacerbated. The U.S. and its regional partners can provide potable water, temporary power, medical assistance and other resources. This could make a decisive difference to Iraq's political future and America's national security, but it requires swift action.

The U.S. need not foot the bill or act unilaterally. It should lead its Gulf partners—Iraq's other neighbors—in an effort that could be an important step toward reintegrating Shiite Iraq with the Sunni Arab world and disentangling Iraq and Iran. It could de-escalate tensions and violence, averting a catastrophic intra-Shiite war. It would demonstrate the reality that America and its partners are more capable and competent than Iran. And it would show U.S. commitment to creating a positive future for all Iraqis. Better yet, it would demonstrate that commitment without using military force. And it would show the Iraqis that the U.S. stands by Iran's foes in Iraq even in the face of potential escalations.

The cost to the U.S. is low. The risks of action are low. The costs and risks of inaction—beginning with an emboldened, expansionist Iran—are enormous. Helping Iraq is a fast way to demonstrate American leadership at least cost with the potential of high reward.

Ms. Kagan is president of the Institute for the Study of War. Mr. Kagan is director of the Critical Threats Project at the American Enterprise Institute.

The SEC Has Ways to Stop the Slide in Public Offerings

By F. William McNabb III
And Ronald P. O'Hanley

Main Street investors have benefited for more than 20 years from the rapid transformation of tech startups into commercial behemoths. Since their initial public offerings, Amazon, Google, Facebook and Netflix alone have created more than \$1 trillion in wealth for individuals and families who invest in public markets to reach their financial goals.

But Main Street may be losing this opportunity. Even as an earlier generation of startups has rewarded investors in the public markets, private markets have become the preferred source of capital for companies of all types and sizes. Private offerings in the U.S. in 2016 raised nearly five times the equity of IPOs. The U.S. is now home to almost 100 "unicorns," privately financed startups with valuations of more than \$1 billion. These startups are staying private longer or deciding not to go public at all. The number of public companies in the U.S. has fallen from nearly 8,000 in 1997 to fewer than 4,000 today.

The shift limits Americans' investment opportunities. Jay Clayton, chairman of the Securities and Exchange Commission, said last month that he hopes to make private markets more accessible to smaller investors. But access is likely to remain limited. Most Americans invest largely through employer-sponsored retirement plans, which usually are managed by mutual funds that invest in public markets. While some of these funds invest in private companies on a limited basis, it's difficult for them to take positions in private securities because the SEC requires them to keep their portfolios highly liquid.

The large pools of wealth managed by venture, private-equity and other funds are a source of strength in American finance. They give institutions and high-net-worth investors the chance to diversify their portfolios and capture the illiquidity premium of private investments. And by expanding the range of financing options, private funds reduce the cost of capital for American business. But in the SEC's effort to expand opportunity for small investors, they also should focus on boosting public offerings.

This is a change that will require a new approach from both policy makers and private companies. Mr. Clayton and his fellow commissioners have brought renewed energy to the mission of reviving public markets. A good start would be to remove many of the bureaucratic burdens and costs

Emerging companies need regulatory relief to make IPOs easier. Retail investors would benefit too.

that impede companies contemplating a public listing. With these obstacles out of the way, corporate boards and investors need to adopt a longer-term mind-set more open to going public.

The SEC has broad power to address issues such as listing costs, unreasonable litigation and the expensive, time-consuming reporting requirements that provide little information to investors. Mr. Clayton noted in July that while the median word

count of SEC filings doubled over the past two decades, their "readability" hit an all-time low. Public companies are paying more to comply with reporting requirements, but investors may be learning less.

More broadly, policy makers can review the hurdles preventing smaller and newer companies from going public—balancing the important investor protections with more business-friendly rules. The Jumpstart Our Business Startups Act of 2012 already has helped lighten the regulatory and disclosure requirements on startups. But emerging companies still need more regulatory relief. A survey conducted by a consulting firm this year suggests that startups spend an average of \$1.4 million on the compliance costs created by the 2002 Sarbanes-Oxley Act. That's a big toll. Amazon generated about \$16 million in sales the year before its IPO in 1997. An inflation-adjusted \$1.4 million compliance cost would have consumed 6% of its revenues.

The need for greater regulatory reform remains glaringly apparent. Since the JOBS Act became law, the amount of capital raised through

IPOs has remained below its 20-year average.

Investors and corporate boards also have an important role to play in guiding companies toward public offerings. Boards can champion corporate strategies that create value for investors and safeguard their companies' long-term strength. Investors also need to adopt a longer-term focus. Unlike their private counterparts, public companies face excessive pressure to perform in the short term. Obsession with quick results can undermine the long-term strategies needed to generate the returns investors require for goals like saving for retirement.

Strong public markets create shared prosperity for all investors. Americans need many ways to invest in the future, and the health of our public markets should be a concern for everyone. Regulators, policy makers, corporate boards and investors can take steps to restore their vigor.

Mr. McNabb is chairman of Vanguard Group. Mr. O'Hanley is president and chief operating officer of State Street Corp.

Edwin Stanton Was Part of the 'Resistance'—in 1860

By Adam Rowe

Donald Trump isn't the first president to be undermined by a senior official who claims to be saving the Republic from the chief executive he formally serves. The role of secret internal resister within the White House was first pioneered by Attorney General Edwin Stanton, perhaps the most relentless schemer in American political history. Stanton's strange career is also an object lesson on the folly of trusting those claiming to play a role that, after all, requires a talent for deception.

Stanton joined the cabinet of lame-duck President James Buchanan on Dec. 20, 1860, the same day South Carolina seceded from the Union. Buchanan, a Democrat who was both loyal to the Union and personally friendly with many of those bent on destroying it, didn't know what to do about the crisis in which he found

himself. Mostly he blamed the Republicans and pitied himself, while many of his most trusted advisers did everything they could to weaken the government before resigning to serve the Confederacy.

Before joining the cabinet, Stanton's most noteworthy achievement had been successfully defending Buchanan's friend Rep. Daniel Sickles of New York, on murder charges. Sickles had fatally shot his wife's lover, who also happened to be U.S. attorney for the District of Columbia, in the middle of the day, steps from the White House. Stanton argued that Sickles was morally and legally justified in killing his wife's seducer because—well, wouldn't you? That was enough for the jury. Sickles was carried out of the courthouse like a hero, and Stanton earned Buchanan's gratitude.

Immediately after taking office as attorney general, Stanton offered himself to several prominent Republi-

cans as a spy within the administration. He mortified them with tales of imbecility and treason. One of them, Sen. Henry Wilson of Massachusetts, recalled that it was "strikingly providential" that Buchanan had brought "that strong, rugged, downright, patriotic man" into his cabinet at such a fateful hour. In secret midnight meetings, Stanton told Wilson of his heroic efforts to save the republic from its treacherous chief executive.

"The President—poor, weak old man—trembled and grew pale," Wilson quoted Stanton as saying. But for himself, Stanton claimed, the nation would have been dismembered by traitors before Lincoln and the Republicans took power. It's a dramatic story, but alas, Stanton was lying—to the Republicans, to Buchanan, to everyone.

"I believe him to be a perfectly honest man," poor, bewildered Buchanan later wrote, privately, of Stanton. "He was always on my side, and

flattered me ad nauseam." Stanton's letters to Buchanan bear out this characterization. He praised Buchanan's policy unequivocally and contrasted it with the "imbecility" of his successor. "The first month of

If President Buchanan's experience is a precedent, Trump's internal critic may privately flatter him.

[Lincoln's] administration," Stanton wrote to Buchanan on April 3, 1861, "seems to have furnished an ample vindication of your policy."

The most charitable interpretation of Stanton's career is that he was as sincere in his loyalty to the Union as he was treacherous in his loyalty to individuals. But that doesn't explain why he continued to write Buchanan fawning letters even after Lincoln had arrived in the White House. In sending Buchanan a scathing indictment of Lincoln's administration after the Union defeat at Bull Run, Stanton observed it was only a matter of time "until Jeff Davis turns out the whole concern. The capture of Washington seems now inevitable." Whatever happened, Stanton planned to be on the winning side.

Stanton possessed an almost incredible ability to convince everyone—abolitionists, secessionists and many in between—that he was their faithful ally. "It is hard to run with the hare and hunt with the hounds, but Stanton seems to have mastered the difficulty," his predecessor as attorney general, Jeremiah Black, later marveled. "If he kept up this fraudulent deceit for 30 years, and thereby got the highest places in the gift of both parties, he was the most marvelous imposter who ever lived or died."

Stanton soon became secretary of war under his new Republican friends, despite condemning them unsparingly to his old Democratic friends. And it is one more measure of Lincoln's greatness that even this dishonest opportunist served him loyally and well. But Lincoln's bumbling successor, Andrew Johnson, brought the conniver back out. Stanton praised Johnson warmly to his face and condemned him unsparingly to his enemies.

When the 1867 Tenure of Office Act came up in the cabinet, "Mr. Stanton was more earnest and emphatic in the expression of his objections than any member of the Cabinet," Orville Hickman Browning noted in his diary. A second cabinet member's diary corroborates the observation. The Tenure of Office Act was a trap radical Republicans passed to build a case for impeachment, and it revolved around Stanton. It stipulated that the president couldn't remove certain officeholders without Senate approval.

When Johnson asked Stanton to write the message vetoing the bill, Stanton demurred on grounds of poor health. For good reason, Johnson wanted Stanton's "emphatic" views in writing, and for equally good reason, Stanton did not. Stanton later cited the act in defying the president's authority to remove him from office. The resulting quarrel between the president and his subordinate was the direct cause of the first presidential impeachment in American history.

History's recurring rhythms are never exact repetitions. But if Stanton's example is any guide, President Trump's harshest anonymous critic may also be his warmest admirer.

Mr. Rowe is a teaching fellow in the social sciences at the University of Chicago.

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Notable & Quotable

From the "2019 Theme" page of the American Sociological Association website:

In facing the growing normalization of racism, nationalism and xenophobia, many sociologists are critically examining the concept of objectivity and its role in maintaining hierarchies of power within the discipline. . . . What does "objectivity" mean? What is the role of objectivity in our field? Are objectivity and detachment the only routes to scientific validity? Can the linkage between sociology and public engagement lead to a sounder science and weaken status hierarchies within the discipline? Does the reification of objectivity and detachment in the discipline serve to reinforce status hierarchies more than produce sound science?

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Apple's Phones Get Bigger, Pricier

Latest models cost \$949 on average, 15% more than iPhones launched a year ago

By TRIPP MICKLE

CUPERTINO, Calif.—**A**pple Inc. on Wednesday unveiled its biggest and most expensive iPhone lineup ever, making a bet that larger screens can persuade millions of iPhone owners to not only upgrade to a new device but also fork over more money than they spent in past years.

A year removed from the 10th anniversary of a product that turned it into the world's most valuable company, Apple sought to enliven its flagship device with standard improvements like speedier processors and longer-lasting batteries while also touting innovative features like photo-editing tools and new haptic-touch technology.

Apple bumped up the price of its highest-end phone by \$100 with the introduction of the \$1,099 iPhone XS Max, a plus-size, 6.5-inch version of last year's anniversary model. The new iPhone XS, priced at \$999, costs the same as last year's iPhone X and features the same 5.8-inch OLED display. And the iPhone XR is a 6.1-inch device with an edge-to-edge LCD display priced at \$749, splitting the difference between last year's iPhone 8 and iPhone 8 Plus prices.

The new models are critical to maintaining sales in a contracting smartphone market where people hold on to devices longer, and growth of high-price handsets has stagnated.

The iPhone is Apple's most important product, accounting for about two-thirds of Apple's revenue, which totaled \$53.3



Phil Schiller, senior vice president of world-wide marketing at Apple, speaks during the company's product launch on Wednesday.

billion in the latest quarter.

Though it became the first U.S. company to be valued at more than \$1 trillion last month, tech rival **Amazon.com** Inc. more recently hit that milestone and is threatening to unseat the iPhone maker as the world's most valuable company.

To maintain its corporate perch, Apple must squeeze more money out of its existing customers. The latest models have an average selling price of \$949, 15% higher than the three phones launched a year ago.

An estimated 254 million consumers use iPhones that are more than three years old and

486 million use iPhones that are more than two years old, according to Piper Jaffray, an asset-management firm.

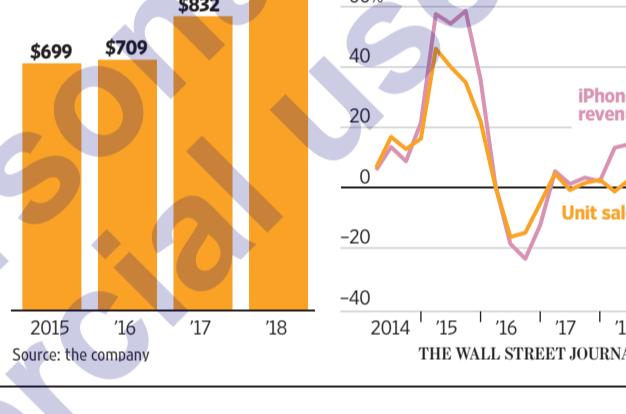
Apple is betting it can persuade enough customers to buy a new device to improve on the 17% increase in iPhone revenue that analysts predict it will deliver in the fiscal year ending in September, as the iPhone X's nearly \$1,000 price tag offset flat unit sales.

"Apple is having to run harder just to stand still," said

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Apple has been able to grow its iPhone revenue despite stagnant unit sales by raising prices each year on its latest models.



Source: the company

THE WALL STREET JOURNAL.

Top '60 Minutes' Producer Departs

By KEACH HAGEY

way that was interpreted as threatening, according to people familiar with the matter.

CBS News President David Rhodes said in a memo to staff that Mr. Fager "violated company policy and it is our commitment to uphold those policies at every level."

Mr. Rhodes added: "This action today is not directly related to the allegations surfaced in press reports, which continue to be investigated independently."

Mr. Fager was named in two recent *New Yorker* stories

outlining allegations of sexual harassment against recently departed CBS Chief Executive Leslie Moonves and a broader company culture that tolerated sexual harassment. One former employee told the magazine Mr. Fager groped her at a company party. Mr. Fager has denied the accusations.

"Be careful," Mr. Fager wrote Ms. Duncan, according to a "CBS Evening News" report Wednesday. "There are people who lost their jobs trying to harm me and if you

pass on these damaging claims without your own reporting to back them up that will become a serious problem."

"The company's decision had nothing to do with the false allegations printed in *The New Yorker*," Mr. Fager said in a written statement. "Instead, they terminated my contract early because I sent a text message to one of our own CBS reporters demanding that she be fair in covering the story. My language was harsh

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Transports Look Set to Drive Industrials

By AKANE OTANI

Shares of truckers, logistics operators and shipping companies are hitting fresh highs, a sign for investors that the Dow Jones Industrial Average could soon follow suit.

The Dow Jones Transportation Average, which includes 20 large companies ranging from railroad operator **CSX** Corp. to delivery firm **United Parcel Service** Inc., climbed Monday to its 11th record close of the year. After snapping out of a lull in August, the transport index is up 8.5% in 2018. That is nearly double the gains of the Dow industrials, which have languished this month as tense trade negotiations have kept investors cautious.

What's more, the Dow industrials haven't notched a record high in eight months. That is the longest drought for the average since it went without a new high for 289 trading days through July 2016, according to Dow Jones Market Data.

The index is the only one of the major U.S. benchmarks not to have eclipsed its January high. The S&P 500 hit a series of new highs last month, while the Nasdaq Composite and Russell 2000 have climbed fairly steadily in recent months. The Dow industrials remain 2.3% below this year's

Jan. 26 high.

The breakout by transportation stocks is viewed by some investors as a signal the industrials will soon regain momentum. At least, that is the belief of proponents of what is known as Dow Theory. The roughly century-old theory says transportation stocks are a barometer of the health of the U.S. economy, tending to rise when businesses that ferry raw goods and materials are in demand and retreat when the economy looks poised for a slowdown.

When the transport index hits new records, those who track

the Dow Theory believe the broader stock market often follows suit.

"These stocks move and transport everything we buy and sell," said Chris Verrone, a partner and head of technical strategy at brokerage and advisory firm Strategas. "When you look historically, it's hard to find examples of a bull market ending with transportation stocks at new highs."

Railroad stocks have powered much of the transport index's gains this year as a solid U.S. economy has helped lift demand for cross-country transport. CSX has climbed

35%, **Norfolk Southern** Corp. has advanced 23%, and **Union Pacific** Corp. is up 17%.

More recently, shares of trucking and logistics firms have also rebounded, pointing to broadening strength among transportation companies.

Many such companies have benefited from a boom in demand for freight services by retailers, factories and consumers. This has squeezed truck availability and, in turn, driven the longest sustained period of pricing growth for truckers since 1980, according to online freight marketplace

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China Fund Considers Deutsche Stake HNA Now Owns

China's sovereign-wealth fund and other large investors have expressed interest in buying shares in **Deutsche Bank** AG from embattled Chi-

By Stella Yifan Xie,
Julie Steinberg
and Jenny Strasburg

nese conglomerate **HNA Group** Co., according to people familiar with the matter.

HNA, which is one of Deutsche Bank's largest shareholders, plans to unload its entire 7.6% stake in the German bank as it shrinks its global footprint, The Wall Street Journal previously reported.

The potential buyers that were recently in contact with HNA include state-backed fund China Investment Corp. as well as Chinese state-owned financial institutions **Citic Group**, **China Merchants Group** and **China Everbright Group**, the people said. Some European and U.S. investors have also inquired about HNA's stake in Deutsche Bank, they added.

The airlines-to-hotels conglomerate is reversing a \$40 billion global acquisition spree in which HNA took stakes in banks, airports, office buildings and other assets around the world. Chinese authorities, uncomfortable with HNA's rapid expansion and heavy debt load, have ordered the group to focus on running Chinese airlines and related businesses, The Wall Street Journal reported last week.

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Dimon Boasts He Can Beat Trump in a Vote

By EMILY GLAZER
AND MENGQI SUN

JPMorgan Chase & Co. Chief Executive James Dimon sounded off on President Trump at a bank event Wednesday, saying he could prevail over Mr. Trump in a presidential contest.

"I think I could beat Trump," he said at an event about JPMorgan's new \$500 million initiative to boost economic growth in U.S. cities. "I can't beat the liberal side of the Democratic Party," he added, referring to his status as a top Wall Street banker.

Mr. Dimon went on to say that he is "as tough as [Trump] is, I'm smarter than he is."

He also took a shot at Mr. Trump's wealth, saying "this wealthy New Yorker actually earned his money. It wasn't a gift from daddy."

After the event concluded, Mr. Dimon backtracked. "I should not have said it. I'm not running for President. Proves I wouldn't make a good politician. I get frustrated because I want all sides to come together to help solve big problems," he said in an emailed statement through a JPMorgan spokesman.

Mr. Dimon's political ambitions are the subject of frequent speculation, especially on Wall Street. In the past, Mr. Dimon said he would "love to have the job, but I'm not going to run."

Mr. Dimon—who, following Goldman Sachs Group Inc. CEO Lloyd Blankfein's retirement at the end of the month, will be the lone CEO from the six largest U.S. banks who has led his firm since the financial crisis—served on Mr. Trump's business advisory council until it disbanded in August 2017. He has become more involved in policy debates after being named chairman in December 2016 of corporate lobbying group the Business Roundtable.

At the Wednesday event to unveil JPMorgan's "Advancing Cities" initiative, Mr. Dimon reiterated comments on the need for infrastructure investment, education reform and immigration reform.

The five-year initiative includes a competition for funding. JPMorgan plans to invest, through public-private partnerships, in places where it can address employment barriers, financial insecurity and neighborhood disinvestment. It plans to announce winners in the spring.

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BUSINESS & FINANCE

PERSONAL TECHNOLOGY | By David Pierce

Apple's XR Is the Goldilocks iPhone



An iPhone is an iPhone...is an iPhone.

More than a decade after Apple Inc.

launched the first iPhone, new models have come to adhere to a certain formula. They always get faster, with some more enticing features. More recently, they seem to get more expensive, too. This year's iPhones are slightly different yet the same.

There are the \$999 iPhone XS and \$1,099 iPhone XS Max, which both look like the iPhone X but come with upgraded processors and cameras, more durable bodies and marginally better battery life, according to Apple. Lastly, there's the \$749 iPhone XR, a (relatively) more affordable model. It's the real star of Apple's event.

The three new iPhones are all powered by Apple's latest A12 Bionic chip, offer wireless charging, use Face ID facial recognition to unlock, and will run iOS 12. Their notable differences are screen size—and price.

The XS is so close to the iPhone X in size and shape that you might never spot the new model. They have the same vibrant 5.8-inch display with that same characteristic notch.

You won't miss the XS Max, however. With a 6.5-inch screen, it's not only the largest iPhone ever by a wide margin, it has one of the biggest screens on the market—atypical for Apple. Samsung's Galaxy Note 9, currently the



Phil Schiller, Apple's senior vice president of worldwide marketing, introduces the company's newest devices.

standard-bearer for giant phones, has a 6.4-inch screen.

The XS Max feels notably heavier and larger in my hands than its smaller sibling, but also surprisingly wieldy for such a big device.

The larger screen looks great; coupled with larger built-in speakers, it allowed me to enjoy a minute or two of action from the film "Ready Player One," even in a bright, crowded room.

But Apple didn't imbue the XS Max with much in the way of unique functionality, despite its size. Some apps work in landscape mode, as they do on an iPad

held its own. It comes in blue, red, yellow, white, black and coral. I like the colors, even if they clash with the black bezel around the screen. Holding the new models side by side, you can see the difference between screens, and I guess a little more like a luxury good. But in everyday use, I doubt you'd think about either.

The XR is just right in size and in price with nearly all of the hardware and software that make the latest crop of iPhones great.

Let's talk quickly about all the things you won't find on any of these new iPhones. No headphone jacks anywhere to be found. No USB-C ports, either, as Apple sticks to its Lightning connector. Most noticeably, no home button. Instead, all three models use the gesture-based navigation system introduced on the iPhone X, and use Apple's Face ID facial recognition to unlock the device.

As for those of you making buying decisions, my immediate takeaway is, go big or go home. That is to say, screen size is the biggest differentiator among the models. The XS Max is really big and promises better battery life. I'm not sure why you'd buy the standard-size XS, actually. The cheaper XR is larger and very nearly as good.

At first glance, the XR seems like the easy choice, with nearly everything you'd want in an iPhone for a price well below \$1,000.

Smartwatch Adds Heart Monitoring and Fall Detection

BY PETER LOFTUS
AND TRIPP MICKLE

Apple Inc. took a big step toward turning its smartwatch into a medical device, adding new heart-monitoring and fall-detection applications that doctors say could help detect serious medical conditions but also trigger false alarms and unnecessary medical care.

The new additions, which Apple revealed Wednesday, are a prominent example of Silicon Valley's moves into medical monitoring. Yet the technology's risks suggest the challenges of broadening access to tests and data that have been limited to doctors.

The latest version of the Apple Watch is equipped with electrodes and sensors that turn it into an electrocardiogramable to measure a heart's electrical activity and detect potentially dangerous disorders.

The new electrocardiogram, or ECG, app carries a potentially big benefit: helping catch silent killers like a heart-rhythm disorder known as atrial fibrillation that is missed in many patients who don't have symptoms.

About 2.7 million Americans and 34 million people worldwide are estimated to have atrial fibrillation, which can increase the risk of stroke. Standard ECG tests are typically given in doctor's offices and

hospitals and involve attaching electrodes to a patient's chest.

The Apple Watch ECG "could be beneficial to lots of patients" by picking up intermittent rhythm problems, said C. Michael Valentine, president of the American College of Cardiology and a cardiologist with Centra Medical Group in Lynchburg, Va.

Yet doctors also raised concerns about potential risks from relying on the app. Dr. John Mandrola, a cardiac electrophysiologist in Louisville, Ky., said the ECG feature could misdiagnose patients because of inaccurate readings, or lead to overtreatment of patients.

The watch may also detect cases of low-risk atrial fibrillation that don't need to be treated, said Eric Topol, a cardiologist and director of the Scripps Translational Science Institute. This could lead to unnecessary prescriptions for blood thinners that carry bleeding risks, he said.

Dr. Topol said it isn't clear whether the watch's benefits in detecting asymptomatic cases outweigh such risks.

Due to the potential for serious impact, Apple asked the U.S. Food and Drug Administration to greenlight marketing of the ECG app and irregular rhythm notification feature on the watch.

The agency granted the clearance on Tuesday and said in a statement Wednesday that

the features "may help millions of users identify health concerns more quickly."

Yet the FDA also said the watch isn't intended to provide a notification of every episode of irregular heart rhythm. The agency also said the ECG data displayed on the watch is for informational purposes only and isn't intended to be interpreted by the user without consulting a health-care professional.

The new fall-detection technology on the watch uses a built-in accelerometer and gyroscope to identify when hard falls occur.

By analyzing wrist trajectory and impact acceleration, Apple Watch sends the user an alert on the watch face that says "It looks like you've taken a hard fall." Users may dismiss the alert or initiate a call to emergency services.

The new feature could help Apple elbow into the cardiac-monitoring market, valued at \$1.4 billion, according to iRhythm Technologies Inc., which has an ECG product. Apple could reach a small percentage of that market while also bringing in some of the 15 million adults over 65 who have irregular heartbeats and don't know it.

"I don't see this as a game changer for them," said Gene Mannheimer, an analyst at Dougherty & Co. who focuses on digital health.

Apple is aiming to offset stagnant unit sales of iPhones with not only new products like the smartwatch but also from a fast-growing services business that includes app-store sales, streaming-music subscriptions and mobile payments. The services business jumped 26% to \$27.2 billion over Apple's first three fiscal quarters through June.

The bigger screens are expected to help that business line, as smartphone users with 6-inch screens or larger typically use twice as many apps as those with 5.5-inch screens and

are twice as likely to watch video daily, according to Kantar Worldpanel.

When Apple last introduced a major increase in display size with the iPhone 6 Plus in 2014, annual sales of the device the subsequent fiscal year soared 52% to \$155.04 billion and shipments rose

BUSINESS NEWS

Publishers Win Support In Europe

Parliament advances bill pressuring online platforms to pay more for news and music

By SAM SCHECHNER
AND VALENTINA POP

STRASBOURG, France—The European Parliament on Wednesday adopted a draft copyright bill with provisions aimed at forcing tech giants to pay more to media companies for music and news content that is used on their platforms.

The vote, which was delayed for several months amid intense lobbying from publishers and internet companies, sets the parameters for negotiations involving the parliament, the European Union's executive body and governments in the bloc. If a law is ultimately enacted, EU countries would have up to two years to implement

the new rules, which would be enforced by member countries.

The tech industry has strongly opposed the new rules, and on Wednesday several groups said they would keep battling the bill's final adoption during coming negotiations with member states.

Edima, a trade group representing online platforms including **Amazon.com** Inc., **Alphabet** Inc.'s Google, **Apple** Inc. and **Facebook** Inc., said EU legislators had "decided to support the filtering of the internet to the benefit of big businesses in the music and publishing industries despite huge public outcry."

A spokesman for the European Publishers Council said the decision marked a victory "for the independent press and for democracy," adding that the outcome would foster the development of publishing startups and enable journalists to share in revenue generated



Internet companies have argued that ensuring no unlicensed copyright material is uploaded to their services is too costly.

by publishers.

Debate over the bill has focused for the most part on two measures. One measure would give news publishers the right to negotiate payment for "digital use" of their content by tech firms. Another would require online-video sites like Google's YouTube to pay "proportionate remuneration" and work to prevent uploads of

content for which it doesn't have a license.

Publishers say the rules are needed because of the growth in access to content through social media and aggregators, undercutting publishers' efforts to attract subscribers.

It remains unclear what impact the measures would have if enacted. When Spain adopted a similar law, Google

shut down its local Google News service; and when Germany acted, publishers gave Google free licenses rather than lose traffic.

Record labels have long lobbied to require platforms like YouTube to scan their uploads for copyright material, which YouTube currently does on a voluntary basis. Record labels say the proposed rules would

make it easier for them to negotiate with such platforms.

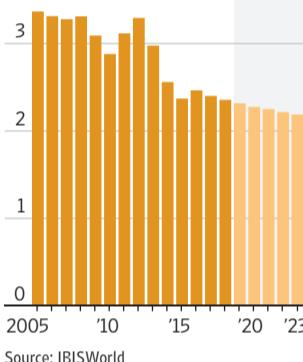
But tech executives say making platforms responsible for ensuring that no unlicensed copyright material is uploaded to their services would create a costly obligation that would discourage smaller companies from offering content services.

—Sara Germano contributed to this article.

Losing It

Annual revenue for the U.S. weight-loss services industry

\$4 billion Projections



Source: IBISWorld
THE WALL STREET JOURNAL.

Jenny Craig Weighs Sale as Performance Improves

By JAEWON KANG
AND LILLIAN RIZZO

Weight-loss brand **Jenny Craig** is seeking a buyer as its turnaround efforts start coming to fruition.

The private-equity-backed weight-management company hired investment bank **Rothschild & Co.** to explore strategic alternatives including a potential sale, people familiar with the matter said.

Jenny Craig is projected to generate roughly \$400 million of revenue and \$35 million of earnings before interest, taxes, depreciation and amortization

in 2018, the people said.

The weight-management company revived its sales growth under its current backer, **North Castle Partners**, after the firm acquired the 35-year-old brand from **Nestlé SA** in 2013. The consumer-focused private-equity firm brought in industry veteran Monty Sharma as the company's new chief executive.

Mr. Sharma has a record of rebuilding consumer brands, including **Naked Juice** Co. and **Atkins Nutritional** Inc. Five years later, North Castle is hoping that Jenny Craig's improved performance will

translate into a healthy exit of its investment.

Jenny Craig started her namesake business after struggling to lose weight following the birth of her first child. She and her late husband, Sid Craig, opened their first weight-loss center in 1983. Today, the company provides menus and one-on-one consultations in addition to operating about 600 diet centers across the world.

Over the past two decades, Jenny Craig has changed ownership several times. Buyout firms **ACI Capital** and **Mid-Ocean Partners** purchased the

company in 2002 before selling it to Nestlé four years later for roughly \$600 million. The company's performance suffered, however, as it struggled to find its footing under the corporate umbrella of Nestlé amid rising competition from online players and mobile apps. In 2013, the consumer giant sold the company to North Castle for an undisclosed sum.

Consumer-facing companies have remained popular targets among private-equity and corporate buyers eager to snap up fast-growing brands. Assets related to food and beverages

typically have garnered purchase-price multiples in the low- to midteens range of Ebitda.

In particular, the weight-management category is starting to stabilize as consumers put more effort toward maintaining their health and wellness.

Revenue for the U.S. weight-loss services industry is projected to decline at an annualized rate of 1.5% from 2018 to 2023, according to research firm **IBISWorld**. By comparison, the sector's revenue declined 4.6% from 2013 to 2018.

THE WALL STREET JOURNAL.

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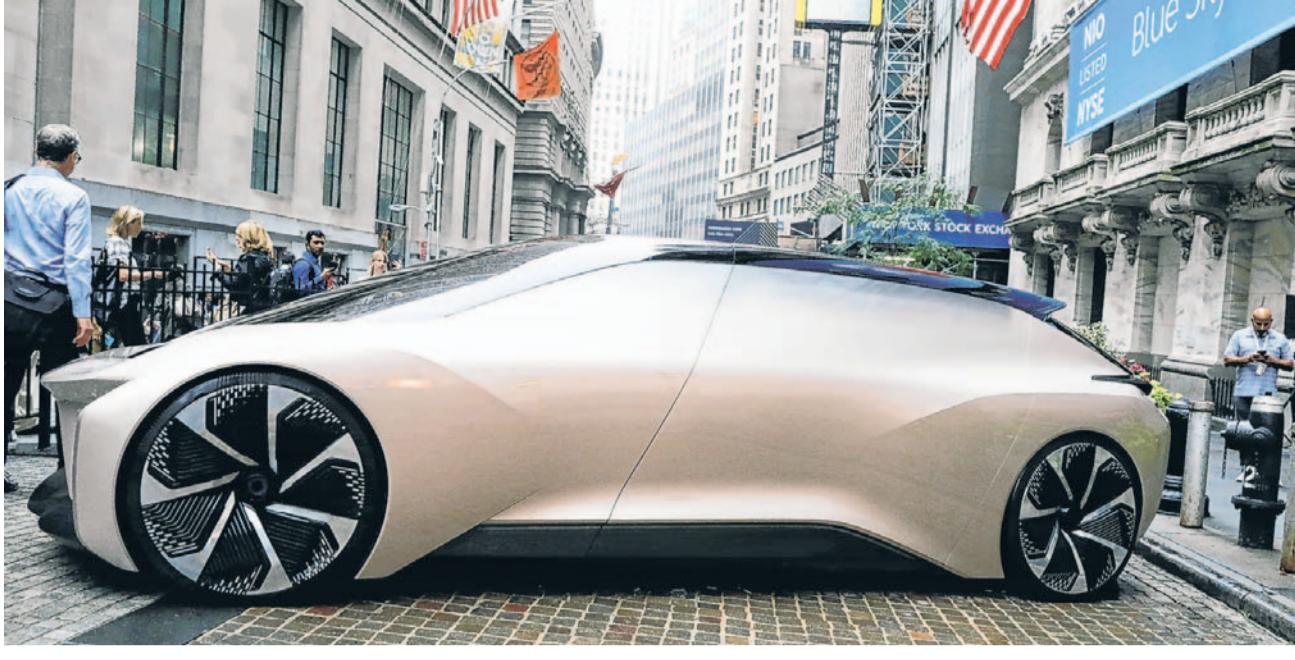


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TECHNOLOGY

Tesla's Chinese Rival Rallies After Rocky Start

Chinese electric-vehicle maker **NIO** Inc. rallied in its market debut Wednesday after the Shanghai-based company, which has billed itself as an emerging rival to **Tesla** Inc., priced its offering in the U.S. near the bottom of expectations.

The startup, backed by Chinese internet giant **Tencent Holdings** Ltd., had to contend

with a difficult market environment in launching its initial public offering. Shares in rival car makers have slumped and Chinese stocks have been buffeted by concerns about growth, trade and currency weakness.

"We had actually a healthy book and then some orders got pulled or reduced because of market conditions," NIO's chief

financial officer, Louis Hsieh, said in an interview.

Mr. Hsieh said investors were also wary that the company didn't have a long operating history, which he called a "fair criticism."

American depositary receipts of NIO closed 5.4% higher than the company's IPO price of \$6.26 after spending much of the morning in the red. The stock

traded down as much as 15% earlier Wednesday on the New York Stock Exchange.

At its IPO price, the company was valued at about \$6.4 billion.

Morgan Stanley, Goldman Sachs Group Inc. and **JPMorgan Chase** & Co led Wednesday's offering.

—Maureen Farrell
and Joanne Chiu

Bike Maker Peloton Sues Rival Flywheel

BY SARA RANDAZZO

Peloton Interactive Inc., the maker of popular at-home fitness bikes, is suing **Flywheel Sports** Inc. for allegedly stealing the technology that pipes cycling classes into users' homes, the latest sign in the intensifying competition for boutique fitness systems.

Peloton claims in a lawsuit filed Wednesday in U.S. District Court in Marshall, Texas, that Flywheel, known for its bricks-

and-mortar studio classes, created a copycat of Peloton's bike using the company's proprietary patents. The FLY Anywhere bike, Peloton claims, uses the same technology to display live and archived cycling classes, track rider performance and compare at-home riders' performance to others.

Unlike Flywheel and rival **SoulCycle** Inc., which charge premium rates for in-person classes, Peloton relies primarily on at-home rides that

mimic the studio experience.

New York-based Flywheel didn't immediately respond to a request for comment.

The alleged scheme to copy the technology includes a cameo from Michael Milken, the financier who pleaded guilty in 1990 to violating securities laws. At a conference for high-net-worth investors, Mr. Milken approached Peloton Chief Executive John Foley as a potential investor "and pressed for—and obtained—informa-

tion from Foley about Peloton's technology and business strategy," according to the lawsuit.

Peloton, represented by Hueston Hemmigan LLP, alleges Mr. Milken didn't disclose a multimillion-dollar investment he had made in Flywheel and that Mr. Milken passed on the information to the competitor.

A representative for Mr. Milken, who isn't named as a defendant in the suit, said "any claim that he acted improperly is totally without merit."

CBS Says Producer Will Leave

Continued from page B1
and, despite the fact that journalists receive harsh demands for fairness all the time, CBS did not like it. One such note should NOT result in termination after 36 years, but it did."

CBS has named two law firms to investigate alleged misconduct inside CBS Corp., including its news division.

Mr. Fager will leave the company immediately, Mr. Rhodes said. In his absence, Bill Owens—Mr. Fager's second in command—will lead "60 Minutes" and a search will be conducted for a new executive producer.

Mr. Fager, 63 years old, joined CBS News in 1982 and rose through the ranks, becoming an executive producer of "The CBS Evening News" and "60 Minutes II."

In 2004, he took the reins as executive producer of "60 Minutes," a leading newsmagazine show for half a century, from its creator, Don Hewitt. In 2011, he was named chairman of CBS News. Mr. Fager stepped down as chairman of CBS News in 2015.

The people said that Mr. Fager's departure was seen as inevitable after Mr. Moonves stepped down earlier this week amid a CBS board investigation into allegations he sexually assaulted and harassed multiple women, charges Mr. Moonves denied.

The CBS News division has separately been the subject of numerous articles detailing allegations of sexual harassment. In November, the Washington Post reported claims that Charlie Rose, then co-host of "CBS This Morning," harassed eight women. Mr. Rose

apologized, even though he said he didn't believe all the allegations were accurate. CBS fired Mr. Rose immediately.

In May, the Post followed up with allegations from 27 more women against Mr. Rose spanning three decades, including additional allegations that CBS News managers had been warned about his behavior. Mr. Rose told the Post its story was "inaccurate." CBS News hired outside law firm Proskauer Rose LLP to investigate the claims and, as Mr. Rhodes put it, "ensure a safe and respectful environment."

Before the law firm could complete its work, however, the New Yorker released its initial report on July 27, outlining allegations of sexual harassment against Mr. Moonves and a broader culture at CBS News that tolerated sexual harassment. The CBS board responded by hiring two independent law firms—Covington & Burling and Debevoise & Plimpton—to investigate both sets of allegations.

People inside the company had questioned how the Proskauer Rose investigation could be independent if it was reporting to CBS management, according to people familiar with the matter. The current investigations, which are continuing, report to a special committee of the CBS board, which includes several new members after changes implemented this week by controlling shareholder **National Amusements** Inc.

A person familiar with the matter said that the language in the agreement with Mr. Moonves doesn't preclude the CBS board from sharing results of the investigation, to the extent that is necessary to fulfill the board's fiduciary duty to shareholders.

The new CBS board hasn't met, and a representative for the special committee declined to comment on whether the board planned to release the results of the investigation.

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UNITED STATES DISTRICT COURT DISTRICT OF MINNESOTA

In re MEDTRONIC, INC. SECURITIES LITIGATION) Master File No. 0:13-cv-01686-MJD-KMM

This Document Relates To:) CLASS ACTION

ALL ACTIONS.) SUMMARY NOTICE

TO: ALL PERSONS WHO PURCHASED OR OTHERWISE ACQUIRED MEDTRONIC, INC. ("MEDTRONIC") PUBLICLY TRADED COMMON STOCK DURING THE PERIOD FROM SEPTEMBER 8, 2010, THROUGH AND INCLUDING JUNE 28, 2011 (THE "CLASS")

PLEASE READ THIS NOTICE CAREFULLY. YOUR RIGHTS WILL BE AFFECTED BY A CLASS ACTION LAWSUIT PENDING IN THIS COURT.

YOU ARE HEREBY NOTIFIED that pursuant to Rule 23 of the Federal Rules of Civil Procedure and an Order of the United States District Court for the District of Minnesota, that the above-captioned action (the "Litigation") has been certified as a class action on behalf of the Class, except for certain persons and entities who are excluded from the Class by definition as set forth in the full printed Notice of Proposed Settlement of Class Action (the "Notice").

YOU ARE ALSO NOTIFIED that Plaintiffs in the Litigation, Employees' Retirement System of the State of Hawaii, Union Asset Management Holding AG, and West Virginia Pipe Trades Health & Welfare Fund, on behalf of themselves and the other Members of the Class, have reached a proposed settlement of the Litigation with defendants Medtronic, William A. Hawkins, Gary L. Ellis, Dr. Julie Bearcroft, and Dr. Martin Yahiro (collectively, "Defendants") for the sum of \$43,000,000 in cash (the "Settlement"). If the Settlement is approved, it will resolve all claims in the Litigation.

A hearing will be held on December 11, 2018, at 9:30 a.m. CT, before the Honorable Michael J. Davis at U.S. Courthouse, 300 South Fourth Street, Minneapolis, MN 55415, for the purpose of determining: (1) whether the proposed Settlement should be approved by the Court as fair, reasonable and adequate; (2) whether, thereafter, this Litigation should be dismissed with prejudice against the Defendants as set forth in the Stipulation of Settlement dated July 17, 2018; (3) whether the Plan of Allocation of Settlement proceeds is fair, reasonable, and adequate and therefore should be approved; and (4) the reasonableness of the application of Lead Counsel for the payment of attorneys' fees and expenses incurred in connection with this Litigation, together with interest thereon (which request may include a request for reimbursement of Plaintiffs' reasonable costs and expenses pursuant to the Private Securities Litigation Reform Act of 1995).

IF YOU PURCHASED OR ACQUIRED MEDTRONIC PUBLICLY TRADED COMMON STOCK DURING THE PERIOD FROM SEPTEMBER 8, 2010, THROUGH AND INCLUDING JUNE 28, 2011 (THE "CLASS PERIOD"), YOUR RIGHTS MAY BE AFFECTED BY THIS LITIGATION AND THE SETTLEMENT THEREOF. If you have not received a detailed Notice as referred to above and a copy of the Proof of Claim and Release form, you may obtain copies by writing to *Medtronic Securities Settlement*, Claims Administrator, c/o Gilardi & Co. LLC, P.O. Box 404078, Louisville, KY 40233-4078, or by downloading this information at www.MedtronicSecuritiesSettlement.com. If you are a Class Member, in order to share in the distribution of the Net Settlement Fund, you must submit a Proof of Claim and Release online at www.MedtronicSecuritiesSettlement.com by January 2, 2019, or by mail postmarked no later than January 2, 2019, establishing that you are entitled to a recovery. You will be bound by any judgment rendered in the Litigation unless you request to be excluded, in writing, postmarked by November 19, 2018.

If you purchased or otherwise acquired Medtronic publicly traded common stock during the Class Period and you desire to be excluded from the Class, you must submit a request for exclusion such that it is postmarked no later than November 19, 2018, in the manner and form explained in the detailed Notice referred to above. All Members of the Class who do not validly request exclusion from the Class will be bound by any judgments or orders entered in the Litigation pursuant to the Stipulation of Settlement.

Any objection to any aspect of the Settlement must be filed with the Clerk of the Court and also delivered by hand or First-Class Mail to each of the following addresses such that it is received no later than November 19, 2018:

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UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
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Minneapolis, MN 55415

LEAD COUNSEL:

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& DOWD LLP
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PLEASE DO NOT CONTACT THE COURT OR THE CLERK'S OFFICE REGARDING THIS NOTICE.

DATED: August 16, 2018

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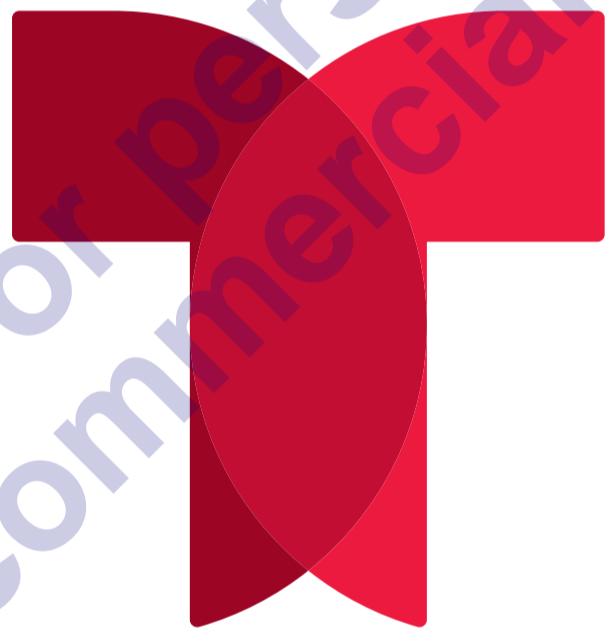
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BUSINESS NEWS

Corporate Jets Get Boost From Tax Law

By RACHEL FEINTZEIG

The recent changes to the U.S. tax code are giving business executives a new perk: the opportunity for their company to deduct the entirety of a corporate-jet purchase.

President Trump signed more than 100 changes to the tax code into law at the end of last year.

MANAGEMENT Among them: The price of a new or used airplane purchased by a business can be an immediate 100% write-off against its earnings.

Before, buyers of new planes could generally deduct at least 50% of the cost of an aircraft in the first year, and buyers of used airplanes had to take such deductions more slowly.

Marcus Adolfsson, chief executive of online technology publisher Mobile Nations, bought a used Embraer Phenom 100 for just under \$2 million at the end of December, right as the new tax law was going into effect. The rule allowing owners to deduct 100% on used aircraft was retroactive to late September.

"The timing was impeccable," he said of the full deduction he took for 2017.

Mr. Adolfsson, a licensed pilot in St. Petersburg, Fla., has used his jet to skip the hassle of commercial flights, flying to New York to meet with advertising partners and taking jaunts to Miami and Winnipeg to visit employees. He lovingly



Executive Marcus Adolfsson bought a used Embraer Phenom 100 for under \$2 million at the end of December, as the law took effect.

company in 2017, but would have to repay virtually all of that if he sold.

The 100% write-off rule isn't exactly free money because of that stipulation, said attorney Suzanne Meiners-Levy, who runs a Florida-based boutique tax law firm that helps businesses—mostly closely held ones—buy planes. Her firm has had a 30% increase in new clients so far this year, and she estimates that four out of five people mention the tax law.

Ms. Meiners-Levy said she frequently has to temper the expectations of buyers even though the write-off does allow some to splurge on bigger, faster jets costing between \$7 million and \$10 million, a price they otherwise might not be able to afford.

Don Catalano, president of iOptimize Realty in Commack, N.Y., is planning to purchase a new HondaJet Elite, a six-seater than can travel twice as far as his company's current plane, a turboprop purchased in 2002.

He said having a company plane has been critical to signing real-estate deals in off-the-beaten-path locations in Ohio and New Hampshire where commercial flights don't go and runways are tiny.

Armed with a budget of between \$4 million and \$6 million, Mr. Catalano said he wouldn't have even considered a new plane if not for the change in tax law. "Would we have wanted it? Yes. Would we have done it? No."

Aramco Seeks Discount for Deal

By SUMMER SAID AND RORY JONES

DUBAI—Saudi Arabia's national oil company is asking for a discount in its government-engineered acquisition of the state petrochemicals firm, people familiar with the discussions said Wednesday.

The Saudi government wants Aramco, as **Saudi Arabian Oil Co.** is known, to pay up to \$70 billion to the kingdom's sovereign-wealth fund for a 70% stake in **Saudi Basic Industries Corp.**, or Sabic. The deal has drawn interest from a several Western banks and is meant to replace the shelved Aramco initial public offering as a way to finance new Saudi industrial

sectors that would diversify the kingdom's oil-dependent economy, The Wall Street Journal has reported, citing Saudi officials and executives.

Aramco executives believe Sabic is overpriced, people familiar with the deal said, throwing up a major obstacle to both the deal and wider Saudi government plans.

Aramco is seeking to pay below the current market price of 119 riyals a share (\$32) for the Saudi Public Investment Fund's 70% stake in Sabic, the people familiar with the talks said.

One of the people said Aramco wants to pay 100 riyals or even less, significantly lower than the roughly 120-125 riyals a share than the sovereign-wealth fund wants.

Sabic shares have increased 18% this year amid an overall uptick in the Saudi market, which has seen billions of dollars of foreign cash flow in ahead of its inclusion in a global stock index compiler.

Sabic, which uses gases from oil production to create chemicals, had benefited from low oil prices in recent years. Aramco would buy it after oil prices have risen over 40% in the past year to nearly \$80 a barrel, raising Sabis' costs.

"Nobody buys a cyclical stock at all-time highs," said a senior adviser to the Saudi government.

Aramco, Public Investment Fund and Sabic didn't respond

to questions.

The Public Investment Fund is the main vehicle for Crown Prince Mohammed bin Salman's plans to revamp the Saudi economy. The 33-year-old prince wants to tap into the country's oil wealth and hand it to PIF to develop new Saudi sectors in technology, mining and retail.

Money from Aramco would also help the fund meet commitments it has made to some of the world's biggest investors. It has committed \$65 billion to two outside funds—one for infrastructure investment managed by **Blackstone Group LP** and \$45 billion for a technology fund led by **SoftBank Group**.

help advise the Verizon subsidiary's management with its transition efforts before leaving, Verizon said.

—Aisha Al-Muslim

MEREDITH

Two Titles to Merge; More Layoffs Set

Meredith Corp. plans to merge Cooking Light magazine into EatingWell magazine and will lay off an estimated 200 employees throughout the company as it continues to adjust its portfolio, the company said Wednesday.

Meredith, which acquired Time Inc. in January, cut 200 jobs in late March and said it would trim an additional 1,000 jobs over the ensuing 10 months.

The current round, which will be completed by Jan. 31, includes some editorial positions, a spokesman said. Following the layoffs, Meredith will have approximately 7,500 employees.

—Jeffrey A. Trachtenberg

CIGNA

Insurer Creates Venture-Capital Arm

Health insurer **Cigna Corp.** launched a venture-capital arm with \$250 million for its debut fund. In the past, Cigna has invested \$100 million in digital health and health-care services startups. The fund will back startups in all stages of growth.

—Heather Mack

HERSHEY

Confectioner Buys Pirate's Booty

Hershey Co. plans to buy **Pirate's Booty** cheese puffs from **B&G Foods Inc.** in a \$420 million deal, the companies said Wednesday. **Pirate Brands**, which also includes Smart Puffs and Original Tings, will add to Hershey's roster of salty snacks.

—Annie Gasparro

Zara Eases Concern Over Online Rivals

By JEANNETTE NEUMANN

MADRID—Zara's parent company said it would continue to expand online as it reported upbeat first-half results versus competitors and gave a positive outlook, helping the world's largest fashion retailer allay investor concerns it can't keep pace with online-only rivals.

Inditex SA, whose brands also include Massimo Dutti and Pull&Bear, on Wednesday said sales at stores open for at least a year rose 4% in the six months to July 31 and that it expected comparable-sales growth of 4% to 6% in the second half.

While that is below recent years, when Zara was notching up to 10% year-over-year growth, it is stronger than many peers.

Investors welcomed Wednesday's results and forecast, with shares rising 4% in Madrid. The stock is down more than 17% over the past



A Zara store in Taiwan. Shares of parent Inditex rose 4%.

12 months.

Inditex's first-half figures imply like-for-like sales growth of about 4% in the most recent quarter, compared with 3% declines at **Hennes & Mauritz AB** during

its August-end quarter and **Associated British Food PLC**'s Primark chain in its quarter to mid-September, according to Andreas Inderst, a Macquarie Group analyst.

Inditex said net profit rose

3% year over year to €1.4 billion (\$1.6 billion) in its fiscal first half on net sales that were up 3% to €12 billion. In local currencies, sales rose 8%. The company is susceptible to swings in the euro's value.

mer, could spike again. That could force airlines to again cut flights and raise fares.

So far, few investors see signs of an imminent slowdown. Data in recent weeks have shown the U.S. economy grew faster than initially estimated in the second quarter. Wages accelerated at the fastest pace of the current economic cycle and the unemployment rate continued to trend below 4%.

Corporate earnings are also projected to extend a streak of double-digit growth in the third quarter.

The transports aren't a "perfect indicator," Mr. Verone said. But their gains still suggest that the economic backdrop remains "relatively robust here."

Continued from page B1

DAT Solutions.

J.B. Hunt Transport Services Inc. reported in July that second-quarter earnings soared 55% from the year-earlier period. Its shares are up 9% this year. Fellow trucking company **Landstar System Inc.** has risen 21%.

Meanwhile, a handful of airline shares have regained ground. They slumped in the year's first half on fears a

price war could squeeze profit margins. Shares of **United Continental Holdings Inc.**, whose revenue growth helped offset a jump in fuel prices over the summer, have climbed 30% this year. **Delta Air Lines Inc.** and **American Airlines Group Inc.**, while down for the month of August, have added more than 4.5% apiece over the past four weeks.

"Everything we see today says demand is strong," United President Scott Kirby said on the company's July earnings call.

Analysts caution that headwinds remain. Transportation stocks slumped in June as a trade dispute between the U.S. and China heated up.

Those tensions revived fears among investors of tar-

iffs slamming growth and stalling companies' investment plans. The transport index has held its ground this month even though President Trump has threatened a third round of tariffs on Chinese goods.

Shares elsewhere, though, have come under pressure, raising the prospect of a broader decline.

Hong Kong's Hang Seng Index and the Shanghai Composite are trading in bear-market territory, or 20% off recent closing highs. Trade-sensitive companies in the U.S. like **Bunge Ltd.**, **Century Aluminum Co.** and **U.S. Steel Corp.** have all fallen more than 2% apiece in September.

Another risk: Oil prices,

which have backed off highs hit in the middle of the sum-

mer, could spike again. That could force airlines to again cut flights and raise fares.

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The transports aren't a "perfect indicator," Mr. Verone said. But their gains still suggest that the economic backdrop remains "relatively robust here."

Trailing Behind

The Dow Jones Industrial Average is the only major U.S. index to not have topped its January high.

Index performance



Source: SIX THE WALL STREET JOURNAL.

Special Advertising Feature

The AI-first enterprise: The new imperative

Artificial intelligence is racing from the lab to the front lines. Companies that fall behind now may never recover.



By Brad Fisher

Partner and US Leader, Data & Analytics, KPMG LLP

Early this year, Amazon announced it was entering the healthcare business—and shares of insurers and pharmacies promptly plunged.

In Detroit, car companies are watching tech giants build driverless cars. On Wall Street, wirehouses are competing with robo advisors—in part by creating their own AI-driven investment advice platforms.

For these industries, the artificial intelligence revolution is already here. For others, it's just around the corner. For companies everywhere, the reality is this: Blink now, and you could wake up tomorrow to news that your way of doing business is no longer viable.

The idea that technology—and specifically artificial intelligence—could upend entire business models and industries is hardly new. What's new today is that AI is rapidly approaching critical mass in ways that threaten to blindside inattentive CEOs and their organizations. It promises to accelerate, with surprising speed, the ruthless sorting of winners and losers that began just over two decades ago with the commercialization of the Internet.

For C-suite leaders, the question is no longer whether AI will fit into their business, but how they can realign their organization to fully capitalize on its transition from lab to front lines and become an AI-first enterprise. Some are already doing this, outracing the competition and disrupting everything in their path. But others are only tiptoeing into AI, embracing the technology in discrete corners of the enterprise and aiming for narrow wins.

That's better than nothing, to be sure. But, the AI-first enterprise requires a leader mentality.

A fast follower strategy simply won't cut it. Companies need to think bigger and embed the technology broadly throughout the entire enterprise—automating, accelerating and enhancing key business processes to transform at scale and drive lasting competitive advantage.

There is a clear way forward. It begins with the systematic automation of business processes using a wide range of AI technologies, so that internal silos begin to break down and operations become seamlessly integrated—incrementally at first, and then more broadly. Leaders in a variety of industries are already doing this, from insurance companies using AI to automate underwriting to banks using it to extend and manage credit. They understand that hyper-efficient business cycles and automated decision processes create massive competitive advantage.

This is clearly a big undertaking, but companies that have embedded

this kind of thinking into their culture are already realizing extraordinary value. For those eager to join them, we recommend simultaneous action on three fronts.

Understand where to play.

Determine which processes have the greatest transformational opportunities if AI were embedded into them, and the corresponding organizational changes required to support that transformation. Envisioning the end state will make it easier to articulate a business case. KPMG has developed a methodology to do this. It focuses on clarifying the vision and measuring the value of AI and automation for specific business processes from a technology, data, and people perspective, and breaks big initiatives into manageable pieces.

Execute AI at scale.

It's imperative to experiment, but success won't be achieved by doing things in isolation. To effectively deploy AI technology at scale,

companies need an AI platform that efficiently curates and enhances critical data and enables a continuous AI learning loop. While there are many outstanding AI building blocks, few have been developed into end-to-end, process-ready applications. KPMG Ignite, our AI technology portfolio, helps clients enhance, accelerate and automate decisions and processes with proprietary accelerators—patterns and tools that allow for the rapid development and delivery of AI solutions—built atop market-leading KPMG, open source, and partner technologies. These accelerators significantly reduce implementation times by limiting the need for integrating the vast array of AI building blocks from scratch.

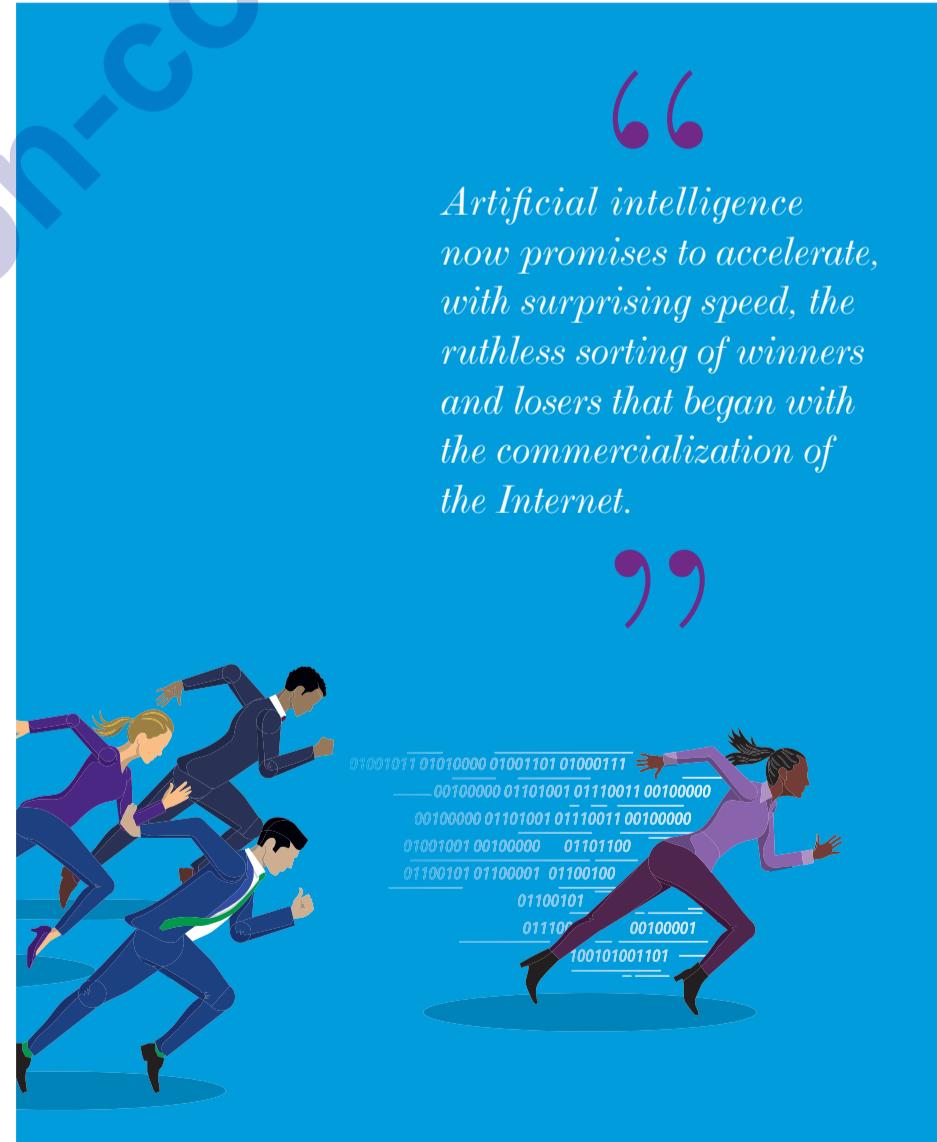
Transform the culture.

People are a mission-critical element of the AI equation. CEOs and their leadership teams need to create organizations that are not only agile enough to adapt to, but also willing to embrace, the changes that AI delivers, as well as create an ethical framework to manage its responsible implementation. Yet, many organizations will find they lack the internal expertise or bandwidth to do all of this by themselves.

The time to begin addressing this challenge is now, both by building in-house capabilities and leveraging outside experts. Outside experts are crucial because there's no other way to ramp up your capabilities at the speed and scale required by this AI revolution. But an AI-first enterprise requires internal AI know-how as a core competency, so it's also necessary to begin upscaling the organization immediately.

As with every transformative technology that's come before it, AI promises to change the way organizations everywhere understand and connect with their constituencies to deliver the goods, services and experiences they expect. In fact, it's already happening. Sitting this revolution out is simply not an option.

Learn more about how to execute AI at scale and become an AI-first enterprise at KPMG.com/us/ai.



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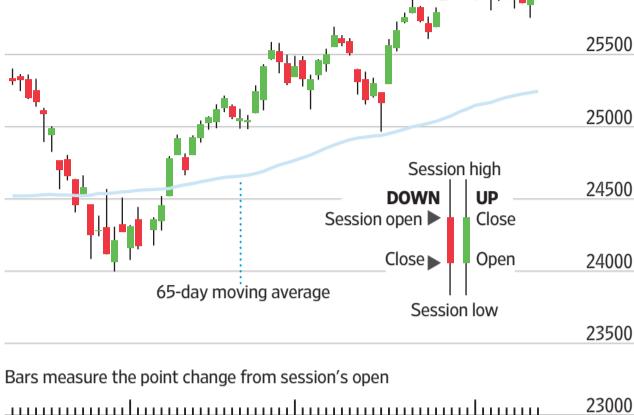
MARKETS DIGEST

EQUITIES

Dow Jones Industrial Average

25998.92 ▲ 27.86, or 0.11%
 High, low, open and close for each trading day of the past three months.

Trailing P/E ratio 23.50 20.27
 P/E estimate * 16.76 18.39
 Dividend yield 2.12 2.33
 All-time high 26616.71, 01/26/18



Bars measure the point change from session's open
 June July Aug. Sept. 23000

*Weekly P/E data based on as-reported earnings from Binyi Associates Inc.

S&P 500 Index

2888.92 ▲ 1.03, or 0.04%
 High, low, open and close for each trading day of the past three months.

Trailing P/E ratio 24.20 23.82
 P/E estimate * 17.84 18.83
 Dividend yield 1.81 2.00
 All-time high 2914.04, 08/29/18



June July Aug. Sept. 2600

Nasdaq Composite Index

7954.23 ▼ 18.24, or 0.23%
 High, low, open and close for each trading day of the past three months.

Trailing P/E ratio 25.75 25.87
 P/E estimate * 21.40 21.43
 Dividend yield 0.96 1.11
 All-time high: 8109.69, 08/29/18



June July Aug. Sept. 7200

8250

8075

7900

7725

7550

7375

7200

8250

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COMMODITIES

WSJ.com/commodities

Futures Contracts

Metal & Petroleum Futures

	Contract			Open	High	Low	Settle	Chg	Open interest
Copper-High (CMX)-25,000 lbs.; \$ per lb.	2,5995	2,6670	2,5995	2,6585	0,0545	2,762			
Sept	2,5995	2,6670	2,5995	2,6760	0,0545	146,052			
Dec	2,6220	2,6885	2,6065	2,6760	0,0545	146,052			
Gold (CMX)-100 troy oz.; \$ per troy oz.	1205.00	1205.00	1204.70	9.30	31				
Sept	1205.00	1205.00	1204.70	9.30	31				
Oct	1197.70	1208.30	1192.40	1205.50	8.70	37,888			
Dec	1203.50	1210.90	1197.60	1210.90	8.70	361,629			
Feb'19	1208.90	1219.00	1203.70	1216.70	8.80	39,716			
June	1219.10	1230.90	1217.00	1228.40	8.90	10,902			
Dec	1238.00	1247.00	1235.70	1246.60	9.00	4,567			
Palladium (NYM)-50 troy oz.; \$ per troy oz.	986.10	986.10	985.90	993.30	12.40	70			
Sept	986.10	986.10	985.90	993.30	12.40	70			
Dec	964.00	969.50	957.20	965.00	3.20	16,534			
March'19	956.60	962.60	954.60	959.20	3.20	610			
Platinum (NYM)-50 troy oz.; \$ per troy oz.	791.90	802.00	783.30	799.90	10.60	71,136			
Oct	791.90	802.00	783.30	799.90	10.60	71,136			
Jan'19	795.50	804.90	786.50	803.00	10.70	21,390			
Silver (CMX)-5,000 troy oz.; \$ per troy oz.	14,065	14,190	14,005	14,192	0.140	462			
Sept	14,065	14,190	14,005	14,192	0.140	182,345			
Crude Oil, Light Sweet (NYM)-1,000 bbls.; \$ per bbl.	69.82	71.26	69.50	70.37	1.12	278,774			
Oct	69.82	71.26	69.50	70.37	1.12	278,774			
Nov	69.54	70.89	69.24	70.16	1.12	306,968			
Dec	69.33	70.65	69.02	70.04	1.15	291,725			
Jan'19	69.13	70.37	68.82	69.88	1.17	154,672			
June	67.91	68.85	67.53	68.67	1.04	167,952			
Dec	66.09	66.99	65.75	66.89	0.97	235,988			
NY Harbor ULSD (NYM)-42,000 gal.; \$ per gal.	2,2600	2,2700	2,2463	2,2577	.0057	117,070			
Oct	2,2600	2,2700	2,2492	2,2610	.0060	81,665			
Gasoline-NY RBOB (NYM)-42,000 gal.; \$ per gal.	2,0195	2,0424	2,0121	2,0348	.0206	210,185			
Oct	2,0195	2,0424	2,0121	2,0348	.0206	210,185			
Nov	1,9991	2,0221	1,9921	2,0155	.0212	127,661			
Natural Gas (NYM)-10,000 MMBtu.; \$ per MMBtu.	2,831	2,869	2,818	2,829	.001	181,132			
Oct	2,831	2,869	2,818	2,829	.001	218,804			
Dec	2,917	2,943	2,901	2,910	-.003	150,722			
Jan'19	3,004	3,030	2,991	3,001	-.001	188,360			
March	2,881	2,902	2,866	2,874	-.002	200,992			
April	2,613	2,629	2,606	2,617	-.009	159,858			

Agriculture Futures

Corn (CBT)-5,000 bu.; cents per bu.	354.25	354.50	340.50	341.50	-13.75	456
Sept	354.25	354.50	340.50	341.50	-13.75	456
Dec	366.25	366.25	350.75	352.50	-14.25	982,915
Oats (CBT)-5,000 bu.; cents per bu.	247.25	248.75	245.50	246.75	.25	3,488
March'19	247.25	248.75	245.50	246.75	.25	313

Soybeans (CBT)-5,000 bu.; cents per bu.	820.50	828.50	811.50	829.00	8.75	358
Sept	820.50	828.50	811.50	829.00	8.75	358
Nov	831.00	845.00	821.25	840.00	8.25	439,290
Dec	87.06	88.11	87.63	88.26	-.10	345
Sept	28.06	28.11	27.63	27.63	-.10	261,297

Rough Rice (CBT)-20,000 cwt.; \$ per cwt.	107.60	108.00	107.50	107.50	... 6,697	
Sept	107.60	108.00	107.50	107.50	... 6,697	
Dec	110.40	110.50	109.60	109.50	.50	471
Wheat (CBT)-5,000 bu.; cents per bu.	500.50	503.50	478.00	481.75	-.12	202
Sept	500.50	503.50	478.00	481.75	-.12	202
Dec	519.00	529.25	500.25	506.75	-.12	22,378

Wheat (KC)-5,000 bu.; cents per bu.	496.00	496.00	475.50	482.50	-11.75	19
Sept	496.00	496.00	475.50	482.50	-11.75	19
Dec	522.25	531.00	501.75	506.75	-16.00	154,769
Wheat (MPLS)-5,000 bu.; cents per bu.	568.50	569.25	551.00	551.00	-13.25	24
Sept	568.50	569.25	551.00	551.00	-13.25	24
Dec	575.00	584.25	561.75	565.00	-10.25	33,898

Cattle-Feeder (CME)-50,000 lbs.; cents per lb.	152.25	154.80	152.15	154.625	2.50	2,963
Sept	152.25	154.80	152.15	154.625	2.50	2,963
Oct	152.55	155.25	152.35	155.025	2.57	16,005
Cattle-Live (CME)-40,000 lbs.; cents per lb.	109.30	111.60	109.15	111.475	2.175	85,743
Dec	113.95	115.90	113.90	115.525	1.60	89,139

Hogs-Lean (CME)-40,000 lbs.; cents per lb.	54.

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.

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, September 12, 2018

Net

Stock Sym Close Chg

A B C

ABB ABB 23.61 0.33

ADT ADT 8.61 0.09

AES AES 13.23 0.15

Aflac AFL 46.31 -0.32

AGNC Inv AGNC 18.84 -0.27

ANGI Homesvc ANGI 22.40 0.30

Ansys ANSS 18.70 0.71

ASML ASMEL 17.57 -8.00

AT&T T 33.42 0.75

AbbottLabs ABT 66.97 0.37

AbbVie ABBV 93.24 0.06

Abmolded ABMD 392.94 -4.47

Accenture ACN 17.03 -0.34

ActivationBlitz AVBL 80.52 1.02

AcuityBrands AYI 155.11 -3.10

AdobeSystems ADBE 267.79 0.79

AdvanceAuto AAP 167.10 -0.14

AdvMicroDevice AMD 32.21 2.11

Aegon AEG 6.05 0.06

AerCap AER 56.70 -0.11

Aetna AET 203.43 1.24

AffiliatedMtrs AMG 142.15 -0.81

AgilentTechs AII 67.91 0.29

AigcinoEagle AEM 34.10 1.03

AirProducts APP 166.24 -0.40

AkamaiTech AKAM 76.01 -0.89

AlaskaAir ALK 67.76 -1.21

Albermarle ALB 99.46 0.62

Alcoa AA 42.02 1.15

AlexandriaRst ARE 127.64 -0.32

AexionPharm ALXN 182.11 0.69

Alibaba BABA 161.40 4.00

AlignTech ALGN 381.83 -0.97

Alkerimes ALKS 39.88 0.02

Allegheny Y 62.477 -1.48

Allergen ALLE 89.74 0.04

Allergan AGN 190.34 1.92

AllianceData ADS 243.54 5.81

AlliantEnergy LNT 43.59 -0.01

AllianTransl ASN 51.61 -0.08

Allstate ALL 97.50 -0.58

AllyFinancial ALLY 25.46 -0.25

AlnylamPharm ALY 94.75 -5.60

Alphabat C GOOG 116.22 -14.54

Alphabat A GOOGL 117.16 -18.39

Altaba AABA 66.52 2.23

AlticeUSA ATU 18.75 0.28

AmerCap AEC 6.05 0.06

AmeriTowerREIT ATRE 147.31 0.31

AmerWaterWorks AWK 88.41 -0.16

Ameriprise AMR 141.41 -1.32

AmerisourceBrgn ABC 85.21 1.11

Ametek AME 79.45 0.25

Amgen AMGN 199.50 0.03

Amphenol APD 95.46 -1.07

AmdarokoPetrol APC 61.77 -0.80

AnalogsDevices ADI 91.02 -2.23

Andeaor ANDX 88.13 0.11

AnnalyCap NLY 10.21 -0.27

Antennm ANTM 266.34 2.17

Aon AON 150.10 0.06

Apache APA 45.13 1.04

Apartmentlnv AIV 44.32 -0.07

ApolloGibMgmt APD 34.20 -0.08

Apple AAPL 22.10 -2.78

AppMaterials AMAT 38.39 -0.79

Aptargroup APTV 109.39 -0.87

Aptiv APTV 8.80 -0.10

AquAmerica WTR 37.40 0.01

Aramark ARMK 47.15 0.40

ArclorMittal MT 29.35 0.97

ArchCapital ACGL 30.00 -0.23

ArcherDaniels ADM 49.89 0.14

Arconic ARNC 22.69 0.47

AristaNetworks ANET 267.85 0.64

ArrowElec AMLV 73.50 0.04

Autohome ATHM 73.04 0.83

Autoliv ALV 85.16 1.16

ADP ADP 147.13 0.13

AutoZone AZO 76.40 -0.30

AvalonBay AVA 183.72 -0.20

Avangrid AGR 49.61 0.03

AvistaUSA ATU 18.75 0.28

Autodesk ADSK 150.78 -0.09

AvalancheCoatings AXTA 29.16 -0.15

BBT BBT 50.67 -1.20

BCE BCE 46.05 -0.06

BHPBilliton BHP 44.66 0.54

BHPBilliton BBL 102.55 -1.86

BP BP 43.11 0.46

BT Group BT 14.73 0.09

BWX Tech BWXT 61.48 0.25

Baidu BIDU 218.69 2.59

BakerHughes BHGE 32.40 -0.19

Ball BLL 43.20 0.41

BancoBilbaoViz BBVA 6.00 -0.02

BancodeChile BSC 86.29 1.17

BcoSantander MXS 7.56 0.06

BancoSantander SAN 4.91 -0.02

BanColombia CIB 40.94 1.72

BankofAmerica BAC 30.43 -0.42

BankofMontreal BMO 81.65 -0.05

BankNY Mellon BK 52.00 -0.23

BkNvScotiabanc BNS 57.68 -0.10

Barclays BCS 9.17 -0.10

BarrickGold ABX 10.08 0.31

BauschHealth BCB 23.54 -2.87

BaxterIntl BAX 76.08 0.21

BcoSantander BSC 30.72 0.24

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BANKING & FINANCE



The company, whose products include Ben & Jerry's ice cream and Dove soap, is one of the index's highest-profile members.

FTSE 100 Sets Unilever Exit Date

By SAABIRA CHAUDHURI

LONDON—**Unilever PLC** will be booted from the U.K.'s blue-chip FTSE 100 index before the end of the year if the company wins a shareholder vote to consolidate its dual structure and establish a single headquarters in the Dutch city of Rotterdam.

The maker of Dove soap and Ben & Jerry's ice cream had asked FTSE Russell, the compiler of the index, to allow it to remain a component of the index. But the company has also long said it wasn't likely to succeed in that effort.

FTSE Russell, in a written statement Tuesday, said Unilever would indeed fall out of the index on Dec. 24. It is un-

clear which company will succeed Unilever.

Unilever, the result of a 1929 merger of a Dutch margarine maker and a British soap producer, is one of the index's highest-profile members, alongside companies such as **BP PLC** and **Rolls-Royce Holdings PLC**.

An expulsion could prompt some investors—including funds that track the FTSE 100—to divest themselves of the company's shares. Shares in Rotterdam-listed Unilever NV will remain part of the Euro Stoxx 50 index, Europe's popular blue-chip index.

U.K.-listed shares in Unilever were largely flat in London on Wednesday.

Unilever said in March that

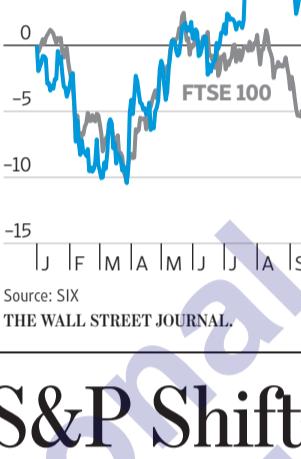
it would unify its dual structure, choosing Rotterdam as its headquarters over London. The decision came after a months-long review sparked by an unwelcome, \$143 billion takeover proposal from **Kraft Heinz Co.** early last year.

A deletion from the FTSE 100 isn't a sure bet. Some British investors have opposed the consolidation. Shareholders will vote on whether to approve Unilever's move in October. The change needs approval from 50% of the company's Dutch shareholders and 75% of its U.K. ones.

Unilever has said it is confident it will get the votes. If it doesn't, the dual structure will remain in place and Unilever will stay in the British index.

Ahead of the Pack

Unilever shares have outperformed the U.K.'s blue-chip FTSE 100 index this year.

Source: SIX
THE WALL STREET JOURNAL.

Popular Tech Stocks Poised for S&P Shift

By BEN EISEN

The S&P 500 is getting a refresh later this month that may prove market moving.

Index providers **S&P Dow Jones Indices** and **MSCI** are officially creating a new communication-services sector to replace telecom, the smallest of the index's 11 segments. S&P will complete its reclassification Sept. 21, and many others who use the classifications will do so by Sept. 28. Some companies that are in the tech and consumer-discretionary sectors will move into the communication-services sector.

As part of this shift, providers of exchange-traded funds need to rebalance the stocks in their sector ETFs while selling stocks moving to new sectors. **Facebook Inc.**, for example, now comprises 5.8% of State Street's \$23 billion Technology Select Sector SPDR ETF but must be sold as the social-media giant moves into the communication-services sector.

The Communication Services

Select Sector SPDR ETF that State Street launched in June to track the new sector has nearly 18% of its assets in Facebook. But it has a comparably small \$500 million in assets right now. State Street said it believes the ETF will gather more assets as the reclassification gets closer because investors will want to avoid throwing

their portfolios out of whack. But right now, the communication ETF holds fewer Facebook shares than the tech ETF will need to sell.

State Street's funds will be rebalanced effective after the close Sept. 21. Vanguard began reweighting its funds in the second quarter. As ETF providers and other investors rearrange

their holdings, it could move stock prices, some analysts say, though it isn't clear how.

"Around the time this occurs, there could be some dislocations depending on how investors are rebalancing their own portfolios," said Brian Hayes, a quantitative analyst at Morgan Stanley.

For one indicator of how this could affect the market, look to the recent past. Since late July, companies that are staying in the tech sector, such as **Apple Inc.** and **Microsoft Inc.**, have outperformed those leaving, such as Facebook and Google parent **Alphabet Inc.**, according to Morgan Stanley. **Amazon.com Inc.**, which is staying in the consumer-discretionary sector, has outperformed **Netflix Inc.**, which is leaving.

Many of those moves have been due to idiosyncratic factors, such as Facebook's earnings results that disappointed investors in late July. But as the reclassification gets closer, performance of these stocks could start to diverge further.

Diverging Fortunes

Shares of various tech and consumer-discretionary stocks since late July

Source: SIX
THE WALL STREET JOURNAL.

Fund Sets Sights on HNA Asset

Continued from page B1

The recent talks HNA has had about its Deutsche Bank stake are at a preliminary stage and may not result in any deal, people familiar with the matter said. No formal sales process has begun, some

of the people added. A sale could be complicated because HNA's shares are tied up in derivatives agreements with banks.

HNA has been one of Deutsche Bank's largest shareholders since early 2017. The relationship between the two firms has been tense at times, partly because the Chinese group borrowed billions of dollars to finance its share purchases and used derivatives to hedge its position. Some investors and executives therefore saw HNA as a speculative investor.

Still, an HNA-nominated member of Deutsche Bank's supervisory board, Alexander Schütz, received shareholder support in May for re-election to a five-year term.

Other investors previously held discussions with HNA about acquiring its Deutsche Bank shares. Earlier this year, **Cerberus Capital Management LP**—which disclosed a roughly 3% stake in Deutsche Bank last November—contemplated increasing its stake and held discussions with HNA about acquiring the Chinese group's shares, according to

people briefed on the discussions.

Instead, Cerberus became a paid adviser to the German lender, the Journal reported in July. Cerberus is restricted from buying or selling Deutsche Bank shares while in that role, according to people familiar with the consulting arrangement.

Deutsche Bank first disclosed early last year that HNA was a significant shareholder. The Chinese conglomerate ultimately built a stake of close to 10% using derivatives contracts with banks as part of

Fintech Bank Charter Faces State Lawsuit

By LALITA CLOZEL

A national banking regulator is offering cutting-edge financial firms a new pathway into the traditional banking system. So far, few of them are biting.

The lack of immediate interest from the likes of **LendingClub Corp.**, **Square Inc.**, and others comes largely from uncertainty about what activities the Office of the Comptroller of the Currency's fintech charter will allow, what regulatory requirements it will carry and whether it will hold up in court.

That uncertainty grew Wednesday when the Conference of State Bank Supervisors, a group of state regulators, said it intends to file a lawsuit challenging the OCC's authority, renewing a previously unsuccessful legal challenge.

The OCC opened its door to formal applications July 31, giving the states a fresh legal angle to pursue after previous suits were deemed premature. The threat of a protracted battle could make eligible firms more hesitant to apply for the OCC charter, according to people in the industry.

"The OCC does not have the statutory authority to do what they are seeking to do," said Margaret Liu, deputy general counsel of the Conference of State Bank Supervisors. She wouldn't specify whether the state regulators planned to sue before or after a company had applied for the charter.

An OCC spokesman said the agency will "vigorously defend" its authority to charter "companies that are engaged in the business of banking, meet the qualifications for becoming a national bank, and apply to conduct business as part of the federal banking system."

Over the past decade, fintech firms—typically nonbank companies offering financial services online—have grown more prominent in lending and payments. They have collected state licenses and joined with banks to connect to the mainstream financial system.

A national license would allow fintech firms to operate across the U.S. without having to comply with state-by-state rules, such as interest-rate limits.

So far, no company has applied for the OCC's fintech charter. Jeffrey Hare, a banking lawyer at DLA Piper, said he is telling clients to take a wait-and-see approach: "You want to be first in line to be second."

Some firms are signaling they are in no rush to apply.

"The OCC's new charter is a huge step for regulatory modernization," said a statement from Richard Neiman, a former New York banking regulator who is head of regulatory affairs at LendingClub, an online marketplace lender. "But marketplace lenders with long track records and robust risk-management processes will likely consider all their options."

Like other large fintech companies, LendingClub already operates without a federal license. It partners with a bank to benefit from that institution's federal pre-emption over state laws, allowing it to avoid local interest-rate limits and licensing requirements.

For Square, a payments company that also offers loans to small businesses in its network, obtaining a national bank charter from the OCC could restrict its ability to own nonfinancial businesses, like its food-delivery service Caviar Inc.

"A full bank charter would not be appropriate for Square," said a company spokesman. "Our other, predominant lines of business are not in products and services that require a banking license."

Square instead is considering getting a Utah industrial-loan company license, which would give it access to federal

Over the past decade, fintech firms have expanded in online financial services.

deposit insurance and avoid other states' interest-rate limits without needing the OCC charter. It plans to refile an application with the Federal Deposit Insurance Corp., after withdrawing a previous application this summer.

PayPal Holdings Inc. already has licenses in dozens of states. When the OCC was preparing the fintech charter in January 2017, PayPal canceled a meeting with Beth Knickerbocker, who heads the OCC initiative, according to email records. "[We] don't feel that we would have much else to add," a PayPal representative said in an email.

"We do not comment on such conversations in advance of an application being submitted," said the OCC.

—Ryan Tracy contributed to this article.

New Highs and Lows | WSJ.com/newhighs

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, September 12, 2018

Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg	Stock	
BioNanoGenom BNGO	8.00 1.8	FidelityD&G FDB	74.50 1.0	iRhythmTech IRTG	98.23 -0.6	PacificMerCapBMP	10.45 1.0	Tilray TRLY	108.27 9.6	BeazerHomes BEZ	11.62 0.8	FangHolding FUN	2.88 -7.9	MKS Instruments MKS	80.45 -3.1
Boot Barn BOOT	51.49 1.3	FontainPharm FONX	87.60 3.2	KezarLifeSci KZC	75.12 1.1	PandoraMedia PM	10.02 5.6	Boeing BOE	29.94 -0.1	FiveStarLiving FVE	0.85 1.2	MagneFins MAGF	17.47 4.5	Socialedge SOFO	89.00 -7.0
CF Industries CFI	51.45 3.9	Fortive FTV	88.97 1.7	Kohl's KOFU	18.76 0.6	PetIQ PETQ	42.75 5.4	Drex DRE	40.73 0.4	Broadview BWD	1.27 4.1	RiotBlockchain RIOT	3.61 -12.8	KronosWorldwide KRON	16.66 -1.3
ANGI Homesvc ANGI	22.56 1.4	FortiveFidA FTVf	85.62 0.3	Kohls KOFU	18.76 0.6	Pfizer PFE	42.75 5.4	Talend TLND	70.79 2.6	AcelixTechs ACLS	18.35 -3.6	LabMedThalhenn LTRX	0.80 -4.6	AppMaterials AMAT	68.32 0.1
Aaron's AACN	52.70 -0.1	FortiveFidA FTVf	86.17 0.6	KratosDefense KTSO	14.87 1.0	Pfizer PFE	42.75 5.4	TandemDiabetes TNDM	48.70 4.4	AytuBioScience ATYU	2.73 -4.1	DigitalTurbo DTRX	14.92 -3.2	ApparelWorld APPS	25.33 0.1
Accenture ACN	17.03 -0.2	FortiveFidA FTVf	86.17 0.6	FrontierMergerl FMCU	10.11 0.7	Pluralsight PS	38.37 -2.4	UbiquitiNetworks UBNT	96.99 3.7	CarriageSvcs CSV	22.15 -0.8	RylikScotPntr RBS	17.44 -3.2	ApparelWorld APPS	25.33 0.1
Axon AXM	46.48 1.5	GlobeTechs GHT	59.59 0.7	GordonPointeA GFN	15.21 0.7	PostHoldings POST	105.25 2.0	UbiquitiNetworks UBNT	96.99 3.7	Chomeros CC	38.55 -2.2	FiveStarLiving FVE	0.85 1.2	ApparelWorld APPS	25.33 0.1
AdmiveDevices ADM	32.29 0.5	GlobeTechs GHT	59.59 0.7	GordonPointeA GFN	15.21 0.7	ReliantBancorp RBL	130.80 0.5	UbiquitiNetworks							

MARKETS

Supply Fears

Shrinking oil supplies sent Brent crude to its highest close since May.



Source: Dow Jones Market Data
THE WALL STREET JOURNAL.

Oil Rises as Stockpiles, Output in U.S. Drop

BY DAN MOLINSKI
AND SARAH McFARLANE

Oil prices surged, with the global benchmark Brent hitting \$80 a barrel for the first time since May after the U.S. reported a decline in both oil production and stored inventories.

A variety of other factors also propelled prices higher, including concerns over Hurricane Florence and some moving toward the Gulf of Mexico, tightening global oil supplies due to U.S. sanctions against Iran, and weakness in the dollar, analysts said.

Light, sweet crude for October delivery ended 1.6% higher at \$70.37 a barrel on the New York Mercantile Exchange. U.S. prices also rose sharply Tuesday, and the two-day surge marked the largest dollar and percentage gains since late June. Brent crude rose 0.9% to \$79.74 a barrel.

"We have a myriad of largely bullish short-term factors: Iran sanctions taking hold, bullish U.S. inventory data, some market voodoo as we bounced off the 100-day moving average, [and] a downward production expectation," said Ethan Bellamy, senior analyst at Baird. "Add to that some concern about hurricane probability in the Gulf of Mexico, and we have ourselves a nice little rally."

The Energy Information Administration on Wednesday said U.S. stockpiles of crude oil fell by 5.3 million barrels last week to 396 million barrels, for the first sub-400 reading since February 2015, putting it 3% below the five-year average. Analysts in a Wall Street Journal survey were expecting only a 1.6-million-barrel drop.

Helping to fuel that slide in inventories was a jump in U.S. oil exports, which rose by more than 300,000 barrels a day to 1.8 million barrels a day. A widening spread of nearly \$10-a-barrel between the U.S. benchmark, West Texas Intermediate, and its global rival Brent is making U.S.-produced oil more attractive to oil-importing nations.

The weekly EIA report also showed U.S. oil production retreated from a record 11 million barrels a day to 10.9 million last week. That data dovetailed with a monthly EIA report Tuesday in which the government reduced its forecast for U.S. oil production in 2019 to 11.5 million barrels a day from 11.7 million, as pipeline shortages and other constraints force some producers to the sidelines.

"We had been in a trend of revisions going the other way before, the prediction for output was always revised higher," said Olivier Jakob, head of consultancy Petromatrix, adding that production has now stalled.

Still, some analysts questioned whether the weekly EIA report was as bullish as it seemed, noting processed fuels such as gasoline and diesel had large inventory increases.

"The 5.3 million barrel crude draw was easily overshadowed by a huge 6.2 million distillate build on very low implied demand," said Kyle Cooper, a consultant at ION Energy. "Despite the surprising drop in lower 48 oil production and sliding U.S. total petroleum demand, total U.S. petroleum inventories rose over 10 million barrels."

—Christopher Alessi contributed to this article.

Inflation Curbs Bargain Hunters

Wage increases in Turkey, Argentina erode real returns earned by investors

BY JON SINDREU
AND GEORGI KANTCHEV

Gulbin Demirel, a supermarket cashier in Istanbul, has asked her bosses to increase her monthly 1,600 lira salary (\$250) to keep pace with inflation.

International investors would hope the answer is no.

The currencies of developing nations like Turkey and Argentina have plummeted this summer, dangling the prospect of high returns before fund managers willing to buy local shares and other assets at a discount.

Even those eager to place such bets must first determine how much they expect inflation to erode the real value of their investments over time, a calculus central to the exercise and notoriously difficult.

"We are very much focused on real rates for Turkey," said Anders Faergemann, a fund manager at PineBridge Investments, referring to the inflation-adjusted rate.

Much may depend on how much the likes of Ms. Demirel's employer, French retailer Carrefour, increase wages and prices to cushion the blow of the currency devaluation or decide to absorb part of the higher import costs themselves—helping rein in inflation.

This year, the Turkish lira has fallen 41% and the Argentine peso is down 50%, hit by domestic troubles, the soaring dollar and concerns about trade protectionism.

Investors' concerns were amplified by the reluctance of both countries' central banks to raise

interest rates earlier in the year. In June, Turkey's central bank pushed rates up to 17.75% from 8% to stem capital flight. But inflation in August rose to 17.9%, meaning borrowing costs are still negative in real terms.

On Thursday, the central bank is expected to increase rates again.

Last month, Argentina's central bank pushed rates to 60% from 45%. That leaves borrowing costs after inflation at 29%.

The question now is whether inflation will soar in the medium term once the currencies' declines fully feed into prices, and whether the central bank will be able to control it. Many have lost faith.

"If the market no longer believes you can bring down inflation, it doesn't really matter where you set rates," Mr. Faergemann added.

In the past, a weak lira hasn't meant the sort of price rises that the peso's fall has in Argentina. Even as the lira lost value through much of the last decade, wage rises in Turkey hovered around 15% a year, official figures show. By contrast, Argentine wage rises have been rising since the peso was unpegged from the dollar in 2002 and went into steep decline.

In Argentina, currency moves have tended to trigger much stronger wage demands and price increases than in other Latin American countries, research by Argentina's Universidad Nacional de Moreno found last year. That is because unions are stronger and make higher wage demands, while many Argentine companies—chiefly electricity providers—bill directly in dollars, said Alejandro Fiorito, one of the researchers. This wage-demand response is milder in Turkey, economists said.

In economic textbooks, inflation is often blamed on central banks increasing the money

supply, high employment pushing up wages and governments spending more than they earn. Yet, over the last decade, inflation in rich countries has stayed low even as budget deficits swelled, central banks printed trillions of dollars and unemployment stayed low.

Increasingly, economists stress how businesses price products based on costs, which are often imported. The 17% drop in the pound against the dollar after Britain's 2016 vote to leave the European Union pushed U.K. inflation above 3% from about 0.5%.

This is even starker in developing nations, where currency declines can be steep.

"Currency and inflation are intertwined," said Dariusz Kedz-

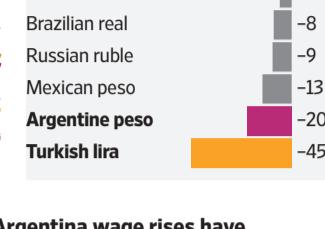
iora, a fund manager at Aviva Investors. "Turkey ended up in this vicious circle because the authorities failed to acknowledge the correlation."

For now, Turkish companies are trying to keep a lid on price rises. At his shop in Istanbul, Serdal Turhan sells walnuts, almonds and cashews in lira but buys them in dollars.

The lira's fall has pushed his business costs up 60% this year, but he has opted for only small price increases so that he doesn't lose customers. His revenue has fallen by half in August alone, he said.

"In a normal year, I'd adjust prices based on the exchange rate and my total costs. But this isn't a normal year," he said, surveying another decline in the

percentage of misalignment between currency prices and their value in real terms



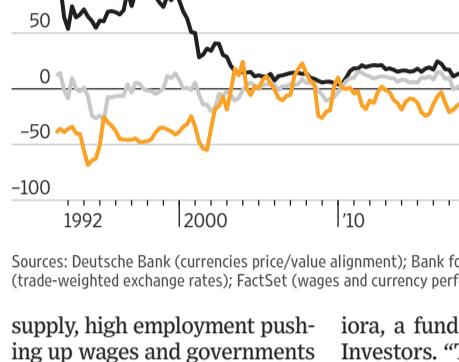
...whereas in Argentina wage rises have trended upward.

■ Nominal wages ■ Real wages ■ Argentine peso

THE WALL STREET JOURNAL.

In Turkey, wage rises have remained stable as the currency fell...

Change from a year earlier



Sources: Deutsche Bank (currencies price/value alignment); Bank for International Settlements (trade-weighted exchange rates); FactSet (wages and currency performance)

lira on his phone.

Current economic uncertainty will also make it more difficult for employees to demand inflation-feeding wage rises, union officials say. "I'll be lucky if I keep my job," Ms. Demirel said.

She isn't the only one feeling uncertain. Last week, \$567 million left emerging-market funds, fund tracker EPFR Global shows.

Still, if the lira's fall isn't outpaced by inflation, a weaker currency should bolster competitiveness abroad and boost jobs, some investors say.

Lira weakness "is ultimately going to sow the seeds of an export and tourism-based revival over the next two years," said Nick Mason, a fund manager at Invesco.

Yields Fall After Weak Producer-Price Report

BY AKANE OTANI

U.S. government-bond prices rose after a weaker-than-expected inflation reading and solid auction of 10-year debt.

The yield on CREDIT MARKETS 10-year U.S. Treasury note settled at 2.963%, compared with 2.979% Tuesday. Yields, which fall as bond prices rise, slipped overnight and then extended their drop after Labor Department data showed the producer-price index notching its first monthly decline since February 2017. The index, which measures the prices that businesses receive for their goods and services, slipped 0.1% in August from the prior month.

The data, coming ahead of Thursday's consumer-prices report, helped ease investors' recent worries that inflation might be accelerating faster than expected—which could spur the Federal Reserve to pick up its pace of interest-rate increases. Inflation is a threat to Treasurys because it chips away at the fixed value of their payments.

Treasury yields extended their declines for the day after the Treasury Department's auction of \$23 billion in 10-year notes drew strong demand.

The 10-year notes were sold at a yield of 2.957%, below the 2.963% at which they were trading just before the auction. The gap in yields indicated to analysts that demand for the bonds was strong, a reassuring sign as the Treasury continues ramping up debt issuance to help finance a growing budget deficit. The government will auction \$15 billion in 30-year bonds on Thursday.

AUCTION RESULTS

Here are the results of Wednesday's Treasury auction. 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.

NINE-YEAR, 11-MONTH NOTES	
Applications	\$59,328,814,800
Accepted bids	\$23,000,004,800
"noncompetitively"	\$15,429,800
"foreign noncompetitively"	\$0
Auction price (rate)	9.296918 (2.957%)
Interest rate at clearing yield accepted	19.38%
Cusip number	9128284V9

The notes, dated Sept. 17, 2018, mature on Aug. 15, 2028.



LUKE SHARRETT/BLOOMBERG NEWS

Stanley Black & Decker's stock was among the index's leaders on Wednesday that rallied on signs the U.S. is reaching out to China.

S&P 500 Gains Amid Trade Hopes

BY AMRITH RAMKUMAR
AND CHRISTOPHER WHITTALL

The S&P 500 edged higher for the third straight session Wednesday, with gains in consumer-staples and trade-sensitive sectors offsetting declines in financial WEDNESDAY'S and technology firms.

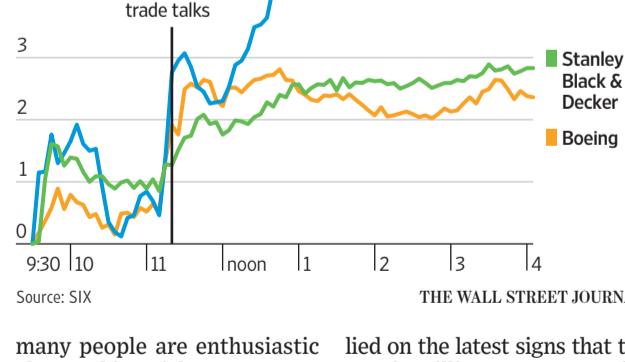
Worries about tariffs slowing global growth and hurting multinational companies have kept major indexes wobbling near record levels lately. After the U.S. and Mexico reached a deal on trade recently, some investors are waiting to see if potential agreements with Canada, the European Union and China could boost global growth later in the year.

The S&P 500 and Dow Jones Industrial Average eked out gains following a Wall Street Journal report that the U.S. is reaching out to China for a new round of trade talks. Some analysts have said the market is waiting for a resolution to the dispute to make bigger moves, following months of continuing threats and discussions.

"There's quite a lot more macro uncertainty, and a lot that has to do with the trade-war fears," said Isabelle Mateos y Lago, chief multiasset strategist at BlackRock. "It's not an environment in which

New Optimism

Materials and manufacturing companies climbed on the latest signs that the U.S. and China are willing to compromise on trade policy.



Source: SIX

THE WALL STREET JOURNAL.

have hurt the sector throughout the year. The sector's 1.3% climb helped lift the broader S&P 500 despite a drop in financial stocks, which were hurt by falling Treasury yields.

Declines in semiconductor stocks also led the broader technology sector lower, with the PHLX Semiconductor Index dropping for the fifth time in the past six sessions after Goldman Sachs downgraded the semiconductor capital-equipment space to "neutral" from "attractive."

The bank also lowered its rating on Micron Technology to "neutral" from "buy."

Investors were parsing the latest inflation data showing the monthly drop in business prices. Despite the unexpected drop in the producer-price index, many analysts expect the Federal Reserve to stay on a gradual path of interest-rate increases and boost rates at its meeting later this month.

"It's certainly a big miss, and the real question is, 'What does [the consumer-price index] do tomorrow?'" said John Sheehan, a portfolio manager at Osterweis Capital Management.

Elsewhere, gains in commodities-linked companies helped the Stoxx Europe 600 climb 0.5%. Early Thursday, Hong Kong's Hang Seng Index, which entered bear territory

Tuesday, was up 1.8%, while Japan's Nikkei was up 1%.

many people are enthusiastic about taking risk."

Still, Ms. Mateos y Lago said she favors U.S. stocks in the current environment, adding that U.S. companies have "more dynamic earnings [and] more dynamic sales growth."

The S&P 500 added 1.03 points, or less than 0.1%, to 2,888.92. The Dow industrials closed up 27.86 points, or 0.1%, to 25,998.92, after earlier climbing as much as 175 points.

The tech-heavy Nasdaq Composite fell 18.24 points, or 0.2%, to 7,954.23.

Trade-sensitive manufacturing and materials stocks rallied

MARKETS

Deepening Slump Tests Fans of Bitcoin

By PAUL VIGNA

The cryptocurrency rout that began early this year with the popping of the bitcoin bubble has only gotten worse, and there is little sign things will get better soon.

The total value of all cryptocurrencies fell below \$200 billion last weekend, down 76% from an all-time high of \$832 billion in January. It is a dramatic decline for a sector that experienced furious growth in 2017, driven by a surge in speculative interest around bitcoin.

The cryptocurrency market is notoriously volatile and has weathered several boom-and-bust cycles in the nearly 10 years since the pseudonymous Satoshi Nakamoto unveiled bitcoin.

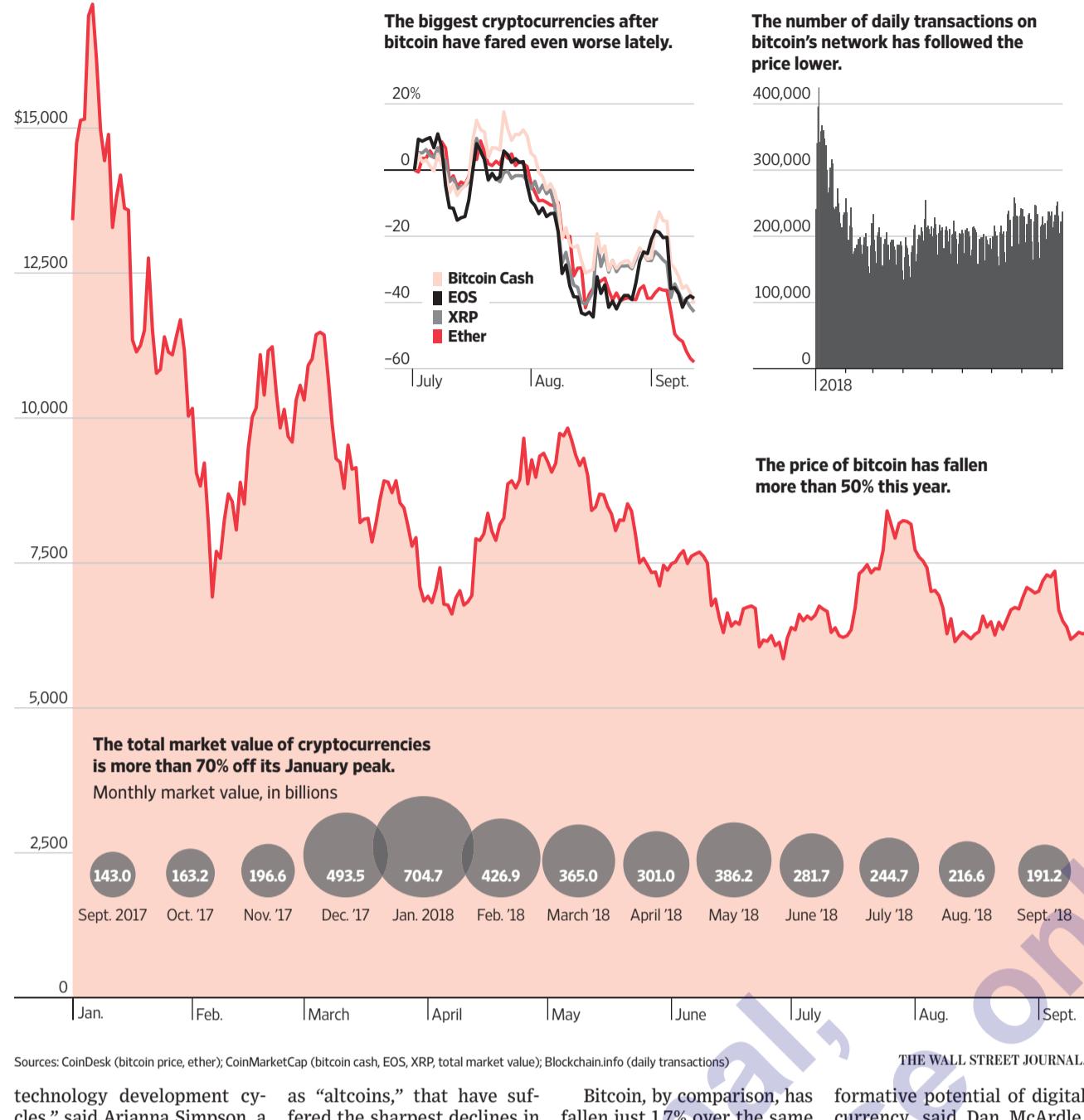
Bitcoin is a digital currency that isn't sponsored by any government or single entity; it runs on a platform known as blockchain, which is a decentralized, immutable ledger of transactions.

Last year's boom was marked by both mainstream interest in bitcoin and an explosion in the number of alternative cryptocurrencies and digital tokens. These dramatically increased opportunities for speculators and heightened volatility in the nascent market.

The problem is that such speculation wasn't matched by concrete activity. More people may have heard of bitcoin than a year ago, but even the ones who hold it still don't have much to do with it besides trade.

The selloff in recent months largely reflects doubts about the practical utility of cryptocurrencies. It is still difficult to use bitcoin and other, more established digital currencies to pay for goods and services, causing some investors to question their potential to transform commerce.

"This happens in all major



Sources: CoinDesk (bitcoin price, ether); CoinMarketCap (bitcoin cash, EOS, XRP, total market value); Blockchain.info (daily transactions)

technology development cycles," said Arianna Simpson, a managing director at venture firm Autonomous Partners.

"You see a decoupling between the financial capital and where the technology actually is."

Bitcoin has fallen about 68% since its peak on Dec. 17. Yet it is smaller rivals, known

as "altcoins," that have suffered the sharpest declines in recent months.

Ether, the second-most-valuable cryptocurrency behind bitcoin, is down 53% since June 30, while XRP, also called ripple, has fallen 43%. Bitcoin Cash declined 37% and EOS has slid 38%.

Bitcoin, by comparison, has fallen just 1.7% over the same period. It hasn't been a tranquil period, though. Bitcoin is down around 20% from a recent peak in late July.

Many "crypto tourists" who bought bitcoin and other tokens in 2017 when prices were soaring lost faith in the trans-

formational potential of digital currency, said Dan McArdle, co-founder of cryptocurrency research firm Messari.

"We're just in one of those periods where the hype has died down," he said.

Take ether, the in-house currency for the Ethereum network: The project took bit-

coin's core concepts and adapted them to a platform built to support apps, similar to Alphabet Inc.'s Android operating system.

The value of ether soared from \$8 in January 2017 to \$1,400 by January 2018 as investors sought to profit on Ethereum's potential. Yet there is still little commercial activity two years after its launch.

There are about 900 live "dapps"—or, decentralized apps—on the Ethereum network with several hundred more in development, according to data from the website State of the Dapps. But there are only 9,000 daily active users.

That isn't a lot of activity and helps explain the huge fall in value ether has experienced. At its height, ether was worth \$133 billion. Today it is worth around \$19 billion.

Regulatory issues also have weighed on the sector of late. The Securities and Exchange Commission continues to reject the idea of a bitcoin-based exchange-traded fund, and the Justice Department is investigating potential market manipulation. Wall Street's industry-funded regulator also recently brought a case involving digital currency.

Crypto veterans remain sanguine about the market's long-term potential, pointing to its short but turbulent history.

After trading as high as \$1,147 in December 2013, bitcoin fell as much as 85% over the next year. It didn't surpass that previous high-water mark until the spring of 2017. In 2011, the price fell more than 90%, from about \$30 to \$2.

A return of 100 times in a year is delightful, said Ms. Simpson. "I enjoy that as much as anyone," she added. "But it's not realistic. The people who were coming in to get '100x' are in for a rude awakening."

HEARD ON THE STREET

FINANCIAL ANALYSIS & COMMENTARY

WSJ.com/Heard

Email: heard@wsj.com

OVERHEARD

Is late August too early for pumpkin spice? Apparently not. Data from consumer researcher Nielsen suggest pumpkin season is arriving earlier, with U.S. sales of pumpkin-flavored products jumping 10% from a year earlier in the week ended Aug. 25.

Sales of pumpkin products are faring well, rising 16% to a record in the 52 weeks through Aug. 25. This includes 27% growth in pumpkin-flavored ready-to-drink coffee, 12% growth in pumpkin coffee creamer and 56% growth in pumpkin ice cream.

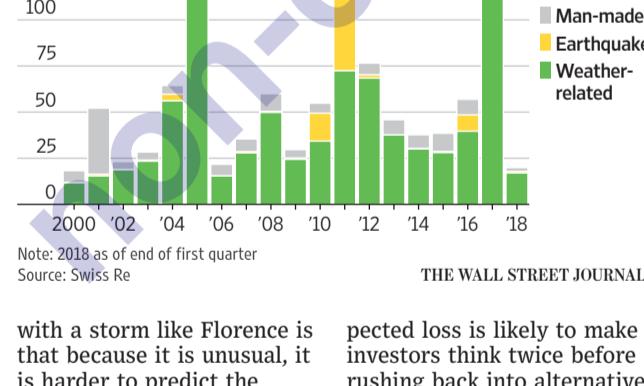
Nor is the trend limited to humans. Pumpkin is a major ingredient in premium and grain-free kibble for dogs by brands such as Blue Buffalo and Nature's Recipe. The fastest-growing pumpkin category over the period was dog food, with sales more than doubling from a year earlier to \$109 million.

Just keep Fido away from lattés.

Insurers Face Unique Threat From Storm

Big Hitters

Total insured catastrophe losses



heading, but also because it is expected to slow down dramatically when it nears the coast, according to risk modeling firm AIR Worldwide.

The result could be a bigger storm surge, pushing more seawater inland and bringing much more rain over several days. That means higher winds for longer and more flooding.

Flood risk is much harder to model than other perils because the high resolution that models need requires detailed land survey data and computing power.

Flooding was a big problem after last year's Hurricane Harvey hit Texas, but there was limited flood insurance coverage in the state. Analysts at Jefferies think there is much more private flood insurance in North Carolina for homes and businesses.

Also, since last year, the National Flood Insurance Program has bought more private reinsurance including

the sale of its first catastrophe bonds, increasing the amount of money at risk from flood losses.

Last year, people in the industry spoke of a \$100 billion loss as the kind of event that would push up pricing after years of declines or low growth.

But the three Atlantic storms that hit the U.S. and Caribbean in 2017 caused losses greater than that and pricing barely moved.

Now industry participants think it would take \$250 billion in losses, according to a survey this week from research firm Artemis. However, if the losses were more surprising because they were beyond what models typically predicted, then a smaller loss of \$150 billion could cause a contraction in the supply of capital to insurance markets.

Storms like Florence are less well understood—and for investors that makes them more dangerous.

—Paul J. Davies

Apple Tries Balancing Act With iPhones

Apple Inc. pulled off a notable accomplishment at its annual iPhone refresh on Wednesday. The world's most valuable company managed to raise its prices without seeming to do it.

That is no small feat. Apple already was pushing the edges in this regard. Last year's iPhone X was the first smartphone to launch in North America with a starting price of nearly \$1,000. The company says it has been its best-selling phone of the past cycle. But analysts also estimate that it has represented a much lower proportion of total iPhone sales during that period than new devices in previous years.

Still, the iPhone X has helped the company boost

revenue even with unit sales remaining flat. Apple's new lineup announced Wednesday seems designed to continue this approach. The iPhone X was essentially updated to the iPhone XS with a new processor for the same starting price. But Apple added a new supersize iPhone XS Max, which is its first entry into the market segment of gargantuan phones with displays larger than 6 inches. Those two phones along with the new iPhone XR will be available in memory configurations with as much as 512 GB of storage.

The upshot is Apple is now selling 17 iPhone configurations, with prices ranging from \$449 to \$1,449. The

company's previous lineup ranged from \$349 to \$1,149, though Apple did cut prices on some older phones. That means the average price in Apple's lineup has gone from about \$692 to \$875, a 26% jump. Apple now has five iPhone configurations priced above \$1,000 compared with only one before.

Apple's shares have jumped 30% so far this year on the theory that the company can outperform a mature smartphone market with higher prices and growing services. Apple's devoted customer base is getting its big new phones, while investors are getting their price increase. Apple needs both sides to be happy.

—Dan Gallagher

What to Watch for When Economy Turns

The economy has been growing so rapidly that it makes sense that it will slow somewhat. What matters is when and by how much, and that is where things get difficult.

Economists are notoriously bad at forecasting changes in the economy and the unusual combination of moving parts—tax cuts, stimulus, trade feuds, very low but rising interest rates and high stock prices—puts them on even shakier ground.

So rather than trying to forecast, or guess, what the economy is going to do, investors might be better off watching what happens—and knowing what they should watch for.

Since it is companies that have driven the pickup in the economy in 2018, they will likely be the key to determining how quickly it will keep growing, says Bank of America Merrill Lynch economist Michelle Meyer.

She thinks business survey measures, such as the Institute for Supply Management's manufacturing report, will give the earliest read on whether companies are feeling less buoyant.

UBS economists expect tariffs will hurt the economy in the fourth quarter and have put together a set of signposts they will watch to gauge the hit. Along with the manufacturing report, they say to watch inflation to see if tariffs are pushing up

prices, and retail sales to gauge whether higher prices are weighing on consumer spending. In short order, they think the trouble will show up in the monthly jobs report, with manufacturing and retail employment registering declines.

Then there is the Federal Reserve, which looks likely to raise rates two more times this year. The early read on whether rising rates are slowing the economy will be signs financial conditions are tightening.

One of those signs would likely be falling stock prices, so investors wouldn't need to wonder what to watch anymore—they would be living it.

—Justin Lahart

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5G TECHNOLOGY

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Why Being First In 5G Matters

The U.S., China, South Korea and Japan all see a big payoff from winning the battle for the wireless future

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BY STU WOO

The race to be the first 5G country has begun—and the winner stands to gain a lot.

Around the world, giant wireless-technology companies are coordinating with their governments to come up with winning strategies to implement 5G, the next generation of cellular networks that promise to deliver ultrafast speeds and open up a range of new applications.

The U.S., China, South Korea and Japan are leading the early rounds. **AT&T** and **Verizon** plan city-by-city 5G launches starting later this year, while China expects national coverage by 2020.

While wireless-industry executives say applications that tap the full potential of 5G—self-driving cars, virtual reality and remote surgery—are several years away, leading the way does matter for a country's economy, if the race to 4G is a guide. If the U.S. hadn't led the way on 4G, the country might not dominate mobile technology, and its platforms, such as Instagram, Snapchat and perhaps even Facebook and Netflix might not have become global powers.

"The Ubers, the Airbnb, the Netflixes of the world came about because of 4G," says Rob McDowell, a Republican former Federal Communications Commission commissioner. "No one foresaw the app economy coming. What's exciting about 5G is that nobody can really fathom what's going to happen."

Being slow to 5G, he says, would put "the U.S. at a competitive disadvantage globally."

Letting innovation happen

Short for fourth-generation cellular technology, 4G was designed to zap video and other gobs of data from cell towers to smartphones. Having easily accessible 4G on AT&T and Verizon networks helped entrepreneurs test ideas like Snapchat. It also persuaded people to use data-intensive smartphone apps, when they might have lacked the patience to wait for Instagram videos and pictures on slower 3G networks.

"The proverbial guys in the garage have a shot" to test business ideas if the newest wireless technology is available, says Roger Entner, lead analyst at telecom research-firm Recon Analytics. "If the network is not there, they don't have a shot at all."

In a study commissioned by U.S. wireless trade association CTIA, Mr. Entner concluded that America's 4G leadership led to roughly \$125 billion in revenue for U.S. companies that could have gone elsewhere had the country not been at the technology's forefront. He says 4G increased wireless-related jobs in the country by 84%, to 4.6 million in 2014 from 2.5 million in 2011.

Fifth-generation technology promises to be even more transformative. Consumers won't notice a difference until they upgrade to phones compatible with 5G technology, which won't become widely available until at least 2019. But when 5G is fully functioning in several years, it will be so fast that people can download full-length movies on their phones in a few seconds instead of several minutes currently. The data will travel nearly instantaneously, perhaps fast enough to mimic human re-

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JOURNAL REPORT | 5G

Across the U.S., 5G Runs Into Local Resistance

The new technology requires a lot more cell towers than the old networks. But residents and local officials are pushing back.

BY DREW FITZGERALD

RESIDENTS OF Denver's Riviera apartments were surprised earlier this year when a roughly 30-foot-tall green pole appeared a few feet in front of their building entrance. The pole, installed by **Verizon Communications** Inc. and laden with cellular antennas, was designed to improve cellphone service in the area, but the residents complained about the placement.

Months later, it was gone. But that was just a small taste of what's to come across the country: Millions of Americans will soon encounter similar poles or notice antennas sprouting on existing structures, like utility poles, street lamps and traffic lights, all over their neighborhoods. All four national cellphone companies are pushing to build out their networks with a profusion of small, local cells to keep their data-hungry customers satisfied and lay the groundwork for fifth-generation, or 5G, service.

Those plans face pushback in many places, and not just from residents. Officials in some cities say they don't have enough staff to process applications for dozens or even hundreds of new installations. In some smaller towns, officials say they lack the expertise to review the new technology, though they're working fast to get up to speed.

In Wilton Manors, Fla., Mayor Gary Resnick says the Miami suburb needs more time to draft an ordinance to govern the installation of the new technology. And there are seasonal issues. "We generally restrict construction in the rights of way during hurricane season for obvious reasons," he says.

Just around the corner

More than 100,000 small cells are already wired up across the U.S., according to industry research firm S&P Global. Cellphone companies plan to boost their capacity with several hundred thousand

more cells to improve existing service and prepare for 5G service, which they see as a potential competitor for cable and fiber optics, among other things.

Some of the local resistance is rooted in how small cells work. Companies can usually find space on private property for large cell towers with a range of several miles. Small cells reach only a few hundred feet, so carriers need many more sites, usually on public land, for the system to work.

Cellphone companies don't have much choice if they want to keep up with their customers' appetite for data, says Jonathan Adelstein, chief executive of the Wireless Infrastructure Association, whose members include wireless carriers. "People wonder why they might be having a dropped call or slow video," Mr. Adelstein says. "Then they have a vocal minority that are ruining it for everybody" by opposing the expansion of cellular networks.

Denver resident Brad Cameron says a new two-story pole that sprang up near his condo last winter "clearly has improved my cell service." But he wants to keep new poles to a minimum by making cellphone companies share space on the same structures. "The concern I've got is that instead of trees, we're looking at a forest of small cell towers," he says.

Denver City Council member Wayne New says the government is encouraging carriers to cooperate with the local electric utility to use more existing street poles.

Policy battles

State and federal policy makers are mostly backing the wireless carriers. Federal Communications Commission rules passed in March exempt small-cell deployments from certain historic-preservation and environmental reviews. Another FCC rule slated for a vote this month seeks to lower local fees and would set 60-day or 90-day limits for local governments act on permit applications. A bill in Congress would deem small-cell applications granted if local governments fail to act on a request within 31 days. Dozens of state laws also restrict local governments' control over small-cell projects.

"It's all gamesmanship right now," says Angela Stacy, vice president at consultant Smart-



Small cells, essential for 5G service, include the conspicuous, as in Santa Rosa, Calif. (left), where the box on the ground was removed after complaints but those on the pole remained; and the less conspicuous (center) and well camouflaged (right), both in Nashville.

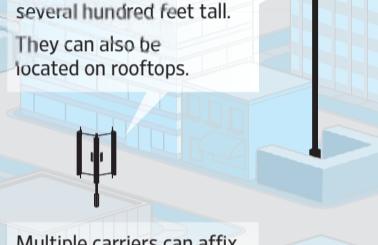
ALVIN JORDAN/THE PRESS DEMOCRAT; FESTICA G. REEVES

Small Packages, Big Impact

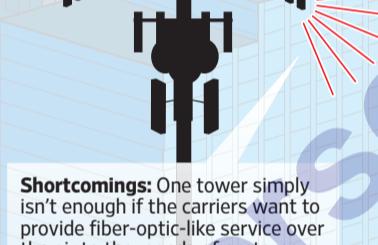
Conventional cell towers will provide 5G service in many places, but they can't do it all by themselves, especially in cities. That's where small cells come in.

Traditional Tower

Tall towers can provide coverage to several thousand people across a few square miles.



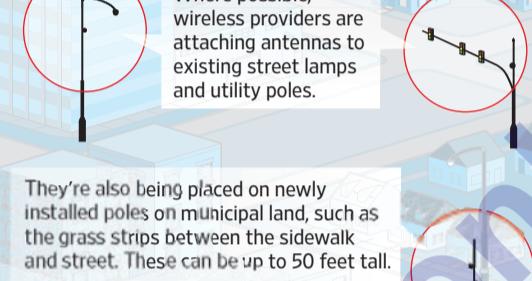
Multiple carriers can affix transmitters to these towers, operating on their respective frequencies.



Source: Wall Street Journal reporting

Distributed Technology

Small-cell transmitters, which have been used to fill gaps in 4G coverage, will be required in much greater numbers to fully deliver on 5G's promise. They typically have a range of a few hundred feet.



They're also being placed on newly installed poles on municipal land, such as the grass strips between the sidewalk and street. These can be up to 50 feet tall.



Indoors: Some small antenna systems are designed to serve dead spots in buildings, serving about 30 people.

This can cover 10,000 to 20,000 square feet.

Others are designed to serve concentrated indoor populations such as airports and malls.

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Works Partners LLC, who advises local governments on telecommunications policy. "The carriers have basically launched a three-pronged attack" with the support of regulators and federal and state legislators.

Officials in San Jose, Calif., have tried to parry that offen-

sive by fast-tracking installations for carriers that have agreed to help fund a local internet-access initiative. The Silicon Valley city has licensed space on light poles for a few hundred dollars per installation, using the money to connect low-income residents to high-speed broadband at home.

AT&T and **Verizon** have signed on to the plan and are gearing up to install equipment.

"We tried to prove to the telecom industry that cities are not the problem," San Jose Mayor Sam Liccardo says. "We appreciate the industry's position that too much red tape can get in the way."

At the same time, though, Mr. Liccardo says the city and its allies are "battling the industry mightily" on the federal and state level, lobbying to block policies they consider a handout to cellphone companies because they would limit the fees the carriers can be charged to install and operate small cells.

"These poles are increasingly becoming valuable real estate," he says. "If cities can't manage their own infrastructure—that their taxpayers paid to install—it puts them at a considerable disadvantage."

AT&T strategic-planning executive Jason Porter says cities' needs vary but the company's experience with San Jose is a "win-win."

"Every concern that a city manager has is a viable concern," Mr. Porter says. "San Jose's a good example of a location that we've been able to work with."

Making adjustments

Other local officials say the installations could widen the digital divide between well-connected residents and those with limited service. In Maryland's Montgomery County, which covers rural communities and several suburbs of Washington, D.C., county planners are working on a fee structure for small cells. They want rental rates to vary depending on population density to encourage more rural deployment.

But in general, such fees take away from construction that ultimately benefits the public, says Rudy Reyes, a vice president of public policy for Verizon. "Capital budgets are limited, and we would rather use that money to invest in infrastructure and investment for our customers," he says.

Construction isn't slowing down in Denver, home of the since-removed pole in front of the Riviera apartments. The city now has nearly 100 small cells, with more than 250 additional installations planned. But the local government has set new guidelines to control where companies place their small cells, which prompted Verizon to take down a handful that it had already installed.

"They were willing to adjust to be good neighbors," says Jon Reynolds, a program manager for Denver's public-works department.

Verizon's Mr. Reyes says Denver has been an overall success so far. "We try to work with these residents to address legitimate concerns," he says.

Mr. Fitzgerald is a reporter for The Wall Street Journal in Washington. Email him at andrew.fitzgerald@wsj.com.

The Race to Win 5G Heats Up

Continued from the prior page flexes to help self-driving cars avoid accidents. In fact, some auto experts say, 5G could be crucial to the success of autonomous vehicles.

The technology could also reshape the landscape for telecommunications firms. If people can download huge amounts of data at ultrafast speeds, wireless connections could be powerful enough to replace cable and internet providers that need to plug wires into homes.

A device revolution

What's more, 5G will allow many more objects to connect to cellular towers, enabling the long-promised Internet of Things, in which everything from home appliances to implanted medical devices are connected to the network.

"The most important issue is enough capacity," says Marty Cooper, the former Motorola executive credited with inventing the cellphone. "5G is going to be an important element in running factories."

With 5G, manufacturers can more easily put chips in every part of their machines to let engineers know when a part needs repair or replacement. Farmers can put internet-connected sensors on livestock to tell when they're sick or giving birth, or all over their soil to tell when it needs more or less water. Some researchers are testing the idea of remote surgery, in which a doctor could operate on a patient on another continent with a robot arm.

At home, people could connect components of their refrigerators or laundry machines to the internet, so they can detect when it needs servicing.

Runners can connect sneakers to the internet to track mileage and speed. And people could have implanted heart or blood monitors automatically send readings to doctors via cellular networks.

Some of this technology is available now on 4G, though devices must typically connect to a Wi-Fi network or smart-

possible: 5G technology also requires less power than before, which means people don't have to constantly reload those tiny transmitters with new batteries.

"5G has a layer specifically built around the Internet of Things, built around longer battery life, so now batteries last 10 years instead of one year," says Glenn Lurie, a former

Accelerating Change

The next generation of wireless service, 5G, will deliver peak download speeds about 100 times faster than 4G. It will also eliminate most of the latency, or reaction time, when phones and other devices connect through the network. Consumers will see the difference in much more than just their smartphones:

Downloading media

A two-hour movie that takes six minutes to download on 4G will need three or four seconds on 5G.

Autonomous vehicles

Self-driving cars could get a boost. They could "talk" with other cars and with road sensors with human-reflex-like responsiveness.

Virtual reality

Consumers will get smoother and more seamless VR experiences.

phone. 5G would let these devices be always internet-connected, as long as there is a cellular signal, and would theoretically let many more objects connect to cellular networks without slowing down traffic. Mr. Entner says 4G can connect up to 2,000 devices per square kilometer, while 5G could support up to one million devices in the same area.

It isn't just greater speed and connectivity that make this

their merger if the U.S. wants to keep pace with China in 5G. The carriers are salivating at the prospect of selling services to manufacturers, utility companies and regular people.

U.S. tech giants including Intel are trying to persuade the White House that higher tariffs on China could threaten American 5G leadership, by raising the costs of goods required to build 5G networks.

U.S. officials have said that winning the 5G race is critical to both the economy and national security. That is, in part, how the government has justified the extraordinary steps it has taken to curb Chinese wireless-electronics giant **Huawei**, preventing its sales in the U.S., among other actions. Officials believe Huawei could spy on behalf of the Chinese government, which becomes an even greater risk in a 5G era, in which exponentially more machines and everyday objects are connected to the internet. Huawei says it would never spy on behalf of any country.

Another worry is that if China develops widespread 5G first, it could be in a better position to experiment with autonomous vehicles and other emerging technologies—and displace Silicon Valley as the hub for the leading engineers.

But some 5G skeptics question how great an impact the new technology will have. For instance, William Webb, a former Motorola director of corporate strategy who is now a telecom consultant, doesn't see huge promise in the technology.

"5G doesn't bring anything I can imagine that you can't deliver with 4G," he says. He compares the 5G to the Concorde, the passenger jet that was a commercial failure because not enough people were willing to pay for the extra speed it offered to justify its expense.

Autonomous vehicles can't rely on cellular connectivity in tunnels or even bad weather, since rain or extremely high humidity could distort 5G signals even more than it does with 4G, he says. That means most of the brains of self-driving cars will be inside the car's computer instead of over a mobile network.

Mr. Webb says that virtual-reality headsets and remote-surgery machines are more likely to be connected to Wi-Fi routers, which are connected to land lines that will still be faster than 5G.

Like some other skeptics, Mr. Webb also says it doesn't matter which country comes first, especially in an increasingly globalized world where multinational companies have offices everywhere.

If entrepreneurs need a 5G connection to work on applications, they can easily set up a lab that mimics 5G, or travel to labs, such as one at England's University of Surrey, Mr. Webb says.

Patent advantage

Also, no matter which region of the world develops 5G first, whether it is America, Europe or Asia, the companies that will benefit the most are patent holders, says Dimitris Mavrakis, an ABI Research analyst.

He says those companies include **Qualcomm** and **InterDigital** in the U.S., **Huawei** in China, Finland's **Nokia**, and Sweden's **Ericsson**. "If we want to talk about economic impact, we have to look at the big patent holders," he says.

In fact, those big patent holders may be even better poised to benefit from 5G than they did from past wireless advances. The U.S. wireless group's study said Japan—which led the way on 3G—failed to capitalize on the social-net-

working and music services it developed in the early 2000s, in part because those businesses were Japan-centric.

But the study's author, Mr. Entner, says foreign companies today are better suited to export their products internationally. He points to **Huawei**, which turned itself from a company focused on the domestic Chinese market to one that is now the world's biggest maker of cellular-tower equipment and related infrastructure, as well as the world's No. 2 smartphone brand.

In a separate study it commissioned earlier this year, the CTIA trade association found that China, South Korea and the U.S. were leading the 5G race, in that order.

CTIA considers China the front-runner because its wireless carriers have pledged large-scale 5G launches by 2020, while the government is supporting the effort.

South Korea tested 5G during the Winter Olympics earlier this year, and in July the government said Korean carriers will all launch 5G at the same time in March 2019 to avoid competition that could drive up marketing costs.

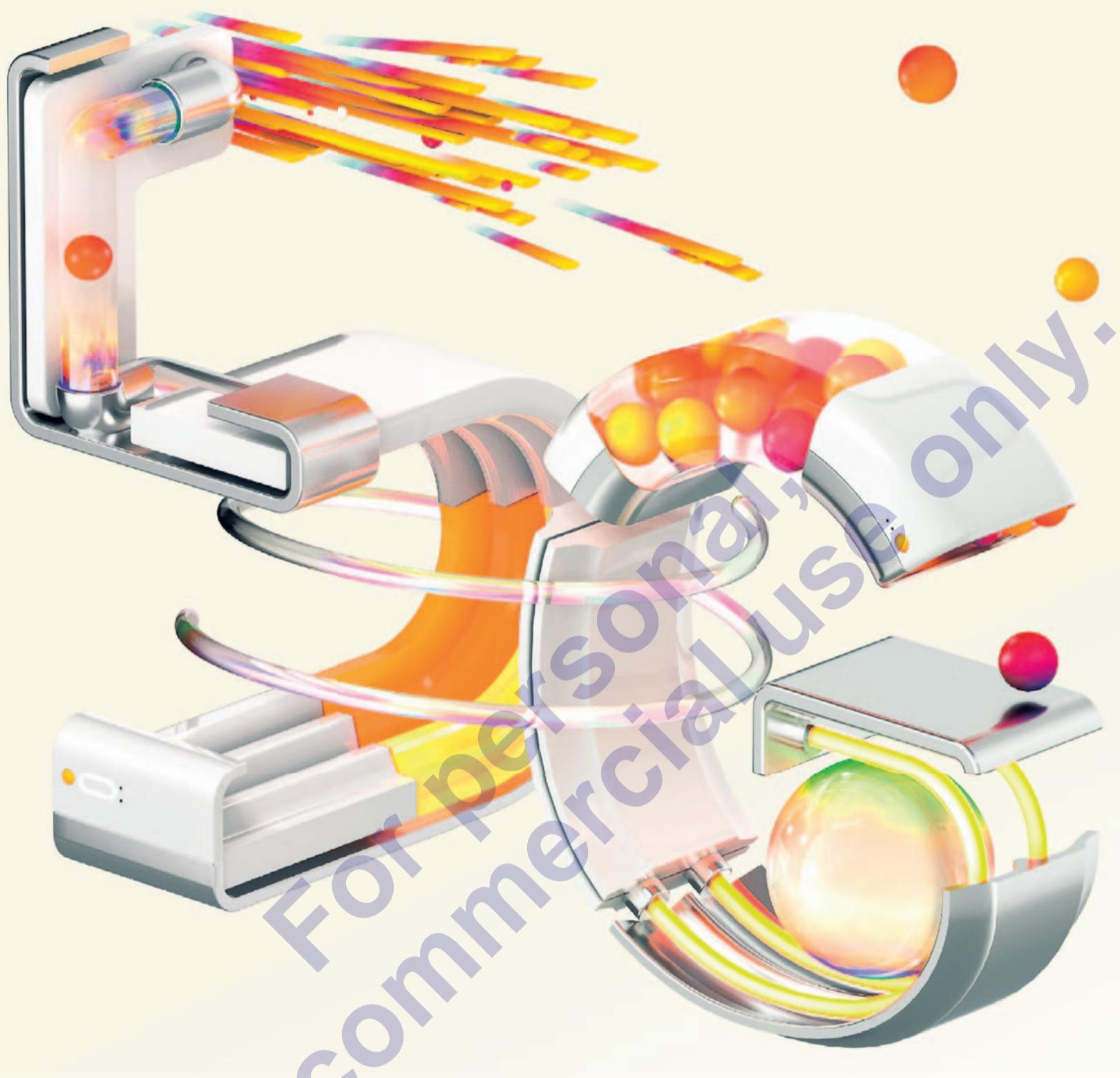
The U.S. is likely to have the first working 5G networks by the end of this year, but only in a few cities. AT&T plans to launch in Dallas, Atlanta and other cities, while **Verizon** has picked Sacramento, Calif., and elsewhere.

Mr. Entner says being first doesn't matter that much, if the runners-up are only a few months behind. But a longer lag risks serious economic losses. "Not winning the network race guarantees you to lose," he says.

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JOURNAL REPORT | 5G

More Connections, More Concerns

Every new advance brought on by 5G technology is accompanied by a new set of security worries

BY JOHN D. MCKINNON

WASHINGTON—By now, the potential benefits of next-generation 5G wireless are well known, such as huge new networks of connected devices, and nifty autonomous vehicles.

Less understood are the security risks—from huge new networks of connected devices, and nifty autonomous vehicles.

The fact is that almost every advance in 5G comes with a new set of security worries. Perhaps the biggest concern is the expected flood of connected household devices, many of which already have been hacked and used in denial-of-service attacks, like one in late 2016 that made major services such as Netflix and Twitter unreachable for a day.

With 5G, the telecommunications system itself will become so central to everyday life that experts fear it will create an ever-larger target for malicious actors. There also are worries that 5G will make it easier for hackers to turn autonomous vehicles, medical procedures and implantable devices into lethal weapons.

As 5G facilitates a vast expansion of devices and networks, “these start to become large targets, and ripe for attack,” says Bruce Potter, chief information security officer at Expel Inc., a cybersecurity startup in Herndon, Va. “We have a fairly large problem ahead to figure out how to secure all the components” of 5G, he adds.

The China threat

U.S. vulnerability could grow even more if domestic companies lose the race with companies abroad to dominate 5G technology. And that is particularly true if the industry comes to rely on Chinese equipment, many U.S. policy makers say.

“Building and designing a telecom network gives you an intelligence advantage,” says James Lewis, a cybersecurity expert at the Center for Strategic and International Studies, a think tank. “If you’re going to burgle a house...it’s easier to burgle” if you built it, he says.

Many U.S. officials say their approach to securing the 5G future is working so far. “It’s a challenge, no way around it, but it’s something everyone I’ve talked to is taking seriously,” says Brendan Carr, a Republi-



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can member of the Federal Communications Commission. “We’re bringing all the right people and agencies to bear, so we’re in good shape in that sense.”

Not everyone agrees, though. Democratic FCC Commissioner Jessica Rosenworcel, for one, has chided the agency for moving slowly on providing the airwaves that 5G will demand. That could mean the U.S. is falling behind in the race to dominate 5G technology. Moreover, the U.S. government’s response so far to cybersecurity—and 5G security in particular—has been criticized as haphazard, because of confusing lines of authority.

DHS limits

The government’s lead agency for many cybersecurity issues, the Department of Homeland Security, acknowledges it doesn’t have the authority to prevent some types of problems.

“DHS is not a regulatory agency, and our authority to prohibit use of software only applies to Federal civilian executive-branch departments

Growing Target

Cybersecurity attacks could accelerate with 5G technology, which will connect far more devices than today’s networks. The number of cyber incidents with losses of more than \$1 million:



and agencies,” an agency official says.

A few White House advisers on the National Security Council earlier this year recommended what amounts to a nationalized 5G system, according to a leaked version of their report. But telecommunications firms and lawmakers of both parties roundly criticized the idea, and its main proponent, an Air Force general, is no longer assigned to the NSC.

Now the government is stepping up efforts to work with business to plug vulnerabilities.

“I don’t want to stifle innovation, and 5G is going to encourage all types of innovation, so we continue to work with industries to make sure we’re building security in,” says Rep. Jim Langevin (D., R.I.), a founder of the House Cybersecurity Caucus.

For example, federal officials are working with many device makers—including household and medical device makers—to make it easier to head off attacks.

In addition, the U.S. Congress recently passed legislation that bars government agencies and contrac-

tors from using telecommunications equipment made by **Huawei Technologies** Co. and **ZTE** Corp., leaders in China’s 5G effort. The move expands on previous restrictions that Congress has adopted since concerns began to be raised about the firms’ equipment around 2012. The worry was that Huawei and ZTE were building back doors into their network equipment that the Chinese government could tap into.

A spokesman for Huawei, which denies such accusations, says that restricting the purchase of its equipment in the U.S. “actually does nothing to enhance the real national security of the U.S. It does nothing to identify real security risks or protect the security of the global technology supply chain.” ZTE didn’t respond to requests for comment.

Major carriers have already stopped using the Chinese companies’ network equipment. But there are fears among security experts that China eventually could gain so much power in the market for 5G network equipment that U.S. companies would have no choice but to use Chinese equipment.

Software rules

Hardware is expected to be less critical to future networks, as software does more of the work, a shift that will boost security in many respects, experts say. Software-defined networks, or SDNs, make security much more flexible and resilient, according to industry experts. For instance, if there’s a breach, it can be contained fairly quickly to a small area.

But there are always trade-offs. As software becomes more important, defects and bugs in the coding can provide great points of entry and tools for attackers, according to some experts.

Some lawmakers, meanwhile, say more dramatic steps might be necessary soon. A number are discussing incentives such as legislation that would give businesses, including telecom firms, legal protection from lawsuits provided they build in sufficient cybersecurity measures.

Mr. McKinnon is a reporter in The Wall Street Journal’s Washington bureau. He can be reached at john.mckinnon@wsj.com.

Inside Verizon’s 5G Game Plan

The company’s CEO on how the technology will make a difference—to users and the company

BY SARAH KROUSE

THE NEW CHIEF EXECUTIVE OF VERIZON COMMUNICATIONS Inc., Hans Vestberg, has taken the helm as the wireless giant pursues a bet that providing a strong network is better than trying to own the content that flows through it.

Verizon plans to roll out the next, faster generation of wireless networks, or 5G, for its residential customers in four cities before the end of the year. The carrier said Tuesday that customers in Indianapolis, Houston, Sacramento and Los Angeles would be able to sign up for its 5G broadband internet service later this week, with installations starting Oct. 1. The service uses higher-frequency spectrum known as millimeter waves, which can carry more data than other types of spectrum but can’t travel as far or penetrate many hard materials.

The company has thus far opted not to pursue the transformational mergers and acquisitions like AT&T Inc.’s purchase of Time Warner or T-Mobile US Inc.’s proposed purchase of Sprint Corp. In an interview, Mr. Vestberg, who was CEO of Ericsson AB before joining Verizon in 2017, discusses what 5G will mean for consumers and why providing the pipes is the best position for the telecom carrier to be in. Edited excerpts follow:

Connected devices

WSJ: What differences will consumers see with 5G?

MR. VESTBERG: 5G has eight different currencies. The currency is something I can give to a consumer or enterprise, things like the peak data rate, the mobile data volumes, the mobility—or how fast can you drive and still keep the signal.

Other currencies include network reliability, latency [which is the time it takes for two devices to communicate], and how many connected devices you can have per square kilometer. With 4G, you can



Dominick Reuter for The Wall Street Journal

The number of things you can and will connect is going to grow.

have roughly 1,000 connected devices per square kilometer. It is one million on 5G. There also is the energy efficiency and service deployment time, or how long it takes to connect to the internet.

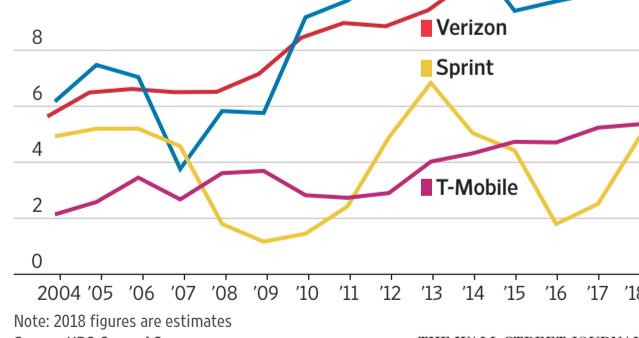
WSJ: What does that mean for say, a home?

Mr. Vestberg: There will be lots of connected devices in homes in the future, such as smart refrigerators, cameras and tablets. We can handle more of them from a 5G mobile network because of its capacity.

Today with 4G, you can have 200 milliseconds on the network in latency; with 5G, that will go down to 10 milliseconds. What can you do with 10 milliseconds? You can have intense online gaming that is totally mobile. You can have

Stronger Signal

Wireless capital spending by carrier



[retail-store] transactions on mobile phones on the mobile network. You wouldn’t do that on 4G today. You would sit at a fixed location with a fiber straight to a computer.

WSJ: When will consumers understand 5G, given the lag time between building networks and compatible devices coming to market?

MR. VESTBERG: They will understand it when they have a 5G phone in their hands.

WSJ: One of your rivals said there is no point in investing in 5G technology until there are real-world applications for it.

MR. VESTBERG: This is the same thing we heard before

We will have one 5G product from Motorola coming out early next year. It is a chipset that can be clipped to an existing phone to make it compatible with a 5G network. It is much quicker to build that than a new 5G-compatible phone.

WSJ: How will 5G affect Oath,

Verizon’s digital media and advertising unit that includes properties such as Yahoo Finance, HuffPost and Tumblr?

MR. VESTBERG: They are working a lot with media and entertainment. They are working on virtual reality/augmented reality. We have Ryot, one of the most advanced digital studios in the world. We are working with them—what can they do with their assets in the 5G world?

Our best asset'

WSJ: Will people pay for it? What’s the path to monetizing 5G for the consumer?

MR. VESTBERG: You have to be innovative here. There are going to be more connected devices, so the number of things you can and will connect is going to grow, and presumably there will be some revenue associated with that.

WSJ: Does the unlimited phone plan continue in a 5G world?

Mr. Vestberg: We haven’t gotten that far. We aren’t sharing our commercial plans from a confidential point of view.

WSJ: As a network provider, how do you benefit from the success of an application like Uber? If a customer uses an unlimited plan to summon their Uber, what’s the incremental economic benefit you get?

MR. VESTBERG: Overall, if there are no applications, you don’t need a network and vice versa. Applications won’t come unless they have a network that can support them, and networks lead to more experimentation and the development of apps. We have created such a fantastic network that people can innovate on—that’s our best asset.

WSJ: So you’re confident you will recoup the investment in the network?

MR. VESTBERG: You would invest in the network anyhow. You need to be leading on technology. We are in the business of delivering data and speeds and throughputs for our customers, so if we aren’t investing in the latest technology, we are going to be at a disadvantage.

WSJ: You’ve been clear that you have the assets you want. Are you concerned about the heavy investment required to roll out a 5G network and that it might take a while to actually see the benefits?

MR. VESTBERG: We have places where we want to provide network connectivity only. There are some services Verizon can provide—we have a connected-car product called Hum, for example—and others where we need a partner.

In some areas we will provide connectivity, a device that brings Wi-Fi into the home, but Apple and YouTube will provide the content. I can work with anyone to get maximum usage of what I would say is the best network.

Ms. Krouse is a reporter for The Wall Street Journal in New York. Email her at sarah.krouse@wsj.com.

What 5G Will Mean for the Consumer

In the long term, plenty. But the changes will come slowly.

BY MARC VARTABEDIAN

EACH OF THE MODERN leaps in wireless network technology has brought distinct change: The second generation—aka 2G—allowed for voice transmission, 3G ushered in the app revolution, and 4G brought a drastic speed boost.

Now, the highly anticipated 5G wireless networks are expected to be powerful enough to bring us mass-market automated cars and real-time virtual reality, yet practical enough to replace wired home broadband.

But, while 5G will begin rolling out to consumers by year-end, fulfillment of its more lofty promises might not happen for years, experts say. And a prohibitively costly infrastructure build-out that involves unsolved challenges also stands in the way. In short, groundbreaking 5G applications could be ahead, but at first it might not seem all that different from what we have today.

Connecting things

Chief among 5G's promises is that its use of shorter-frequency radio waves could allow it to carry enough extra data to vastly extend the reach of internet connections. Current 4G LTE networks can handle smart deadbolts and dog collars, but they don't have the bandwidth to allow for complex, self-controlled systems—think autonomous cars that communicate with each other to choreograph a synchronized parking effort in the heart of New York City.

5G is about connecting "things with other things," says Sandra Rivera, senior vice president for the Network Platforms Group at Intel Corp., one of the leading chip makers that are engulfed in a global race to develop and roll out the technology, along with telecoms such as AT&T Inc. and Verizon Communications Inc.

Latency—the lag between when a request for a website or video is made and when the network responds—will have a big part to play in the success of 5G networks. Ultimately, 5G latency could be reduced

to one-tenth of what it is with 4G, according to the International Telecommunication Union, a United Nations agency that develops technical network standards. The future of virtual reality and augmented reality depends greatly on this.

"With higher speeds and lower la-

Uber and autonomous vehicle fleets from startup **Drive.ai**.

Augmented-reality headset maker **Magic Leap** formed a partnership with AT&T in July to take advantage of the carrier's 5G ambitions. Magic Leap's headset requires powerful processing to seamlessly overlay graphics on the surrounding envi-

also can have difficulty penetrating walls and windows, and could even be hindered by new leaves on trees during the spring.

Carriers say the solution to those problems is more cell towers, but that presents its own difficulties. Making 5G a widespread reality, even within cities, requires thousands of new towers. Building all those extra 5G-equipped towers is expensive, especially for a country as sprawling as the U.S.

"Nobody has figured out how to build that infrastructure out yet," technology consultant Chetan Sharma says. "The math required to make that work isn't practical."

As a result, the first itera-

low-band 5G, and up to three times as fast for mid-band 5G, Mr. Sharma estimates. Lower-band spectrum rollouts require less cell-tower infrastructure.

The first applications will include fixed wireless access for the home, sports venues equipped with remote-controlled high-resolution cameras, and connected shuttle services in cities, according to several large carriers.

Early days

AT&T will begin introducing 5G in 12 U.S. cities this year, with the disclaimer that "actual speeds are lower and will vary" from what is theoretically possible, according to a company announcement in August. Mr. Feutsch says lower latency and faster speeds will be among the first effects consumers will notice.

Verizon has similar efforts under way, focused on providing home broadband via 5G.

Even with its initial limitations, 5G's technical improvements could tear up the playbook for how people get internet. Wired and wireless technology could blur: As the wireless-centered companies pose new threats in markets dominated by cable companies, so too could **Comcast** and others adopt the technology to compete.

There likely won't be any 5G smartphones in the U.S. until next year. In August, **Sprint** announced a partnership with **LG Electronics** to launch a 5G phone in the first half of 2019.

For **Qualcomm Technologies Inc.**, a leading smartphone chip maker, the first phase of 5G that will be rolled out next year is focused on mobile broadband—smartphones, tablets, connected PCs—says Danny Tseng, a technical marketing staff manager at the company.

Flashier consumer applications, such as vehicle-to-vehicle communication—a key step in making autonomous cars a reality—and digital TV broadcasting aren't part of the focus of the first 5G rollout, Mr. Tseng adds.

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Magic Leap, an augmented-reality company, overlays graphics on a user's surroundings.

tency rates, our mobile 5G network will eventually unlock a number of new, exciting experiences for our customers," says AT&T's chief technology officer, Andre Fuetsch.

AT&T is aiming high. It announced in August that it would equip a community in Texas with 5G to enable pilot programs with the ultimate goal of creating a synchronized urban transportation network—including flying taxis from

environment and adjust the view in real time.

Among the biggest challenges for the fulfillment of 5G's potential: Because 5G waves are positioned so much closer together, they can't travel very far on their own. 4G towers currently can deliver service for up to 10 miles. True high-bandwidth 5G towers can only deliver service up to 1,000 feet. 5G waves

tions of 5G to reach consumers likely won't be "true 5G" that's powerful

enough to enable a host of glitzy applications, Mr. Sharma says. Speeds should certainly be faster, but some carriers say 5G will act like an extension of the main technology behind 4G, known as LTE (for Long Term Evolution).

These initial 5G rollouts will run on low- or mid-band spectrum, meaning speed would be 10% to 20% faster than current 4G service with



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5G Can Pave the Way for Driverless Cars

By letting auto makers transmit larger amounts of data, the technology will make it easier for cars to talk to one another

BY CHESTER DAWSON

AUTO MAKERS ARE looking to the fifth generation of internet connectivity to power new streaming services in the car and accelerate the industry's shift to driverless vehicles.

While the new broadband technology is still several years away from hitting the road, the deployment of 5G connections in cars will allow auto makers to transmit larger amounts of data with greater reliability and at speeds up to 10 times faster than the current-generation cellular service, known as 4G.

The shift could pave the way for a range of new features, such as vehicles that can "talk" directly with each other on the road—a catalyst for more widespread deployment of autonomous vehicles—and entertainment options that make the car's back seat feel more like a home theater.

Auto makers also are hoping broader bandwidths will help generate reams of data that can be used to refine maps, report on roadway conditions and provide instant feedback on a car's performance.

Ready off the lot

With 5G, "we're able to do much more targeted and sophisticated engineering," says Don Butler, head of Ford Motor Co.'s connected vehicle program.

"As the world itself becomes more connected, it only makes sense that vehicles need to be part of that ecosystem," he adds.

Car companies are looking to piggyback on the telecom industry's ambitious plans to start rolling out residential 5G broadband services in limited markets, such as New York, Los Angeles, Dallas, Houston and other test markets later this year, followed by mobile 5G early next year. AT&T Inc., T-Mobile US Inc., Verizon Communications Inc. and other cellular providers are now spending billions to replace 4G cell towers and roadside infrastructure with the faster connections.

The arrival of 5G comes as more cars are rolling off dealer lots with built-in modems that allow them to link to the internet through a cellular connection. Auto makers are looking



The dashboard in a Qualcomm demo gives a glimpse of how much information can be piped into a 5G vehicle.

to leverage those connections into potential moneymaking ventures by using the data they collect from vehicles to build new apps, services and in-car advertisements.

A handful of brands already install modems as standard equipment, and industry analysts say most new cars sold in the U.S. will be shipped with internet connections by early next decade.

Global shipments of cars with factory-installed modems are forecast to grow to more than 35 million vehicles by 2022 from 10 million last year, according to Counterpoint Research.

Today most internet-connected cars with modems use 4G broadband technology, which has enabled Wi-Fi hot spots and streaming services, allowing passengers to surf the Web and listen to their favorite music on demand. The transition to 5G technology isn't likely to happen until the 2021 vehicle model year, industry analysts say, because telecom companies are only starting to invest in 5G transmission infrastructure and automotive-grade chip sets won't be ready until then.

Even then, 5G may still be limited to higher-end luxury models because installing the new hardware is expensive, limiting its appeal for mass-market vehicles.

5G may also help generate reams of data to refine maps, report on road conditions and give instant feedback on a car's performance.

The launch of 5G service will also take longer to reach rural areas, as network providers focus first on big cities with denser populations.

Still, auto makers think this next wave of cellular connectivity will help improve safety by allowing cars to communicate directly with one another and crowdsource information on roadway hazards and weather conditions.

The industry also sees promise for developing more interactive entertainment options for passengers

sitting in the rear, such as videoconferencing and multiplayer games, or augmented reality that allows cars to offer annotated, self-directed tours. The 5G services will allow for bigger and higher-resolution displays to stream video with little interruption, according to auto industry officials.

Everyone gets a screen

"We're seeing requests for huge, high-resolution displays—up to 10 in a car" with 5G connectivity, says Andrew Poliak, vice president of product planning and innovation at Panasonic Corp.'s auto division. "Try streaming over even one display in a 4G car and it's a challenge due to lower data-transmission speeds, he says.

Such features will become more relevant as auto makers advance autonomous-driving technologies that free the driver to perform other tasks while in the car.

The technology will also allow self-driving cars to share data and information among themselves, helping to deploy them at scale, says Glen De Vos, chief technology

officer at automotive software supplier Aptiv PLC. "More data coming off the vehicle means more interesting analytics," Mr. De Vos says. "You'd kill your data plan with that today on 4G."

No killer app

Some skeptics, however, say 5G's applicability in cars is overrated and isn't necessary for making self-driving cars a market reality. That is because driverless cars will need to be able to operate independently from an internet connection in the event one isn't available.

"The killer app for 5G in cars is still missing. It may come in time, but it's not evident yet," says Lars Reger, chief technology officer for NXP Semiconductors NV's auto unit.

General Motors Co. and Toyota Motor Corp. are backing more limited, Wi-Fi-based connections for cars that talk to one another and to infrastructure like stoplights, arguing that more mature technology is commercially ready now.

Other car makers, such as Ford and BMW AG, are pushing for cellular-based connectivity to become the industry standard for cars to communicate with one another. That rift has widened even as auto makers seek a common format to develop advanced safety features that can prevent accidents.

Auto suppliers are hopeful the larger data pipeline from 5G will also allow them to develop more sophisticated equipment, such as virtual displays on the windshield that show real-time traffic information or weather hazards or details on nearby retailers like store hours.

But the data flow needs to be presented in a way to avoid overwhelming or distracting drivers, says Phil Ventimiglia, a multimedia engineering manager at global auto supplier Robert Bosch GmbH's U.S. operations.

Says Mr. Ventimiglia, "We don't want people playing 'Angry Birds' while driving down the road—unless they're in autonomous driving mode."

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Samsung's Push to Be a 5G Powerhouse

The company's goals are ambitious, but it hopes security fears about Huawei and ZTE will give it a boost

BY TIMOTHY W. MARTIN

SEOUL—Samsung Electronics Co.'s vision for next-generation 5G technology includes a crackdown on jaywalking.

At its Suwon, South Korea, headquarters, Samsung has built a "5G City" to demonstrate how the new wireless technology might be used to create smarter, safer cities. There, a busy intersection outfitted with the company's network equipment, along with 10 video cameras and sensors, allows for real-time monitoring of the weather, traffic and even pedestrians.

Irregular patterns, such as speeding cars or jaywalkers, are flagged immediately to remote-control towers receiving high-quality video. These data-heavy tasks and instant analysis would bog down the mobile networks of today.

Samsung, the world's largest maker of chips and smartphones, has a grandiose plan to become a 5G powerhouse, pitching itself as a one-stop shop for mobile-network equipment. A key part of its strategy involves presenting fresh ideas on what 5G technology can do beyond supercharging network speeds. One of the smaller players in the global network-equipment industry currently, Samsung believes it has the knowledge to help telecom carriers, cities and manufacturers harness 5G because it makes such a variety of products, in areas ranging from auto technology to consumer electronics to home appliances.

Samsung makes things "that are central to our lives," says Kim Woo-june, a senior vice president in the company's networks business. "Because of this, we deeply understand consumers' needs, and understand how to connect machines to solve real problems."

The head of Samsung's network business, Kim Young-ky, has said the company is aiming to secure a more than 20% share of the 5G-technology market by 2021 and become one of the top three suppliers of such equipment within the next five years. That is an ambitious goal, considering the South Korean firm controlled just

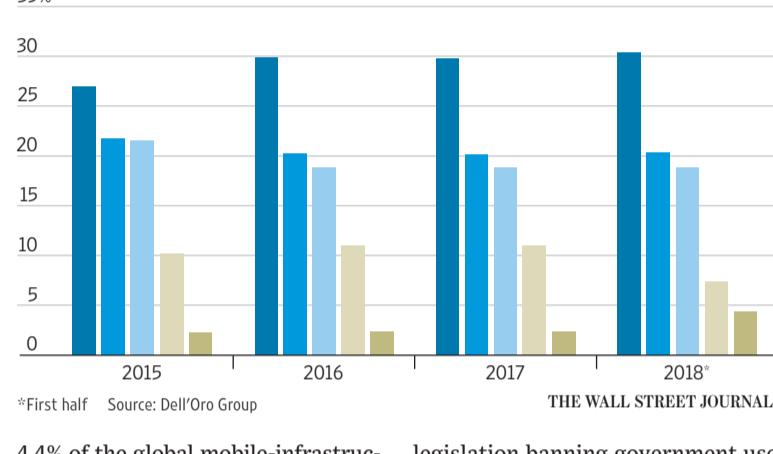


LUIS GEN/GETTY IMAGES

To make its mark in 5G, Samsung is pitching itself as a one-stop shop for mobile-network equipment.

Samsung Plays Catch-Up

Mobile infrastructure market share based on annual revenue for selected companies



THE WALL STREET JOURNAL.

4.4% of the global mobile-infrastructure market in the first six months of 2018, according to market researcher Dell'Oro. That puts it well behind mobile-network equipment giants like **Huawei Technologies Co.** and **Ericsson AB**, the two industry leaders, which control 30.4% and 20.3% of the market, respectively.

Still, Samsung's 5G ambitions could get a boost from growing fears that equipment provided by China's Huawei and ZTE Corp. could be used by Beijing to engage in cyberespionage. Australia has banned the companies from providing 5G-technology equipment, and the U.S. has passed

legislation banning government use of its products. Japan is studying restrictions on Huawei and ZTE, and a July study by the U.K. government said it had found "shortcomings" in Huawei's engineering processes that exposed new risks.

"Samsung is a sleeping giant," says Will Townsend, a senior analyst at Moor Insights & Strategy who focuses on network infrastructure and carrier services. "They are the most diversified when you look at the industries they're in, from automotive, heavy industry, handsets and other consumer electronics."

Samsung has made 5G a priority.

In August, the company said it had earmarked roughly \$22 billion for new investments in areas such as 5G, artificial intelligence, and components for self-driving vehicles. Meanwhile, the company's networks unit has been aggressively staffing up, poaching engineers and senior project managers from rivals and U.S. carriers, The Wall Street Journal reported in August.

Samsung's network-equipment business was initially focused on South Korea and Japan in the 1990s. The company has since built a significant LTE network business in India (4G LTE is the predecessor to 5G) and has several key partnerships in the U.S., including with **Sprint Corp.**

But in the 5G era, Samsung's ambitions are far more global—and the company has carved out some success this year. Samsung controls about 11% of the 4G LTE market worldwide, according to Dell'Oro. Some industry watchers say that could help Samsung build trust with potential partners and customers for its 5G business.

Meanwhile, Samsung in May became the first company to win U.S. Federal Communications Commission approval for a 5G home router, the small boxes that sit inside consumers' homes, receiving the signal and translating it into Wi-Fi. That was an important victory for Samsung because carriers such as **Verizon Communications Inc.** want to first commercialize 5G by using cellular antennas to beam high-speed internet into consumers' homes.

Indeed, Verizon has tapped Samsung to supply 5G network equipment for test markets in Sacramento, Calif., and Houston. And Samsung is one of several infrastructure suppliers working with **AT&T Inc.** on the U.S. carrier's rollouts of its 5G mobile network and fixed wireless internet.

On its Suwon campus, Samsung's 5G City features other real-life demonstrations of 5G technology that go beyond policing the streets. For example, a Smart Stadium built on a company soccer field shows how 5G could provide fans with a more immersive viewing experience, including 360-degree camera angles of the action.

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Startups Bet On Future Growth for Small Data Hubs

Tech companies and private-equity firms hope to capitalize on the new needs of 5G

BY DREW FITZGERALD

SOME STARTUPS are betting that the next generation of wireless technology will force data-center operators to think small.

That expectation stems from the importance next-generation wireless standards place on speed as much as on bandwidth. The 5G specifications expected to be finalized next year will allow mobile equipment to process information more quickly, reducing the time it takes between a device's call for information and its response from a network.

Massive data centers favored by companies like Google owner **Alphabet Inc.** and **Amazon.com Inc.** are often too remote to take advantage of those timesaving improvements. Internet traffic must also flow through chains of network hubs run by third-party operators that aren't guaranteed to be close to users.

With that in mind, startups are laying the groundwork for miniature facilities to process data quickly for specific towns and neighborhoods.

"It doesn't really matter how fast your handset is if you've got to travel 300 miles" to fetch data, says Mike Hagan, chief executive of data-center designer **EdgeMicro Corp.**

The Centreville, Va., startup is planning to deploy as many as 30 compact data centers near cell towers and other well-connected places close to users. The concept has attracted some small bets from tech companies and private-equity firms, including **Berkshire Partners**, which joined a Series C investment in **Vapor IO Inc.**, another company looking to find a market niche by supplying smaller data centers.

Development plans

The companies wagering on these so-called edge data centers don't expect to replace large data centers. Most of today's mobile apps, streaming videos and social media work fine when delivered from the nearest server a few fractions of a second away.

Developers of small data centers say their buildings will work first with data that is extremely time-sensitive, to improve the performance of services like live video and videogames that can be affected by delays of just milliseconds. "It's really important for us to be super close" to do that, Vapor Chief Executive Cole Crawford says.

Eventually, small data centers could be important to the development of devices like next-generation drones and virtual-reality headsets.

Vapor is developing miniaturized data centers that can be placed in small network facilities or at the base of cell towers, where wireless antennas and fiber-optic connections are already on hand. Tower operator **Crown Castle International Inc.** has invested in the company and plans to provide land for some of the roughly 100 small data centers expected to be online next year.

Vapor and EdgeMicro plan to generate revenue the same way established companies like **Equinix Inc.** and **Digital Realty Trust Inc.** do through bigger, more centralized data centers. The startups will charge internet companies for space, power and network connections in their data centers.

Closer to reality

Big tech companies are preparing for the emergence of smaller data centers.

Amazon, for instance, developed software specifically designed to filter data from smart devices and route the most time-sensitive data for local processing. **Microsoft Corp.**'s cloud-computing division developed a similar software suite tailored for smart devices.

"While still early, the edge now appears to be shifting from concept to reality, with first movers now appearing to have momentum," says Colby Synesael, an analyst at New York-based consulting firm Cowen & Co.

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QILAI SHEN/BLOOMBERG NEWS

Huawei and ZTE have been effectively blocked from major U.S. telecom networks as well as Australia.

Australia Targets Chinese Firms

The country effectively bans Huawei Technologies and ZTE from its 5G rollout over fears they could be security risks

BY DAN STRUMPF AND MIKE CHERNEY

AUSTRALIA'S move last month to bar Chinese telecommunications equipment manufacturers from the country's 5G rollout over fears of cyberspying triggered debate over the security risks of the technology.

Officials in Canberra, the Australian capital, cited national-security concerns as they ruled out bids from companies that they said could be used as agents for foreign governments—language that effectively banned **Huawei Technologies Co.**, the world's largest maker of telecommunications equipment, and its chief Chinese rival, **ZTE Corp.**

Canberra's reasoning was based on the belief that 5G networks will be more vulnerable to security breaches because they will be less centralized than current networks, with more sensitive network activity occurring in a multitude of locations closer to users. Japanese authorities are studying the prospect of a similar ban.

While ZTE has declined to comment on the decision, Huawei has vigorously disputed it, and the Australian government's rationale is drawing scrutiny from some telecommunications companies and outside

experts. The debate underscores broader concerns about the security of 5G networks, which are expected to facilitate a dizzying expansion in the number of internet connections and devices in the coming years.

Toward the edge

The U.S. has been taking an increasingly tough line on Huawei and ZTE. Washington has pulled the companies' smartphones from U.S. military bases and stopped the companies from selling to the government. ZTE was subjected to a crippling months-long ban on purchasing U.S. components for violating the terms of a settlement resolving earlier violations of U.S. sanctions on Iran and North Korea. And The Wall Street Journal reported in April that the Justice Department was investigating whether Huawei violated U.S. sanctions on Iran. Huawei declined to comment.

Both companies have been effectively blocked from major U.S. telecom networks due to fears their gear could be used by Beijing to spy on Americans, which the companies have long denied.

Canberra's argument for keeping the Chinese companies out of its 5G networks hinges on a key distinction in the equipment used in telecommunications networks—equipment in

the "core" and the "edge." The core refers to centralized equipment like data centers, which perform sensitive functions like access control, and voice and data routing. The edge is equipment on a network's periphery like base stations and roadside boxes, which connect the core to consumer devices.

While previous generations of mobile networks provided clearer distinctions between edge and core, in 5G networks, sensitive core functions will migrate to the edge, Australian officials and outside experts say. This will help facilitate the faster speeds and greater number of internet connections of 5G networks, but Canberra says it also creates new vulnerabilities. Eventually, according to Australian officials, the distinction between core and edge "will disappear."

"The shift introduces new challenges for carriers trying to maintain their customers' security, as sensitive functions move outside the highly protected core environment," said the statement announcing the government's decision.

The security debate

Huawei disputes that 5G networks are fundamentally different from existing networks. "There is no fundamental difference between 5G and 4G

network architecture," the company said in a statement. "The core networks and access networks are still separated."

Although several independent experts confirm that some core and edge functions will merge over time in 5G, creating new security challenges, others say it's not certain that the distinction will vanish altogether.

"The simple answer is that Huawei is right," says Mark Gregory, an associate professor at RMIT University in Melbourne, Australia, who focuses on telecommunications. The government's rationale "is nonsense. It's technically incorrect and it's built upon a whole range of premises that are just wrong."

Australia's Department of Home Affairs, one of the agencies that issued the decision, declined to elaborate on it.

It's true that to facilitate some types of technology promised by 5G, more network functions will have to move from the core to the edge, according to telecom experts.

Take self-driving cars, which will require superfast, continuous connections to keep vehicles running smoothly. Moving core functions to the edge will help speed along these connections, says Anand Prasad, chairman of the security working group of 3GPP, the international telecommunications industry group that sets 5G standards. Huawei and ZTE are members of that body, along with telecommunications companies from around the world.

"You decrease the communication delay by bringing the core network functions and applications close to the edge," Mr. Prasad says. This creates vulnerabilities, he says. But a network's security "is dependent on several factors, including the product implementation and network design," he says. "5G itself won't create the security issues."

Phil Marshall, chief research officer at Tolaga Research, a mobile-industry research firm, says that distributing more functions to the edge can actually boost network security in some instances—for example, a less centralized network would be less vulnerable to so-called distributed denial-of-service attacks, where a network is overrun with junk traffic.

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