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Business & Finance

Goldman is banking on lending to spur growth, acknowledging its securities-trading business is unlikely to pick up enough to be a key revenue driver. A1

◆ Apple introduced a trio of new iPhones, including the iPhone X, a premium model that will cost upward of \$1,000. A1, B1

◆ Median U.S. household income last year was \$59,039, up an inflation-adjusted 3.2% from a year earlier, on top of a 5.2% gain in 2015. A2

◆ The DOT said it would keep a hands-off approach toward autonomous-car regulation, even as Tesla technology was faulted in a crash. B1, B2

◆ DowDuPont is altering its plan to splinter into three firms, two weeks after the company's formation. B1

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◆ The White House signaled that it wouldn't insist on funding for a border wall in any "Dreamer" bill. A3

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◆ Baseball's Cleveland Indians tied an American League record with their 20th consecutive win.

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Electrical contractors repair power lines at Sunny Isles Beach, Fla. More than six million U.S. customers remained without power Tuesday.

Power Outage Pushes Limits

In Florida and other states hit by storm, utilities grapple with historic challenge

repairing electrical substations, power poles, transmission lines and other parts of the grid knocked out by winds and floodwaters.

The aim is to restore power to hospitals and other critical facilities first, then bring the lights back to most residents as quickly as possible. But utility and government officials acknowledge it will take days or even weeks for the Herculean effort. Restoring full power after superstorm Sandy in 2012 took more than a month.

More than six million U.S. customers remained without power as of Tuesday afternoon, according to the U.S. Energy Department, including roughly 4.8 million, or 48% of

the state's total customers, in Florida; 932,000, or 22%, in Georgia; and 141,000, or 6%, in South Carolina.

Florida Power & Light Co., the state's largest investor-owned utility with nearly five million customers, said Irma at one point cut off power to roughly 4.4 million of them, and that 2.7 million remained out as of Tuesday afternoon.

FPL estimated Tuesday that most residents in the eastern part of its territory would have power restored by the

By Cameron McWhirter, Erin Ailworth and Arian Campoflores

end of the weekend, while those on the western side, where the storm made landfall, would see power back by Sept. 22.

Duke Energy Corp., Florida's second-largest investor-owned utility with 1.8 million customers, also said Irma caused significant damage to its transmission system. Duke said it expects to complete restoration to the western portion of its service area by the end of Friday and by the

Please see POWER page A6

◆ Irma destroys 25% of residences in the Keys..... A6

◆ Insurance rare for mobile homes..... B6

◆ Heard on the Street: Storms won't hurt all retailers..... B16

Goldman Banks on Lending To Grow

By LIZ HOFFMAN

Goldman Sachs Group Inc., acknowledging that its storied securities-trading business is unlikely to pick up enough to be a key revenue driver, is now looking to the lower-octane business of lending to spur growth.

The New York firm said Tuesday that loans to wealthy clients, companies and consumers would contribute almost half the \$5 billion in revenue growth it is projecting by 2020.

The pronouncement represents a growing acceptance on Wall Street, voiced by other executives this week, that trading revenues, which have declined in the past five years, aren't likely to return to past peaks anytime soon.

Harvey Schwartz, a top lieutenant to Goldman Chief Executive Lloyd Blankfein, on Tuesday said persistently low volatility in financial markets meant that the third quarter would be a "challenging" one in terms of trading. J.P. Morgan Chase & Co. CEO James Dimon and executives at Citigroup Inc. and Bank of America Corp. projected trading declines of between 15% and 20% for the quarter.

Traders had hoped that an uptick in activity in late 2016 after President Donald Trump's election was a harbinger of better times, but now it looks increasingly like a blip. In recent months, optimism about a surging economy and rising interest rates has surrendered to worries about sluggish growth and low inflation. That is likely to keep a

Please see BANKS page A6

Apple Gambles on Allure of Premium Pricing

By TRIPP MICKLE

CUPERTINO, Calif.—Apple Inc. introduced a trio of new iPhones Tuesday, making a bet that some customers will be willing to part with upward of \$1,000 for the premium iPhone X while others will also pay up to upgrade regular models.

Inside a theater at its new \$5 billion headquarters, Apple Inc. worked to conjure the magic that 10 years ago made its iPhone the world's most valuable company's most valuable product.

The pricing of the new flagship phone puts it closer to a major appliance or many PCs and represents a test of the enduring cachet of Apple products, already among the priciest in their field.

The products are Apple's most anticipated in years. The company and its shareholders

Phone Dependency

The iPhone accounts for most of Apple's revenue...

iPhone sales as a percentage of revenue



Source: the company

have endured a slump in iPhone sales growth and the company is facing intensifying competition from Samsung Electronics Co. and others.

That anticipation has pushed Apple's share price up 39% this year to record highs, giving the

company an unprecedented market value of more than \$830 billion.

The iPhone X boasts advanced features including facial-recognition capability and a 5.8-inch edge-to-edge, high-resolution screen. Apple also

unveiled the iPhone 8 and 8 Plus, featuring upgrades to last year's model with new design and features.

iPhones contributed two thirds of Apple's \$215.64 billion in revenue last fiscal year.

Apple is trying to thread a

needle, looking to generate buzz and sales with the iPhone X, which will cost from \$999 to \$1,149, while still getting people to buy the upgraded phones, which will start at \$699 for the iPhone 8 and \$799 for the iPhone 8 Plus.

Unveiling three phones—the first time Apple has done so—brings risks with forecasting demand and managing production. In an early sign of the challenges, Apple said the iPhone X won't start shipping until Nov. 3—much later than usual. The two iPhone 8 models will be available for purchase on Sept. 22, in line with

Please see APPLE page A8

◆ A first look at Apple's new phone: About-face..... B1

◆ Steve Jobs Theater makes its debut..... B6

◆ Heard on the Street: iPhone X faces big task..... B16

Like to Grind And Shred? Try China!

* * * * *
Stone plazas, few guards lure global skateboard set

By WAYNE MA

The first time Blake Carpenter visited Changsha and beheld the gleaming new monuments in a vast public plaza near the Xiang River, his reaction was a bit different than the one China's lordly developers might have hoped for.

"I can't believe [what they've] put into some random plaza nobody's even walking through," he said.

After sharing his ruminations, the lanky 25-year-old professional skateboarder hopped on his board to attend to a stone stairway, a reflecting pond rimmed with polished marble and a triangular hill with 20-

Please see SKATE page A10

A BAND OF JUNK CLUTTERS SPACE

Debris imperils Hubble Space Telescope and equipment used for phones, security, weather

By ROBERT LEE HOTZ

Earlier this year, a single rocket launched from India flung 104 small satellites into space. A second Indian effort in June put another 30 into orbit, each about the size of a coffee can. In July, a Russian rocket scattered 72 more satellites around Earth, like pebbles strewn from a speeding car.

These swarms of small satellites—hard to track and hard to dodge—increase the risk of collision for the world's vital communication, navigation and defense satellites.

Within a few years there might be another 20,000 or so small craft launched into a narrow band of space around Earth, more than 10 times the number of all working satel-

lites in orbit today. The growth is spurred by advances in miniaturization, low-cost electronics and rocketry. Companies, space agencies, universities and even elementary-school students are jockeying for position.

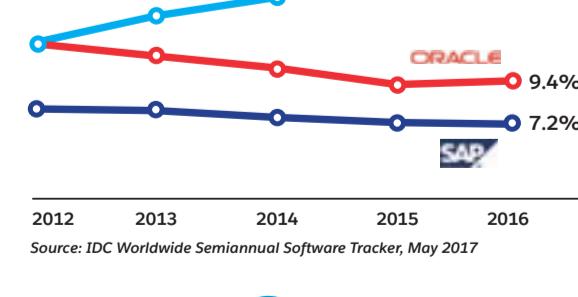
The traffic jam heightens the hazards of junk encircling Earth. The U.S. Air Force tracks 23,000 objects in orbit the size of a baseball or larger—most of it derelict rocket parts, decommissioned spacecraft or wreckage. Aerospace experts said there may be millions more hazardous splinters too small to track.

At risk are the international space station, the Hubble Space Telescope and hundreds of satellites used for communications, national security,

Please see SPACE page A10

Salesforce. #1 CRM.

Salesforce ranked #1 for CRM based on IDC 2016 Market Share Revenue Worldwide.



Source: IDC Worldwide Semiannual Software Tracker, May 2017

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U.S. NEWS

New Record for Household Incomes

BY BEN LEUBSDORF

WASHINGTON—American households are enjoying the strongest sustained income growth this century after a long stretch of stagnation marked by financial crisis, recession and slow recovery.

Median household income last year was \$59,039, up an inflation-adjusted 3.2% from a year earlier, on top of a 5.2% gain in 2015, the Census Bureau reported Tuesday. It was a new high for this widely followed measure of well-being, surpassing the previous peak for household income reached in 1999. However, government officials cautioned against historical comparisons due to changes in how they calculate the figures over time.

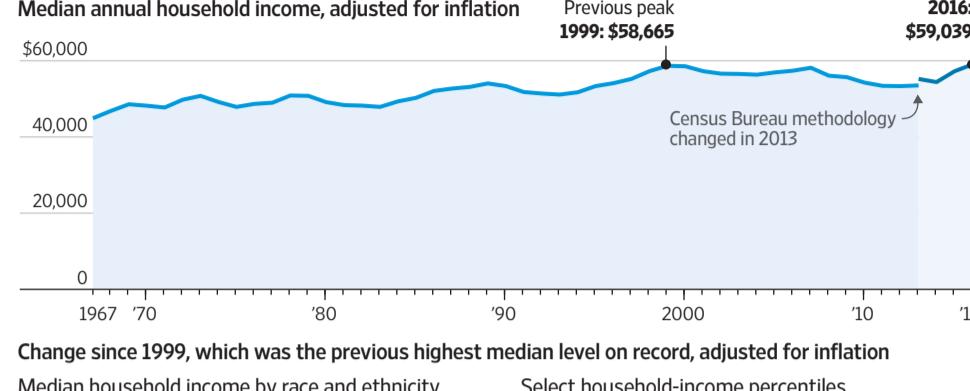
Incomes still hadn't fully recovered from the 2001 recession tied to the technology bust when families were battered by the 2007-09 downturn, which was accompanied by a housing crash and global financial crisis. A slow and uneven recovery followed.

"Since 1999, we've had two economic recessions that have really hurt working families at and below the median of the income distribution," said Scott Allard, a professor of public policy and governance at the University of Washington. "For many of those families, it has taken a lot of time for work hours and earnings to recover."

The recovery may not be as complete as the headline income figure suggests, due to a change in the survey several

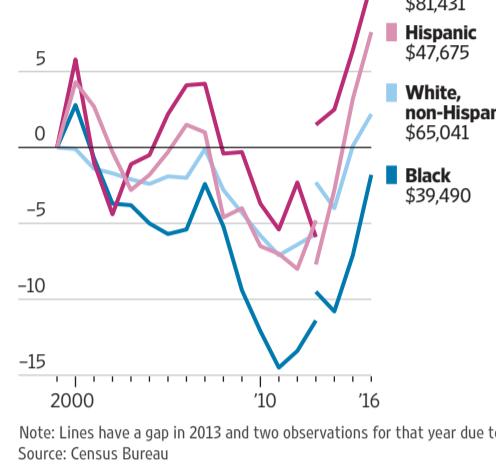
A Recovery for the Majority

On balance, U.S. incomes have regained the ground lost since 1999, but many groups still lag behind.



Change since 1999, which was the previous highest median level on record, adjusted for inflation

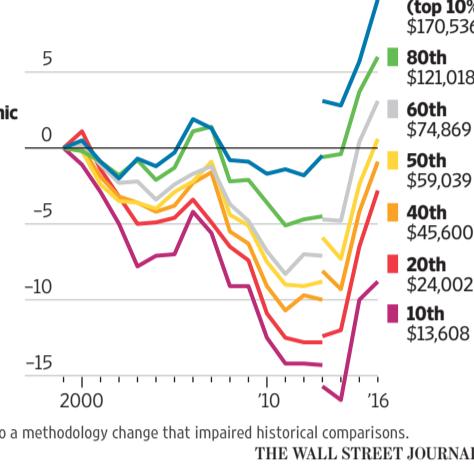
Median household income by race and ethnicity



Note: Lines have a gap in 2013 and two observations for that year due to a methodology change that impaired historical comparisons.

Source: Census Bureau

Select household-income percentiles



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years ago aimed at better capturing some sources of income. An analysis by the Economic Policy Institute, a left-leaning think tank, said income in 2016 remained 1.6% below its 2007 level after backing out those methodology changes.

Even so, many families appear finally to be making up for long-lost ground. Incomes rose last year across all racial and age categories, inside cities and outside metropolitan areas, for native-born Americans and immigrants. Poverty rates also fell for most groups. Gains were uneven geographically. Median household incomes rose 5.4% in major cities, 2.1% in their suburbs and were little changed in smaller towns and rural areas. The urban surge continues a recent

trend that has reversed the pattern of previous recoveries.

The economic expansion, slow by historical standards but now in its ninth year and the third-longest on record, created nearly 5 million non-farm jobs in 2015 and 2016. Despite still-sluggish growth in worker paychecks, "more people are employed, and more of those who are employed are employed full-time year-round," said Jed Kolko, chief economist at job site Indeed.

A stretch of unusually low inflation has helped boost household purchasing power. Consumer prices were up 1.3% last year after rising 0.1% in 2015, according to the Labor Department.

There were shifts in how income is divvied up.

The gender gap in earnings narrowed significantly in 2016 for the first time since the recession; women working full time last year made 80.5% of comparable male earnings, compared with 79.6% in 2015.

But income inequality widened, according to some metrics. The top 20% of the income distribution took home 51.5% of total income in 2016, up from 51.1% a year earlier.

Still the benefits of a long economic expansion appear to be spreading now to lower-income families. The official U.S. poverty rate in 2016 was 12.7%, meaning 40.6 million Americans were living in poverty. That was down from 13.5% in 2015 and around its 2007 level.

—Sharon Nunn and Paul Overberg contributed to this article.

U.S. WATCH

SEATTLE

Mayor Resigns After New Abuse Claim

Seattle Mayor Ed Murray said he would step down Wednesday amid allegations that he sexually abused underage boys decades ago.

His announcement came after the Seattle Times reported Tuesday that a younger cousin of the mayor had come forward to accuse Mr. Murray of repeatedly molesting him in the 1970s. In May, the Democratic mayor said that he wouldn't seek reelection after several sexual-abuse allegations surfaced.

Even as he announced his resignation, Mr. Murray continued to deny the abuse allegations.

Mr. Murray, 62 years old, said that he was proud of his career as a state legislator where he was a champion of gay rights, and as Seattle mayor where he pushed for a higher minimum wage and a tax on the rich since entering office in 2014.

—Zusha Elinson

OBITUARY: EDITH WINDSOR

Plaintiff in Suit for Gay Marriage Dies

Edith Windsor, a widow who brought a Supreme Court case that struck down parts of a federal law that banned same-sex marriage and led to federal recognition for gay spouses, died Tuesday. She was 88 years old.

Ms. Windsor died in New York, said her lawyer, Roberta Kaplan. "The world lost a tiny but tough-as-nails fighter for freedom, justice and equality," said her spouse, Judith Kasen-Windsor.

Ms. Windsor's first spouse, Thea Spyer, died in 2009. The women had married legally in Canada in 2007 after spending more than 40 years together.

The U.S. Supreme Court ruled 5-4 in 2013 that legally married same-sex couples are entitled to the same federal benefits that heterosexual couples receive.

—Associated Press

TEXAS

Court Halts Order To Redraw Districts

A split Supreme Court blocked lower-court rulings that ordered Texas to redraw some congressional and legislative districts.

The 5-4 order issued Tuesday means the state almost certainly will hold elections next year in districts that were struck down as racially discriminatory.

The court's four liberal justices, Stephen Breyer, Ruth Bader Ginsburg, Elena Kagan and Sonia Sotomayor, would have allowed the redrawing of the affected districts.

—Associated Press

Business Tax-Cut Plan Excludes Some Services

BY KATE DAVIDSON
AND RICHARD RUBIN

Treasury Secretary Steven Mnuchin said Tuesday.

Republicans want to cut the 35% corporate tax rate. They also want to lower rates on so-called pass-through businesses, which pay business taxes through the individual

tax returns of their owners at individual tax rates, which currently reach as high as 39.6%.

Many pass-through businesses are small. They also include some of the largest law, accounting and investment firms, which Mr. Mnuchin sug-

gested might not get the new lower rate on pass-through business income the GOP plans.

The idea is to create a special tax rate equal to or higher than the corporate tax rate but lower than the tax rate that applies to wages. That new rate would apply to pass-through business income but with boundaries to prevent it from being used by people whose income from service businesses closely resembles wages.

"If you're an accountant firm and that's clearly income, you'll be taxed an income rate, you won't be taxed a pass-through rate," Mr. Mnuchin said. "If you're a business that's creating manufacturing jobs, you're going to get the benefit of that rate because that's going to be passed through to help create jobs and better wages."

Mr. Mnuchin's remarks, at a New York conference, offered new detail on how the administration and Congress may tailor new rules for partnerships, limited liability compa-

nies and other pass-through firms that account for a majority of U.S. business income.

A Treasury spokesman declined to comment.

Unlike corporations, whose taxable investors have to pay taxes on capital gains and dividends while the company itself pays corporate income tax, there is just one layer of tax on pass-through businesses.

Under a system like the one Mr. Mnuchin described, owners of an accounting partnership would pay the individual rate on their salaries and partnership distributions. But owners of a manufacturing partnership would pay the individual rate on their salaries and the special, lower rate on profits.

The National Federation of Independent Business, a trade group for small business, criticized the plan. "It picks winners and losers based on industry type, and we just think that's a terrible way to go for tax reform," said Brad Close, senior vice president for advocacy.

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CORRECTIONS & AMPLIFICATIONS

With damage estimates for Hurricane Irma tumbling, investors in catastrophe bonds likely will avoid the significant losses they may have absorbed had more aggressive estimates borne out. In some editions Tuesday, a Business & Finance article about catastrophe bonds incorrectly said damage estimates for Hurricane Harvey are tumbling.

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

High Court Reinstates Travel Ban

Refugee restrictions go back into effect until justices can fully consider the matter

BY BRENT KENDALL

WASHINGTON—The Supreme Court on Tuesday again ordered a reinstatement of the Trump administration's restrictions on refugee entry into the U.S., another shift in the seesaw legal battle over President Donald Trump's temporary travel ban.

The high court issued an emergency order that sided with the Trump administration, after a federal appeals court last week ruled that roughly 24,000 vetted refugees should be able to enter the U.S. while litigation over the travel ban continues. Those refugees will now be ineligible for entry.

The Supreme Court's order came in a single paragraph, with no recorded dissents.

It was the third time the justices have intervened since June to set interim rules on travel while the court more fully considers the legality of Mr. Trump's March 6 executive order, which sought to suspend travel to the U.S. by people from Iran, Libya, Somalia, Sudan, Syria and Yemen, as well as by refugees.

Mr. Trump said the temporary ban was needed to protect against terrorist threats while the U.S. studied vetting procedures. Critics said the restrictions were unjustified and alleged the president was unlawfully targeting Muslims.

The president's legal challengers include the state of Hawaii, as well as civil-rights and immigrant-rights groups. Mr. Trump has faced several nega-

tive rulings from lower federal courts. The Supreme Court will hear oral arguments in the matter on Oct. 10.

The Justice Department, which is defending the ban, said it looked forward to the argument and was pleased the court "has allowed the government to keep in place the protections for the nation's safety and security provided by the executive order."

Hawaii Attorney General Douglas Chin said the state respected the court's order and was continuing to prepare for next month's proceedings.

The high court's first interim ruling came June 26, when it said the Trump administration could partially implement its planned travel ban, but not against people who had bona fide relationships with people or organizations in the U.S.

The White House took a narrow view of the court's ruling and applied the ban to a broad group of refugees, as well as to travelers who were extended family members of U.S. residents, such as grandparents, grandchildren, aunts and uncles.

The Supreme Court intervened again on July 19, preventing the administration from barring travel by such extended family members. But the justices left the refugee restrictions in place until the Ninth U.S. Circuit Court of Appeals could study them further.

The Ninth Circuit, based in San Francisco, ruled against the administration last week, saying refugees should be allowed in if they are covered by an admissions agreement between the U.S. government and a refugee resettlement agency.

The high court's order Tuesday prevented that ruling from going into effect for now.

Connecticut Town Mourns Sailor Killed on U.S. Destroyer



HONOR GUARD: The casket of Petty Officer Second Class Dustin Doyon is carried into Sacred Heart Church in Suffield. The 26-year-old sailor was among 10 U.S. servicemen killed last month when the USS John S. McCain and an oil tanker collided near Singapore.

'Dreamer' Bill Isn't Tied to Border Wall

BY LAURA MECKLER
AND LOUISE RADNOFSKY

WASHINGTON—The White House signaled Tuesday that it wouldn't insist on funding for a Southwest border wall in any legislative deal giving legal status to undocumented immigrants brought to the U.S. as children.

Meanwhile, on Capitol Hill, the Democratic leaders of the House and Senate said they could accept border-security measures short of the wall project, a further sign that the parties may be moving closer to one another on the question of how to protect the undocumented immigrants often called Dreamers.

The Dreamers' fate took on urgency in Congress last week when the Trump administration ended the five-year-old Deferred Action for Childhood Arrivals, or DACA, program, which now gives about 690,000 of them the right to work legally and safe harbor from deportation. Those protections will begin to expire on March 5. Mr. Trump has called on Congress to settle the matter before then.

An increasing number of observers foresee an agreement that pairs Dreamer protections with border security, but not funding for the wall, which was a central campaign promise of

President Donald Trump. Both sides appeared to edge closer to that formulation on Tuesday.

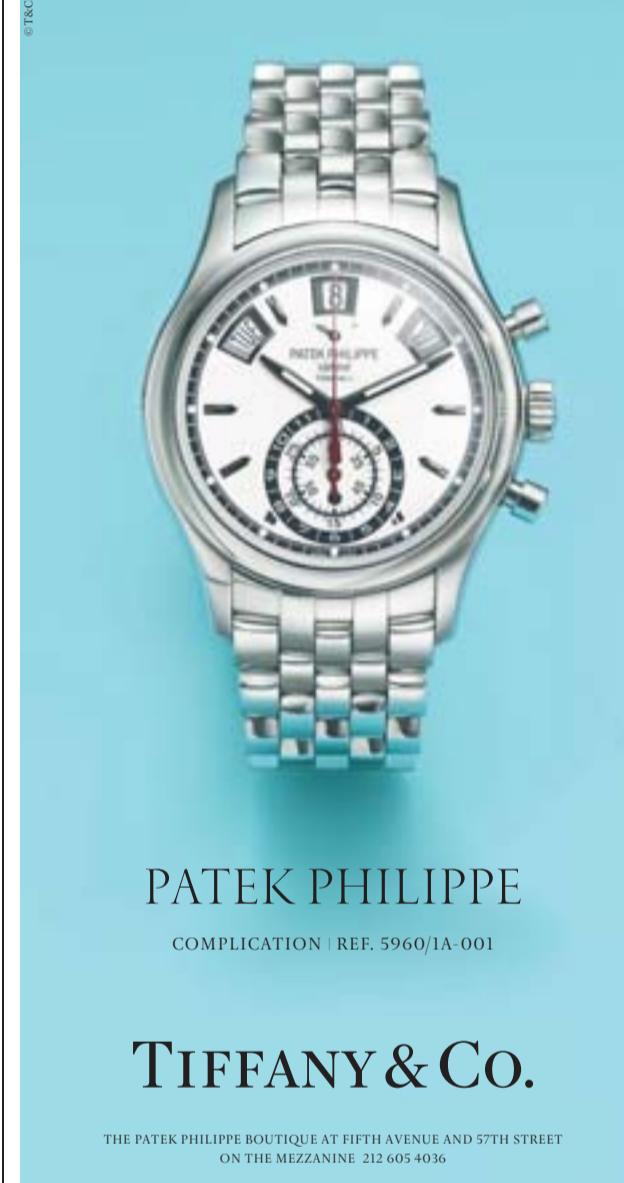
Some Republicans think their best chance to win funding for Mr. Trump's proposed wall is to tie it to legislation helping the Dreamers, because Democrats badly want that to pass.

On Tuesday, White House Legislative Affairs Director Marc Short told reporters that Mr. Trump believes that a border barrier is important but that it doesn't necessarily need to be paired with legislation aiding these immigrants.

He said Mr. Trump wants to build a border barrier but added, "whether or not that's part of a DACA equation, or whether or not that's another legislative" vehicle isn't clear.

Democrats say they will oppose tying the Dream Act—proposed legislation that would provide a path to citizenship for these undocumented immigrants—with wall funding, arguing that a wall is ineffective, too expensive and sends the wrong message.

But on Tuesday, Democratic leaders said they were open to other border-security measures, for example, additional personnel or technology. "We'd certainly look at border security that makes sense," Senate Minority Leader Chuck Schumer (D., N.Y.) told reporters.



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U.S. NEWS

Democrats Back Single-Payer Plan

Potential presidential contenders support Sen. Bernie Sanders's bill, marking a shift

BY STEPHANIE ARMOUR
AND MICHELLE HACKMAN

A growing number of Democrats have endorsed a single-payer health bill to be proposed on Wednesday by U.S. Sen. Bernie Sanders, embracing a bigger government role in health care after years of opposing that approach.

Supporters of Mr. Sanders's bill include several Democratic senators considering a bid for the Oval Office in 2020: Cory Booker of New Jersey, Kamala Harris of California, Kirsten Gillibrand of New York and Elizabeth Warren of Massachusetts.

No major Democratic presidential candidate, other than Mr. Sanders of Vermont, who ran unsuccessfully for the White House last year, has supported a single-payer plan in recent campaigns.

In the House, 117 Democrats are co-sponsoring a plan by Rep. John Conyers (D., Mich.) that would let people of all ages get Medicare—more than double the number who signed onto a similar bill two years ago. In New York and California, single-payer bills passed one chamber of the states' legislatures this year before stalling.

While more Democrats are signing onto the approach, neither of Congress's Democratic leaders, Sen. Chuck Schumer of New York nor Rep. Nancy Pelosi of California, have signed onto Mr. Sanders's bill.

Single-payer refers to a government-run health insurance system, though details can vary. Mr. Sanders's bill would create a national Medicare-like insurance system and eliminate most out-of-pocket costs for individuals.

The surge in support rests on several factors, political analysts said, including a rise in populist sentiment and a growing acceptance of the 2010 Affordable Care Act's principle that the government should provide coverage if necessary.



A single-payer health-care plan gains support among Democratic lawmakers, but the odds of this approach becoming law are remote.

Uninsured Rate Fell As Population Aged

The share of people in the U.S. who lacked health insurance for the whole of 2016 declined to 8.8%, the Census Bureau said Tuesday, down from 9.1% the previous year, largely due to Americans aging into the federal Medicare program for people 65 and older.

The rate reflects around 28.1 million people without health coverage, a decrease from 29 million a year earlier.

Backers of a single-payer plan have also been emboldened by the faltering of the Republicans' push to repeal the 2010 law, commonly known as Obamacare, which polls suggest grew more popular as a result.

The shift could galvanize the Democratic Party base, but a single-payer approach doesn't command majority support from voters. Should

Democrats win control of Washington and fail to pass a single-payer plan, Democrats risk disappointing loyalists as Republicans did in breaking a seven-year promise to repeal the 2010 law.

"Too many insurance companies continue to value their profits more than they value the people they are supposed to be helping," Ms. Gillibrand said on Tuesday, referring to

In the latest figures, Census Bureau officials said that the shift between 2015 and 2016 largely reflected an expansion of coverage through Medicare, which covers older Americans and some disabled people.

The Census Bureau said the rate of Medicare coverage increased by 0.4 percentage point to 16.7% of people for part or all of 2016, up from 16.3% the year before.

The Census Bureau said there were no statistically significant year-over-year changes for any other subtype of health insurance.

The largest group still without health insurance is people who could get private individual or employer-sponsored coverage but have opted not to. Unauthorized immigrants also represent as many as eight million of the uninsured, according to estimates from the Congressional Budget Office and others.

People eligible for Medicaid but not enrolled comprise another significant group, and outnumber uninsured Americans who didn't qualify for the program because their state chose not to expand the eligibility rules.

—Louise Radnofsky

the current health-care system. "It's time for something better."

Republicans were quick to pounce.

"It seems a complete government takeover of health care is becoming a litmus test for the liberal left," said Sen. John Barrasso (R., Wyo.).

The odds now of Congress enacting a single-payer plan are remote, so the new tone

may carry more significance as a reflection of Democratic positioning in the current political environment than as a near-term policy goal.

"A full single-payer plan is hardly in danger of passing anytime soon," said Larry Levitt, a senior vice president at the Kaiser Family Foundation, a nonprofit that focuses on health policy. "The support is more symbolic than anything else."

Journal Writer Died Of Natural Causes

BY ZOLAN KANNO-YOUNGS

Joseph Rago, The Wall Street Journal Pulitzer Prize-winning editorial writer, died of natural causes in July, according to the New York City medical examiner.

Julie Bolcer, the spokeswoman for the city's Office of Chief Medical Examiner, said Mr. Rago suffered from the inflammatory disease sarcoidosis, which affected his lungs, heart, spleen, hilar and mediastinal lymph nodes. "The manner of death is natural," Ms. Bolcer said.

Sarcoidosis is the formation of tiny clumps of inflammatory cells in one or more organs of the body, according to the Foundation for Sarcoidosis Research. Chronic inflammation can lead to permanent thickening or scarring of organ tissue.

"When the immune system goes into overdrive and too many of these clumps form, they can interfere with an organ's structure and function," according to the organization's website.

The foundation said the disease is difficult to diagnose. About 200,000 people currently have the disease in the U.S. The disease mortality rate

is about 5%.

Mr. Rago, 34 years old, was found by police in his Manhattan home on July 20 with no obvious signs of trauma.

Known for thoroughly reported pieces on policy, he made his biggest mark writing about health care. In 2011, he captured the Pulitzer Prize for editorial writing for what the Pulitzer organization called his "well crafted, against-the-grain editorials challenging the health care reform advocated by President Obama."

"No matter where you fall in the debate of health care reform, the arguments advanced by Joseph Rago in his series of editorials in The Wall Street Journal were impossible to ignore," the judges wrote.

After coming to the Journal as a summer intern in 2005, Mr. Rago climbed the ranks to join the editorial board.

The Wall Street Journal Editorial Board said in an online editorial Tuesday that "Joe was a brilliant journalist who died too young, but we were fortunate to have worked with him and benefited from his intelligence, his curiosity and a wit that informed and enlightened readers and all of us who knew him as a friend."



Sens. Richard Burr, left, and Mark Warner before a Senate Intelligence Committee meeting last week.

Senate Panel May Call Facebook

BY BYRON TAU

WASHINGTON—The bipartisan leadership of the Senate Intelligence Committee said Tuesday they are likely to call representatives from Facebook Inc. to Capitol Hill to publicly detail Russian activity on the company's platform during the 2016 election.

In separate interviews with reporters, Sens. Richard Burr (R., N.C.) and Mark Warner (D., Va.) said they are in discussions with each other and other committee chairs in Congress about holding a public hearing with representa-

tives from Facebook and other social-media companies on foreign election-related activity in cyberspace.

Mr. Burr, chairman of the panel conducting a probe into Russian activity during last year's election, said he was leaning toward holding such a hearing, but that he was working out issues like scope, jurisdiction and whether to include other social-media companies in the final lineup of witnesses.

"Now that we've opened up this avenue of social media, it's of great interest for us to get a full accounting from everyone who operates in the

space if in fact foreign money found its way in to finance any of the efforts on social media," said Mr. Burr. He said no final decision had been made.

Facebook declined to comment, pointing to a blog post last week in which the company said: "We have shared our findings with U.S. authorities investigating these issues, and we will continue to work with them as necessary."

Facebook said last week that it had identified about 500 "inauthentic" accounts responsible for \$100,000 in advertising spending that it believes have ties to Russia.

ADMINISTRATION

White House Names Communications Chief

Hope Hicks, a longtime aide to President Donald Trump, will serve as the permanent communications director, the White House said.

Ms. Hicks was appointed last month to serve as interim communications director, making her the fourth person in the first eight months of the administration to serve in that role.

Mike Dubke and Anthony

Scaramucci both resigned from the role under pressure. Former press secretary Sean Spicer, who also assumed those duties on an interim basis, left the White House in July.

In the White House, Ms. Hicks, 28 years old, has been director of strategic communications since the start of the administration. One of the handful of original aides who started on the campaign with Mr. Trump in 2015, Ms. Hicks handled most communications responsibilities for much of the election.

—Rebecca Ballhaus

POLITICS

Bannon Says He Still Talks With Trump

Former White House chief strategist Steve Bannon speaks with President Donald Trump every two to three days, he told a private luncheon gathering in Hong Kong, some three weeks after the adviser left the administration.

Mr. Bannon said he most recently spoke with Mr. Trump the previous night for an hour, according to two people who attended

the closed-door meeting with the former presidential adviser. The gathering included a group of about 20 money managers.

Mr. Bannon described himself as a "schmendrick" engineer—invoking the Yiddish word for "foolish person"—while Mr. Trump was the architect of the campaign, an attendee said. Mr. Bannon said while he had influence before in the White House, he now has "power" at Breitbart News, a right-wing website where he serves as executive chairman.

—Julie Steinberg

HEALTH

Ex-CDC Chief Takes Aim at Heart Disease

Tom Frieden, a former director of the federal Centers for Disease Control and Prevention, is launching an initiative backed by \$225 million over the next five years from three major global health philanthropists to combat heart disease around the world and to help countries better prepare for epidemics.

The funding includes \$100 million from Bloomberg Philan-

New Debt Deadline May Arrive In Spring

WASHINGTON—The hurricane-relief and debt deal signed by President Donald Trump last Friday suspends the government's borrowing limit through Dec. 8, but the real deadline will likely be next spring, according to analysts and congressional aides, adding a new wrinkle to coming negotiations.

By Kristina Peterson,
Kate Davidson
and Siobhan Hughes

The new 2018 deadline could align with discussions on Capitol Hill over how to handle Mr. Trump's decision last week to end a program shielding young undocumented immigrants who entered the U.S. as children. The president gave Congress six months before the program ends to try to write legislation addressing the so-called Dreamers, creating a deadline of March 5.

The shift also means that Republicans will have to cast a vote on raising the debt limit in an election year, an outcome GOP leaders had hoped to avoid given the party's longstanding opposition to rising government debt.

The spring debt-limit deadline is the product of negotiations between Republicans and Democrats following the deal Mr. Trump struck last Wednesday with Senate Minority Leader Chuck Schumer (D., N.Y.) and House Minority Leader Nancy Pelosi (D., Calif.) to combine aid for victims of Hurricanes Harvey and Irma with a three-month suspension of the debt limit. Mr. Trump also agreed to include a three-month extension of government funding, which will now expire on Dec. 8.

As congressional aides drafted the bill's text over a roughly 12-hour period, they debated how it would be completed. Democrats pushed to have both the government funding and debt limit reach a hard stop on Dec. 8, while Republicans argued it would be dangerous to prevent Treasury Department officials from being able to use "extraordinary measures," such as redeeming certain investments in federal pensions programs and suspending new investments in those programs, as they normally do when the debt ceiling reaches its official limit, according to aides from both parties.

When the bill was finally introduced late last Wednesday, it retained Treasury officials' authority to use extraordinary measures, enabling them to take steps to continue paying the bills into next spring. Those measures will probably run out sometime in March 2018, the Bipartisan Policy Center estimated on Friday, though the exact timing is uncertain.

Senate Majority Leader Mitch McConnell (R., Ky.) this week touted the final language as a GOP victory, saying his insistence on retaining flexibility for the Treasury means the high-stakes issue won't be part of year-end negotiations.

"I can confidently predict that there will not be a nexus between the debt ceiling and spending decisions in December," he said.

Democrats said they now have two leverage points: The first will be in December, when the government's funding expires; the second comes next year, when Congress again has to take action on the debt limit.

thropies—the philanthropic arm of Michael Bloomberg's foundation; \$75 million from the Chan Zuckerberg Initiative, launched by Facebook Inc. Chief Executive Mark Zuckerberg and his wife, pediatrician Priscilla Chan; and \$50 million from the Bill & Melinda Gates Foundation.

The goal of the initiative, called Resolve, is to save 100 million lives over the next 30 years by preventing heart attacks and strokes. Resolve will also work on closing gaps in epidemic preparedness and response.

—Betsy McKay

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U.S. NEWS

Irma Destroys 25% of Homes in the Keys

Hurricane Irma destroyed a quarter of the homes in the Florida Keys and badly damaged many more, federal officials said Tuesday, as millions of people in the nation's Southeast remained without power in the storm's wake.

By Valerie Bauerlein,
Scott Calvert
and Jon Kamp

"Basically every house in the Keys was impacted in some way or another," Federal Emergency Management Agency Administrator Brock Long said. "This is

why we ask people to leave."

Meantime, Jacksonville, Florida's largest city, was in recovery mode after the St. Johns River that flows through downtown experienced record levels Monday.

Mayor Lenny Curry said Irma hit the city with a storm surge like a Category 3 hurricane, even though its winds were at tropical-storm level when it reached northeast Florida. More than 350 people had to be rescued, he said. On Tuesday, he lifted an evacuation order but warned returning residents would have to navigate serious

flooding and road blockages.

The state of 20.6 million people has begun the difficult task of assessing damage and rebuilding from Irma, which first made landfall in the Keys on Sunday morning as a Category 4 hurricane. The storm's winds, heavy rain and surging seas have crippled the state after 6.5 million people were ordered to evacuate to other areas.

Many places including Miami Beach were just beginning to reopen, highways leading into the state from Georgia had bumper-to-bumper traffic, and long lines at

gasoline stations remained a major frustration in cities including Fort Myers.

Residents and business owners in the Upper Keys were allowed back into the area Tuesday morning as far south as Islamorada. But Monroe County officials urged people to stay away. "Fuel, water, power & medical super limited," the county said on Twitter.

The county has about 53,000 housing units, census figures show. Nearly all are on the Keys, a 110-mile ribbon of low-lying islands linked by bridges. Florida Gov. Rick Scott on

Tuesday said transportation authorities were inspecting those bridges to make sure they can bear significant weight.

For a third day, friends and relatives of Keys residents who rode out the hurricane on the islands scrambled for news on the well-being of holdouts, while evacuees searched for information about their homes.

Throughout Florida, power outages remained a major problem Tuesday. A state tally late Tuesday showed more than 4.7 million outages, about 45% of the electrical accounts, were still offline.

In the Caribbean, an estimated 38 people have died from the hurricane's sweep through the islands last week.

The French government is carrying out a massive airlift to bring aid to St. Martin.

French President Emmanuel Macron, visiting the French Caribbean territories Tuesday, defended his government's response to the storm from critics who said the government was ill-prepared, as supplies of food and water ran low across the island, patchy communications undermined relief efforts and looting continued.

POWER

Continued from Page One
end of Sunday for its central and northern areas. Restoration in two hard-hit counties, Hardee and Highlands, may take longer, it said.

Irma is a critical test of efforts in recent years to make the power grid more storm-resilient by replacing wind-damage-prone equipment such as wooden poles with concrete versions, placing the poles closer together to lessen the chance that debris could pull them down, and installing water gauges in substations to monitor flooding.

Utilities, which have spent billions in Florida alone on storm preparation, now have to assess whether those efforts were worth the money, and where they should perhaps be expanded.

Eric Silagy, chief executive of FPL, a subsidiary of NextEra Energy Inc., said the \$3 billion his company invested to upgrade its network after seven hurricanes in 2004 and 2005 helped lessen the destruction from Irma.

"Without this storm-hardening, we would have seen much more prevalent structural damage—many more poles down, thousands and thousands, in my opinion," he said.

The utility says it is fixing outages at a much faster rate than it did after Hurricane Wilma in 2005. After just one day, workers restored 40% of outages from Irma, he said, compared with 4% for the same period after Wilma, according to FPL spokesman Robert Gould.

Irma was the first storm to hit all 27,000 square miles of FPL's service territory, Mr. Silagy said. To recover, the company has called in some 20,000 repair workers from utilities across the country and staged them at 30 locations around Florida, including the Daytona International Speedway, home to the Daytona 500, which had been turned into an impromptu pit stop for emergency crews.

In Sarasota, Fla., FPL transformed the 65-acre Sarasota Fairgrounds into an encampment affectionately dubbed "Hotel Sarasota" for about 1,000 workers helping to restore power along Florida's west coast. On Tuesday, it was lined with rows of 50 windowless trailers that sleep 28 on bunks, mobile shower units and mobile bathrooms, with more due to arrive from 29 states.

On Tuesday, large trucks arrived carrying spools of cable and stacks of transformers, while gasoline tankers lined up to help refuel the fleet of bucket trucks being dispatched in waves throughout the day.

Workers left for their 12-to-16-hour shifts with boxed lunches, planning to return to a large hall to eat dinner and then set out again after eight hours of downtime to fulfill a singular mission.

"Get the power back up," said Tom Pitera, the logistics commander for the site. "That's the name of the game."

Wearing an FPL cap and sweating in 85-degree heat, Mr. Pitera said he lost his own power Saturday. His friends have been texting him to get service restored for their neighborhood. "I'm waiting like everyone else," he said.

The problems the crews face are enormous. In a remote area of pine trees and scrub near Southwest Florida International Airport in Lee County, workers Tuesday were trying to repair concrete poles carrying main transmission lines that were broken or knocked over. The lines provided backup energy to the airport, as well as power to other areas.

But the FPL contractors couldn't get to the poles, because the area was inundated with water. One workman tried to walk out, but stopped when the water reached his chest. Workers sent a drone into the swampy area and shot video of the downed poles, but could do little else.

"This is Florida," said Jose Labrador, a company spokesman at the scene. "I don't know if there are gators back

I don't know if there are gators back there,' a Florida Power & Light spokesman said.

there. I don't know if there are snakes. Anything is possible."

Other utilities in Florida, Georgia and South Carolina were engaged in similar recovery efforts.

Scott Aaronson, director of security at Edison Electric Institute, said the industry's response to Irma will be a historic effort when factoring in the full extent of the storm, which hit the U.S. Virgin Islands and Puerto Rico, as well as all 67 counties in Florida,



People shopped by flashlight on Tuesday in a supermarket, one of the few open, in Naples, Fla., in the aftermath of Hurricane Irma.

SPENCER PLATT/GETTY IMAGES

all 159 counties in Georgia and parts of Alabama and the Carolinas.

The peak number of outages so far was 7.8 million customers, Mr. Aaronson said, less than the 8.5 million attributed to Sandy, which affected 11 states, including the New York metro area.

Bettina Abascal said the power went out at her house in southern Miami-Dade County around 5 a.m. Sunday, just as the storm was starting to build. In the aftermath, the biggest concern for the single mother, who lives alone with her 1-year-old son, Ignacio, was how he would fare in the heat.

Ms. Abascal, a 40-year-old agent for TV directors, used a solar-powered generator to drive a fan at night, but was afraid to take her son outside due to the possibility of looters or other criminals.

Nearby, Ifi Ibennah and his girlfriend, Amaya Rodrigues, were trying to stay cool by drinking plenty of water and staying outside, though by Tuesday afternoon it was 89 degrees and humid.

Ms. Rodrigues's mother, Esther Rodrigues, said she worried that because their neighborhood wasn't near any vital businesses, it could take weeks before FPL restores power.

"It's going to be a long time," said the elder Ms. Rodrigues, 61.

Widespread Effects

In addition to wind and rain, Irma brought widespread power outages to the Southeast. Some figures as of Tuesday afternoon:

Rainfall for the 72 hours ending 1 p.m. Tuesday



Atlanta metro area

More than 91,000 outages reported by electric cooperatives in Georgia.

Florida

Statewide, nearly 4.8 million customer outages were reported, or 48% of all customers.

Collier County

In the county where Irma made landfall, only 12% of customers have working power.

Monroe County

83% of nearly 64,000 customers lacked power in the county, which includes the hard-hit Keys.

IRMA'S PATH
Hurricane-force winds
Tropical storm-force winds

Sources: NOAA; U.S. Dept. of Energy; Georgia EMC; Florida Division of Emergency Management

THE WALL STREET JOURNAL.

BANKS

Continued from Page One
lid on rates and trading.

An environment of slow but steady growth and low rates has allowed markets to calmly rise. But there isn't enough trading activity to stoke growth at banks like Goldman. After nearly a decade of stagnation and cost cuts following the 2008 financial crisis, Goldman is gearing up to play offense, but it plans to rely less on trading than it had in the past.

Goldman on Tuesday laid out a detailed plan to grow revenue, which has remained flat since the financial crisis. Its target of \$5 billion in new revenue by 2020 hinges on businesses that have been footnotes for most of the firm's 147-year history: lending, asset management and tending to the mundane needs of corporate clients and money managers.

The goals outlined by Mr. Schwartz would bring Goldman back to 2006 revenue lev-

els. In other words, the firm is shooting by 2020 to have spent more than a decade treading water.

Lending to wealthy clients, companies and consumers could add \$2 billion of new revenue over the next three years, said Mr. Schwartz at a global financial-services conference hosted by Barclays PLC. That is twice what a revamp of Goldman's vaunted bond-trading business could produce, he added.

"We're focused on the future," said Mr. Schwartz, Goldman's co-chief operating officer.

Dimon Reiterates Criticism of Bitcoin

Jamie Dimon hasn't changed his mind about bitcoin.

Mr. Dimon, the long-time CEO at J.P. Morgan Chase, continued his well-documented criticism of the digital currency. Speaking at the Barclays financial-services conference on Tuesday, he was asked whether his bank had a trader who

traded bitcoin.

His response? "If we had a trader who traded bitcoin, I'd fire them in a second," he said. "It's against our rules" and any trader that deals in them is "stupid."

Still, he said he wouldn't advise shorting bitcoin. Given its wildly speculative nature, Mr. Dimon said, it could go to \$20,000. Later, at a separate conference, he said it could go to \$100,000 and noted his daughter had made some money in bitcoin.

The cuts have put Goldman in a position to squeeze higher profits from extra revenue. Mr. Schwartz said as much as half of every extra revenue dollar from now on could end up on the bottom line.

"Our relative performance, in the long run, is totally within our control," Goldman CEO Mr. Blankfein said in a voice mail Tuesday to the company's 34,000 employees.

The biggest opportunity lies in lending, which Goldman once eschewed but more recently has embraced. The firm plans to put \$28 billion more

toward loans over the next three years, which would increase its loan portfolio by 40%.

Ultimately though, Mr. Dimon said that he thinks Bitcoin is "a fraud" and it "will eventually blow up." He referenced approvingly the comments of another titan of the traditional markets, Howard Marks, who recently called bitcoin "an unfounded fad."

Bitcoin was trading around \$4,200 before his comments and fell about 3.5% after his speech started circulating. It was last at \$4,092.

—Paul Vigna

firms, and what remains is simpler, electronic and with lower fees.

The five biggest banks as a group saw trading revenue dip 12% in the second quarter. Volatility remains near record lows, despite worrying geopolitical headlines. Many investors are waiting for clarity on how soon and how quickly interest rates will rise.

Goldman is looking for new ways to lend, weighing secured loans such as mortgages as well as e-commerce loans offered to customers online, according to people familiar with the discussions. It recently partnered with Fidelity Investments to fund loans backed by household brokerage accounts.

Some analysts question whether Goldman can deliver on projections in areas it has only recently focused on. "We are somewhat skeptical," Keefe, Bruyette & Woods analysts wrote in a note. The firm is looking for growth "outside of [its] traditional strengths."

Trading revenues have stalled at most big Wall Street

firms, and what remains is simpler, electronic and with lower fees.

The five biggest banks as a group saw trading revenue dip 12% in the second quarter. Volatility remains near record lows, despite worrying geopolitical headlines. Many investors are waiting for clarity on how soon and how quickly interest rates will rise.

What's more, many assets are trading within narrow price bands, meaning it is hard for brokers to make much money standing between buyers and sellers.

J.P. Morgan's Mr. Dimon predicted that busy markets will return. "You will have volatile markets again," he said. "People will panic, you will panic, running through the door like everybody else."

Mr. Dimon said he may stop giving trading guidance because investors are too focused on near-term results. Earlier this summer, he chastised reporters on a press call for seeking intraquarter details about trading revenue.

—Emily Glazer contributed to this article.

WORLD NEWS

U.S. Presses Beijing Over North Korea

Treasury officials threaten sanctions if China doesn't do more to isolate Pyongyang

By IAN TALLEY

WASHINGTON—The Trump administration threatened to impose further sanctions on China if Beijing doesn't do more to shut down banks and other Chinese firms aiding North Korea.

If China doesn't implement the United Nations sanctions regime it has backed, "We will put additional sanctions on them and prevent them from accessing the U.S. and international dollar system," Treasury Secretary Steven Mnuchin said on Tuesday at a conference.

The statement followed Monday's passage by the United Nations Security Council of new sanctions against North Korea—measures that were softened, diplomats said, to win approval from China and Russia, which wield veto power.

President Donald Trump also signaled that the U.S. was looking past the watered-down U.N. measures. He said the sanctions move was "not a big deal."

"Those sanctions are nothing compared to what will ultimately have to happen," Mr. Trump said.

U.S. officials and U.N. investigators have said China hasn't moved robustly enough to shut down networks they say are financing North Korean leader Kim Jong Un's regime and weapons programs, including



Chinese customs officials in Dandong inspected trucks Monday carrying goods to and from North Korea.

activities sanctioned by the U.N.

Earlier Tuesday, China's Foreign Ministry spokesman Geng Shuang said Beijing strictly enforces all U.N. resolutions.

Washington is intent on depriving Pyongyang of all its revenue sources even if it means unilaterally targeting firms in China, the world's second largest economy, Treasury's assistant secretary for terror finance Marshall Billingslea said Tuesday in testimony to a House Foreign Affairs subcommittee.

Treasury's recent sanctions targeting a Chinese bank and other Chinese firms were

meant to be a "message to China," Mr. Billingslea said. "We are capable of tracking North Korea's trade in banned goods, such as coal, despite elaborate evasion schemes, and we will act even if the Chinese government will not."

The testimony followed Monday's sanctions vote and a U.N. report published late last week that identified a host of Chinese firms allegedly facilitating sanctions evasion.

U.S. lawmakers and Trump administration officials have expressed increasing frustration with China's handling of North Korea as its biggest

trade partner and financier in the wake of Pyongyang's latest nuclear test, missile launches and threats to U.S. security.

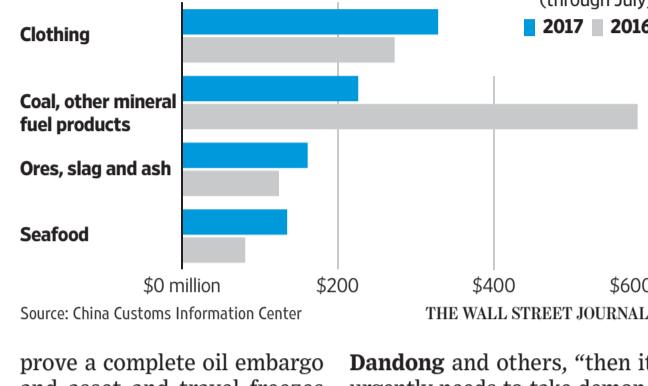
China, sitting on the U.N. Security Council, has backed a steady increase in financial pressure on North Korea, and Monday approved the new U.N. bans on textile exports, a cap on oil imports and limits on overseas workers.

U.N. sanctions already ban coal and other commodity exports from the country, targeting Pyongyang's biggest income streams.

The U.S. had initially asked the Security Council to ap-

Fabric of Trade

The latest U.N. sanctions on Pyongyang ban trade in textiles, which have overtaken sanctions-hit coal as the top Chinese import from North Korea.



Source: China Customs Information Center

prove a complete oil embargo and asset and travel freezes targeting the North Korean leader.

But China has sought to avoid measures that it believes could provoke the collapse of a fellow socialist regime, drive refugees across its border and bring U.S. troops closer.

China's full and effective enforcement of U.N. sanctions is essential, Mr. Billingslea said. "Unfortunately, I cannot assure the Committee today that we have seen sufficient evidence of China's willingness to truly shut down North Korean revenue flows, expunge the North Korean illicit actors from its banking system, and expel the North Korean middlemen and brokers who are establishing webs of front companies," he said.

He said that if China wishes to avoid future measures, such as those imposed on Bank of

Dandong and others, "then it urgently needs to take demonstrable public steps to eliminate North Korea's trade and financial access."

On Monday, China's central bank issued a directive instructing state-owned and commercial lenders to take steps to comply with all U.N. resolutions, including freezing accounts and blocking transactions linked to clients under sanction.

For Beijing, stopping short of the tougher measures sought by the U.S. in the latest sanctions could help China retain leverage over Pyongyang.

"China wants to reserve some tools in its kitbox, to be used if North Korea carries out more provocative acts," such as another nuclear test, said Cheng Xiaohe, an associate professor at Renmin University in Beijing.

—Felicia Schwartz, Chun Han Wong and Xiao Xiao contributed to this article.

Trump, in Meeting, Plays Up Malaysia Investments

By MICHAEL C. BENDER

WASHINGTON—President Donald Trump touted what he described as a plan by Malaysia Airlines Bhd. to spend between \$10 billion and \$20 billion on Boeing Co. jets and General Electric Co. engines as he opened a White House meeting with Malaysia's prime minister.

Mr. Trump, in a public appearance with Prime Minister Najib Razak, cited the airline deal as a basis for strong ties between the two countries. Boeing said the deal involved 16 new planes. He also identified Malaysia as a strategic national-security ally in Asia, while playing down the significance of a fresh round of sanctions the United Nations Security Council approved against North Korea.

Mr. Trump also praised Malaysia as a significant investor in U.S. securities, saying American markets have been hitting records "on almost a weekly basis" during his presidency. "I congratulate you on those investments," Mr. Trump said during a brief public appearance with the Malaysian leader.



During the Malaysian prime minister's visit to the White House on Tuesday, neither leader mentioned the U.S. probe of 1MDB.

The airline deal puts the administration in the unusual position of coaxing investment from a trade partner that the U.S. is also investigating for investment fraud.

The U.S. Department of Justice is investigating the alleged looting of 1Malaysia Development Bhd., a Malaysian economic-development fund. The probe threatens to ensnare much of the country's ruling elite, including Mr. Najib.

Mr. Trump didn't mention the investigation during his public appearance with Mr. Najib. White House press secretary Sarah Sanders said on Monday that the investigation was "apolitical, and certainly independent of anything taking place" during meetings involving the president.

Instead, the two leaders' were meeting to discuss a wide range of regional issues and security concerns, including the halt of the Islamic State extremist group, North Korea's push for nuclear weapons, and territorial disputes in the South China Sea.

Jonah Blank, a senior political scientist with Rand Corp., said it is unlikely the leaders

discussed the investment scan-

dal since both had ample domestic reasons for wanting a harmonious meeting.

While Mr. Trump can tout investment, Mr. Najib will use the high-profile reception at the White House to boost his stature back home. "If he is able to portray himself as a firm partner of the U.S., it can

of course be used against him, but it's likely a positive," Mr. Blank said.

Mr. Najib said during the public appearance with Mr. Trump on Tuesday that he was interested in contributing to the U.S. economy. Malaysia Airlines agreed in 2016 to buy 25 Boeing 737s, with an option

to buy another 25, in a deal estimated at \$5.5 billion.

In an apparently new deal unveiled on Tuesday, Malaysia Airlines also will buy eight Boeing 787 Dreamliners, Mr. Najib said, a deal that would be valued at about \$2.2 billion.

Mr. Najib also said the Employees Provident Fund, a ma-

jor pension fund in Malaysia, planned to invest \$3 billion to \$4 billion in U.S. infrastructure projects.

Mr. Najib also didn't mention the Justice Department's 1MDB probe.

—Doug Cameron and Alan Cullison contributed to this article.

Brazil's Rate Reductions Set to Slow

By PAULO TREVISANI
AND JEFFREY T. LEWIS

SÃO PAULO—Brazil's central bank said the struggling economy could benefit from lower borrowing costs, but reinforced market projections that the pace of interest-rate cuts is likely to slow down.

"The economic situation prescribes an accommodative monetary policy," according to minutes from the bank's Sept. 6 policy meeting. The language is seen as an indication that the bank aims to keep short-term lending rates less than four percentage points above inflation. Last week, the bank cut its benchmark Selic rate to 8.25% from 9.25%, as annual inflation remained below its 4.5% target, at 2.46% in August.

It was the eighth consecutive cut since October. Economists surveyed by the bank last week predicted the Selic will end this year at 7%.

Last week's cut came as Brazil's Congress advanced economic measures. The legislation is likely to increase the bank's ability to manage inflation using interest rates.

CHINA'S WORLD

By Andrew Browne

XIONGAN, China—The Chinese economy is in a strange kind of limbo.

Take Xiongan, a sleepy rural district south of Beijing that for one giddy moment became the country's hottest stretch of real estate.

Investors converged here after state media this spring proclaimed

that President Xi Jinping had picked it as the location of a new super-city. But when

prices tripled overnight, officials froze real-estate transactions rather than see Mr. Xi's model city turn into a speculators' playground.

Today, Xiongan is on hold: Cranes swing idly over the half-finished apartment blocks that dot the land-

scape, and the gates to newly completed luxury villa complexes are padlocked.

The same concocted calm pervades much of the world's second-largest economy.

In the run-up to next month's 19th Communist Party Congress, where Mr. Xi intends to cement his power for another five years, the government has laid its heavy hand on the country's markets. No turmoil can be allowed to spoil the political pageantry.

Municipal governments in megacities like Shanghai and Beijing have managed to hold down runaway property prices with a web of restrictions on who can buy apartments.

In a recent echo of the Xiongan freeze, regulators have closed China's roaring exchanges for bitcoin, the cryptocurrency that has become another manifestation of the Chinese economy's susceptibility to bubbles.

To stanch a gush of money out of the country, authorities have hauled in for questioning tycoons who have been buying up trophy assets overseas. Capital flight is now under control.

This imposed discipline

looks to some foreign investors like an economic turnaround: The yuan has recouped much of last year's loss; Shanghai stocks are recovering broadly; and the Hong Kong-issued bonds of Chinese property conglomerates are red hot.

Just a few months ago, the almost universal belief among Western economists was that the yuan was on a slow grind lower. Many thought that real-estate markets, fed by a mortgage boom, were dangerously frothy and saw state-owned corporate behemoths as

drag on the economy, rather than growth drivers.

Now, all these discordant notes seem to have come together in a soothing symphony.

But what, fundamentally, has changed? Mr. Xi has done little in his first term to address the root causes of the economy's imbalances: Growth is still juiced by easy credit despite a mountain of debt. Rather than trim the bloat in state enterprises, the president is bulking them up.

True, global trade has picked up sharply, lifting Chinese exports and boosting industrial profit. And Donald Trump's stalled economic agenda has weighed on the dollar, thereby helping to boost the yuan.

Mostly, however, we're witnessing the awe-some power of the party to orchestrate the economy, by finesse if possible and diktat when necessary.

Those who think the economy has turned a corner should consider what might happen if the authorities let the yuan find its own level, or allowed capital to leave

the country freely or got serious about reducing debt: almost certainly a run on the currency and a severe jolt to growth.

For optimists, bullish market valuations are justified by expectations that Mr. Xi will leverage his new strength after the congress to overhaul the economy.

Xiongan will be a test. Mr. Xi imagines it as a model for a new kind of urbanization—green, super-high-tech, innovative and socially inclusive, focused on generating real jobs and incomes for the middle classes, not windfalls for speculators and corrupt officials.

But the outskirts of China's megacities are littered with failed utopias where previous visions have run into reality.

Xiongan has gotten off to the worst possible start, with a speculative frenzy. For Beijing, however, it's easier to smother this kind of activity than deal with the fundamental causes. An all-powerful leadership can likely keep the forces of disruption at bay for some time. But they haven't disappeared; like Xiongan speculators, they're just lurking.



President Xi Jinping at this month's Brics summit in Xiamen

FRED DUFOUR/PRESS POOL

CHINA'S WORLD

By Andrew Browne

Take Xiongan, a sleepy rural district south of Beijing that for one giddy moment became the country's hottest stretch of real estate.

Investors converged here after state media this spring proclaimed

that President Xi Jinping had picked it as the location of a new super-city. But when

prices tripled overnight, officials froze real-estate transactions rather than see Mr. Xi's model city turn into a speculators' playground.

Today, Xiongan is on hold: Cranes swing idly over the half-finished apartment blocks that dot the land-

scape, and the gates to newly completed luxury villa complexes are padlocked.

The same concocted calm pervades much of the world's second-largest economy.

In the run-up to next month's 19th Communist Party Congress, where Mr. Xi intends to cement his power for another five years, the government has laid its heavy hand on the country's markets. No turmoil can be allowed to spoil the political pageantry.

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WORLD NEWS

Russia Drills Troops Before Big Exercise

Smaller maneuvers precede show that NATO trusts will improve its knowledge

Russia has begun military drills ahead of major war games that North Atlantic Treaty Organization allies are concerned about, but say are helping them better prepare for future tensions.

By Julian E. Barnes in Brussels and Thomas Grove in Tallinn, Estonia

NATO countries have warned that Moscow's military maneuvers in Russia and Belarus, known as Zapad, threaten to trigger an accident or a wider conflict and offer an opportunity for Russia to push more powerful weaponry toward the border.

"We see a very, very large-scale offensive exercise that demonstrates hatred against the West," said Lithuanian President Dalia Grybauskaite, whose country borders Be-



VALDA KALNINA/REX SHUTTERSTOCK/EUROPEAN PRESSPHOTO AGENCY

A U.S. Air Force F-15C deployed in Lithuania. The country's president has described Russia's Zapad drill as an 'offensive exercise.'

larus and Russia's Kaliningrad exclave. "It is clear that this will be used to upgrade the military in the region."

Russia has said the exercise will formally begin on Thursday and run through Sept. 20. But ahead of the official start, Russia announced lower-level

training exercises along its western border.

On Tuesday, snap readiness drills were held in Russia's western military district, the Defense Ministry said. The day before, the country's Baltic Fleet carried out training with S-300 and S-400 air-defense

systems along with Su-24 bombers.

The military didn't say the exercises were connected to the Zapad war games. But NATO officials say Russia has been doing drills since August that are connected to the maneuvers. Lithuania canceled all

leave for its troops beginning last month.

The Russian Defense Ministry wasn't immediately available to comment. Separately, Russia also tested its nuclear-capable intercontinental ballistic missile Yars on Tuesday, successfully hitting a target

more than 3,000 miles away in the country's far east.

Western officials have said they hope to learn about a range of Russian capabilities, including weaponry designed to make it difficult for NATO to reinforce forces in the Baltic states. Ms. Grybauskaite and allied diplomats said the drills will also allow NATO to revise its security assessments, and learn more about Russia's military capabilities.

The Baltics, which have had strained relations with Moscow in recent years, are particularly concerned about Russia's military maneuvers. During World War II the Soviet Union annexed Lithuania, Estonia and Latvia, which only regained their independence in 1990.

The U.S. and other allies positioned a small number of troops in the Baltic states and Poland after Russia's annexation of the Ukrainian territory of Crimea. Last year, NATO decided to send a larger force of 4,000 troops that began arriving this year to serve as a deterrent to any Russian aggression or military action.



Finance Minister Oleksandr Danylyuk called allegations against him 'distractions, often intentional and aimed to derail' overhauls.

Corruption Battle Roils Ukraine

By JAMES MARSON

KIEV, Ukraine—A push for overhauls encouraged by Ukraine's Western backers is deepening divisions in the government, including a call by some officials for the dismissal or investigation of the reformist finance minister.

The clash has raised concern in the U.S. and European Union and presents a new challenge for the country's economy, which is recovering from a two-year recession sparked by Russia's annexation of Crimea in 2014 and military interventions in Ukraine's east.

Finance Minister Oleksandr Danylyuk is point man for talks with the International Monetary Fund that were set to continue this week and has driven efforts to overhaul state finances and cut official interference in business, steps seen as key in curbing corruption.

An effort by Mr. Danylyuk and others to weaken the state's hand in the economy and overhaul inefficient state sectors has spurred attacks from opponents who accuse him of hindering their work.

"This is not surprising," Mr. Danylyuk said. "We are working to change the old system and the old rules, and quite logically, the system is fighting back."

The general prosecutor, Yuriy Lutsenko, who was appointed by President Petro Poroshenko, told his staff in late August that he had written to the prime

minister asking him to fire Mr. Danylyuk, according to Mr. Lutsenko's spokeswoman. Prime Minister Volodymyr Groysman's spokesman didn't respond to a request for comment.

Two other senior officials have publicly called for investigations of Mr. Danylyuk's finances and budget decisions.

Mr. Danylyuk has denied any wrongdoing and said the multiple allegations he has faced were "distractions, often inten-

tional and aimed to derail."

The finance minister gained a firmer grip on his job recently when the General Prosecutor's Office closed an investigation into allegations that he had evaded taxes, according to the Finance Ministry.

Other reformist officials and anticorruption activists have complained of official pressure—causing unease in the West.

Ukraine's Western backers have praised economic and governance changes since a pro-Western government came to power in 2014, but have taken a more critical tone in recent months as progress on overhauls has slowed.

"Ukraine needs to continue moving aggressively to strengthen the rule of law and to limit the influence of entrenched interests," U.S. Ambassador Marie Yovanovitch said in August.

The IMF, too, has criticized what it says is slow progress on steps needed to open up Ukraine's economy and spur growth. It has provided billions of dollars in loans to Ukraine in return for measures to strengthen state finances. Yet calls by the IMF and others for

privatizations and creation of a land market have faced resistance from some lawmakers who argue the changes would benefit few people.

As finance minister since April 2016, Mr. Danylyuk has led an overhaul of the system for value-added tax refunds, for years a venue for corruption. He has helped draft legislation needed to unlock further IMF loans this fall, and is working to overhaul the state fiscal service by cutting bureaucracy.

He is also trying to crimp the budget of the powerful General Prosecutor's Office and reduce the powers of law-enforcement agencies to investigate economic crimes.

Anticorruption activists have accused such agencies of corrupt abuse of their powers. "Every day people come [to me] with stories of raids on business by the Security Service of Ukraine, the Interior Ministry and prosecutors," said Serhiy Leshchenko, a lawmaker and former muckraking journalist. None of the agencies responded to requests for comment.

—Ian Talley in Washington contributed to this article.

Continued from Page One
its regular timing for new iPhones.

Apple didn't give a reason for the delay. The Wall Street Journal reported this month that production glitches in summer delayed the new phone's production schedule by a month and could lead to extended supply shortfalls.

The iPhone X—which also boasts depth sensors and a dual-lens camera system—arrives amid questions about Apple's innovative strength. Rivals such as Samsung have matched or leapfrogged ahead of Apple's smartphone features, introducing larger displays using organic light-emitting diode (OLED) technology and water resistance before Apple did. Meanwhile, rival smartphone makers in China are closing the gap offering similar features at far lower prices.

That has contributed to

slower sales growth: Apple's share of the global smartphone market slipped to 14.5% last year from 19.4% in 2012, according to Strategy Analytics, a market-research firm.

Apple touted the iPhone X, which it pronounces "iPhone Ten," as the future of the smartphone. "It is the biggest leap forward since the first iPhone," said Apple Chief Executive Tim Cook.

Some observers were skeptical. Holger Mueller, principal analyst at Constellation Research, said Apple failed to capitalize on the 10-year iPhone anniversary with a revolutionary new smartphone. "Almost all innovations have been shown by the competition, notably Samsung," he said.

Tuesday's event was choreographed to connect Apple more deeply with the mystique of its late co-founder Steve Jobs. It took place in a theater bearing his name at a new campus built based on his design concepts. It kicked off with a song by the Beatles, one of his favorite bands, and with

The next iteration of Apple Watch still has the same recognizable rounded-square shape but is now cellular, eliminating the need to have an iPhone nearby.

The Apple Watch Series 3 has an LTE chip that enables it to connect to the fastest cellular networks for many of the same functions the iPhone offers. Its predecessor, the Apple

audio of remarks he made about Apple's product philosophy.

"Steve's vision and passion live on here at Apple Park and everywhere at Apple," Mr. Cook said.

Apple shares, which had been rising, slid slightly after the company announced the date of the iPhone X's availability, ending the day down 0.4%.

Watch Series 2, acted as a remote control for the iPhone, using Bluetooth and Wi-Fi to fetch email, messages and other data from the handset. The Watch Series 3 includes new chips and new antenna but is about the same size as its predecessor.

The Watch Series 3 costs \$399 with cellular capability, or \$329 without. The Watch Series 1 will be reduced to \$249.

AT&T Inc. and Verizon Communications Inc. said adding Watch Series 3 to an iPhone plan would cost \$10 a month.

Other companies have offered facial recognition, but Apple claimed its Face ID system is superior, blending artificial-intelligence with sensors that map faces in 3D using 30,000 invisible infrared dots.

Apple marketing chief Phil Schiller said Face ID can recognize faces in light and darkness, even if the user changes hairstyle or wears glasses or a hat. He said engineers worked

to make sure photographs or masks can't trick it, and said the chances of someone other than the user unlocking the phone with Face ID are one in a million. That compares with one in 50,000 for Touch ID, the current fingerprint sensor technology that sits on a home button Apple is eliminating for the iPhone X.

The iPhone X design has raised hopes that it can reverse Apple's fortunes in China, Apple's most important market outside the U.S., where sales have fallen six straight quarters.

"The high-end Chinese phone market is super competitive and customers are very discerning but also enthusiastic," said Benedict Evans, a partner at Andreessen Horowitz, a venture-capital firm. "If Apple can get something that rings the bell [with them], then this will work."

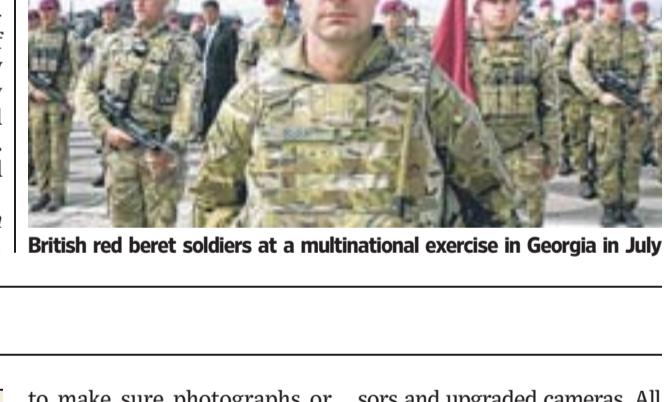
The iPhone 8 and 8 Plus feature what Apple has billed as a new design, made of glass on front and back, as well as louder speakers, faster proces-

sors and upgraded cameras. All three devices offer wireless charging and new gyroscopes and accelerometers to improve augmented reality experiences.

Apple on Tuesday also announced a new Apple Watch with cellular connectivity, and an Apple TV with ultra-high definition functionality.

Apple has sold an estimated 30 million Apple Watches since introducing the device in 2015, according to market research by IDC. The Apple Watch Series 3 has the potential to extend recent sales gains by boosting the device's functionality, analysts said.

The update to Apple's streaming-media player, Apple TV 4K, is the first since 2015 and comes as the device has lost market share to lower-priced rivals. Apple Vice President Eddy Cue said Apple will sell ultra-high definition films from Hollywood studios at \$19.99, the same price it currently offers high-definition films. There also will be live sports in 4K from ESPN and others.



VANO SHLAMOV/AGENCE FRANCE PRESSE/GETTY IMAGES

FROM PAGE ONE

APPLE

Continued from Page One
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Apple Unleashes Watch From iPhone

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WORLD NEWS

French President Faces Backlash Over Labor Plan

BY WILLIAM HOROBIN

PARIS—French President Emmanuel Macron faced his first street protests as a far-left union led strikes and demonstrations against his plans to shake up the labor code.

The CGT union on Tuesday organized almost 200 rallies around the country against laws Mr. Macron plans to sign this month that would reduce financial risks for companies laying people off and make it easier to negotiate working conditions with employees.

But, in a favorable early sign for Mr. Macron, the other major unions didn't participate in the demonstrations.

"It is a considerable retreat for worker rights and a generalized destabilization of labor," said Antoine Girard, an unemployed theater worker at a march in Paris.

Thousands of people set out from the city's landmark Bastille column, chanting and shouting. Police estimated that 24,000 people attended the

protest in Paris.

The demonstrations are a test for Mr. Macron as he embarks on contentious changes to welfare, taxes and pensions. He has said the moves are necessary to address low growth and high unemployment after his predecessors backed away from overhauling worker protections when faced with strikes and protests.

Mr. Macron is hoping he can use success at home to push for broader changes in the eurozone.

The French president is facing slumping polls amid public skepticism of his policies, but he has notched some victories. Of the five largest unions that officially represent employees in bargaining agreements, only the CGT's leadership has called for strikes. In addition, the CGT hasn't struck an alliance with far-left political groups, which are planning a separate demonstration on Sept. 23.

The 39-year-old leader said the new measures are necessary to encourage companies



Steelworkers in Marseille burned flares on Tuesday during a nationwide day of protest against the government's planned labor laws.

CLAUDE PARIS/ASSOCIATED PRESS

to hire by giving them more flexibility to adjust their workforces in difficult times. The proposal would enable small companies to strike deals on pay and conditions with their employees, without having to negotiate with unions. The

measures also include a cap on fines for unfair dismissals and a limit on the time workers have to appeal layoffs.

The CGT said the measures will increase joblessness and instability. "This is the first step of a mobilization to make peo-

ple aware of what's at stake," CGT leader Philippe Martinez said of the protests. The CGT has called for more strikes and demonstrations on Sept. 21.

Mr. Macron, meanwhile, was in the Caribbean visiting victims of Hurricane Irma on

the island of St. Martin.

The president hopes to persuade other eurozone countries to put their taxpayers' money into a shared budget to counter economic shocks, but said France must first address its own economic problems.

WORLD WATCH

UNITED KINGDOM

Pound Soars Against Dollar as Prices Rise

The British pound hit a one-year high against the dollar after official figures showed inflation accelerated sharply in August, reinforcing expectations that the Bank of England may soon be forced to raise interest rates despite lackluster growth.

The U.K.'s Office for National Statistics said Tuesday that consumer prices were 2.9% higher in August than a year earlier.

Sterling rose 0.9% following the release of the figures to \$1.327, its highest level against

the dollar since September last year. The currency rose 1% against the euro to €1.112.

The gain reflects a growing belief that BOE officials may soon need to nudge up borrowing costs to contain mounting inflationary pressure.

—Jason Douglas and Georgi Kantchev

EUROZONE

ECB Official Defends Easy-Money Policy

The European Central Bank ultimately will reach its inflation goal of just below 2% if it keeps policy appropriately loose, ECB

vice president Vitor Constâncio said in a speech in Frankfurt.

He said the central bank's negative-interest-rate policy has been a success, but that a close eye needs to be kept on the tool.

"We share with other advanced economies the puzzle of wages and prices not responding to strong growth as usual," he said. "By keeping a sufficient degree of monetary-policy accommodation we can be confident that our goal will eventually be reached."

The annual inflation rate in the eurozone accelerated to 1.5% in August from 1.3% in July.

—Todd Buell

BANGLADESH

Leader Visits Camp Sheltering Rohingya

Prime Minister Sheikh Hasina visited a camp that has absorbed hundreds of thousands of Rohingya Muslim refugees and demanded that Myanmar "take steps" to repatriate them.

"We will not tolerate injustice," she said at a rally Tuesday at the Kutupalong camp, near the border town of Ukhia in Cox's Bazar district.

On Monday, she accused Buddhist-majority Myanmar of committing "atrocities."

—Associated Press



WATER SPORT: A man rides an artificial wave, one of the attractions Moscow set up to mark the city's 870th anniversary.

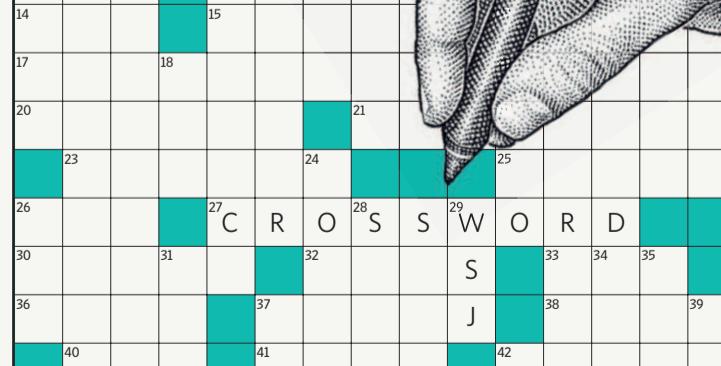
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IN DEPTH

SPACE

Continued from Page One
weather forecasting and navigation. The Satellite Industry Association estimates that about \$127 billion in annual revenue from satellite services is vulnerable.

Traveling at orbital speeds up to 17,000 miles an hour, even an aluminum pellet 1-centimeter wide packs the kinetic equivalent of a 400-pound safe moving at 60 miles an hour.

Last year, a scrap barely bigger than a grain of salt blew a hole in the European Space Agency's Sentinel 1-B satellite, knocking off five pieces that narrowly missed a nearby satellite. In June, something jolted the AMC9 telecommunications satellite, owned by Luxembourg-based SES, disrupting data and broadcast services over the U.S. and Mexico.

"This is the first time this has happened to us," said Markus Payer, vice president for corporate communications at SES, which operates 65 satellites. Company engineers re-established control of the crippled craft and hope to park it in a "graveyard" orbit where it won't threaten other spacecraft. The incident is costing SES about \$23 million in lost revenue this year and another \$44 million in the value of the spacecraft itself.

Unchecked, the growing debris in orbit "might make some regions of space unusable in the future, and that would impact everybody—everybody who uses a mobile phone, who gets television, who relies on weather forecasts," said Holger Krag, head of the European Space Agency's Space Debris Office.

Satellite operations generally are governed by a patchwork of voluntary guidelines, treaties, domestic policies and laws designed for an earlier era of spaceflight. In the U.S., responsibility is spread over several federal agencies.

"International treaties on space were developed 30 years ago, and they weren't considering the types of constellations and uses of space we are seeing in the near future," said Greg Wyler, CEO of OneWeb, which starting in April plans to launch a \$2 billion constellation of 882 small satellites for broadband internet services. "There needs to be an update of those rules."

Access to space has never been easier due to the innovations of small satellites that range from the size of a washing machine to as small as a poker chip, compared with more traditional satellites that are often taller than a double-decker bus and weigh several tons.

The most popular type is called a CubeSat, which is based on a student-created standardized design and typically costs a fraction of larger systems—as little as \$40,000 each, compared with an average of \$97 million or so for larger, custom-built satellites. At their simplest, CubeSats are 4-inch cubes that can be stacked like Legos into various configurations.

"CubeSats are so appealing because they are a kit, essentially," said aerospace industry analyst Carissa Bryce Christensen, CEO of the consulting firm Bryce Space & Technology in Alexandria, Va.

Each tiny spacecraft is built to perform a single dedicated task, such as gathering weather data, tracking aircraft, monitoring factory activity or conduct-

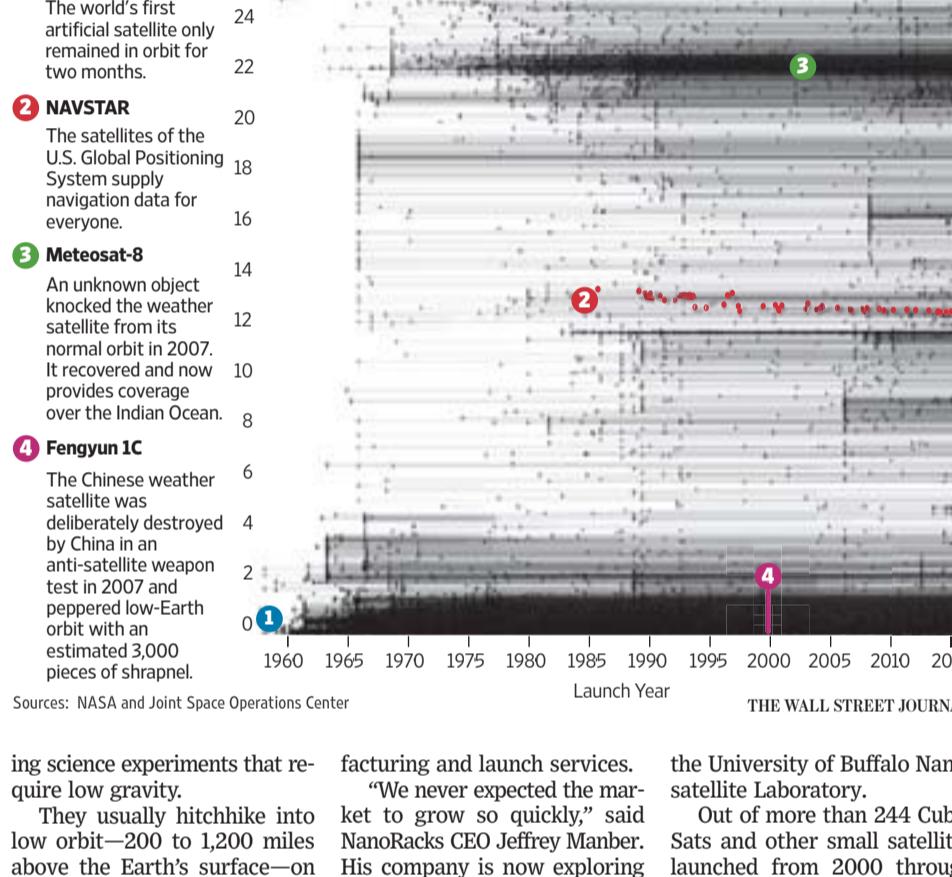


A 'Uwe 3' small satellite in a testing laboratory at Wuerzburg University in Germany.

DAVID EDENER/DPA/ZUMA PRESS

Objects We're Watching in Orbit

The U.S. Air Force tracks about 23,000 objects in orbit—including live satellites, derelict rocket parts, decommissioned spacecraft and wreckage.



ing science experiments that require low gravity.

They usually hitchhike into low orbit—200 to 1,200 miles above the Earth's surface—on rockets launched by space agencies, including the National Aeronautics and Space Administration, and private companies, such as SpaceX, that have spare room. They are often stacked on racks to be deployed from the international space station, like shells ejected from a pump-action shotgun. NanoRacks LLC, a leading launcher of CubeSats, based in Webster, Texas, has deployed 182 CubeSats from the space station.

Rapid growth

Other relatively compact satellites, each weighing a few hundred pounds, are also proliferating. In the next five years 11 aerospace companies plan orbital networks encompassing 18,000 small communications satellites, according to federal filings, representing about \$175 billion worth of satellite manu-

facturing and launch services. "We never expected the market to grow so quickly," said NanoRacks CEO Jeffrey Manber. His company is now exploring ways to use 3-D printing technology and robotics to manufacture CubeSats in orbit. So is the European Space Agency.

Some aerospace experts are concerned that, despite their advantages, CubeSats may be little more than rocks in space. They too often malfunction, are too small to track easily and usually have no propulsion system to allow them to steer clear of other spacecraft, critics said.

Generally, a CubeSat maintains the speed and orbit of the rocket that released it. At lower altitudes, small amounts of wind and resistance can push the devices off course. (At very high altitudes, well beyond the reach of the atmosphere, a satellite might stay on the same course for thousands of years.)

The lack of maneuverability makes CubeSats a "huge problem," said aerospace engineering professor John Crassidis at

the University of Buffalo Nanosatellite Laboratory.

Out of more than 244 CubeSats and other small satellites launched from 2000 through 2015, only one in four completed its mission, according to a recent survey by Michael Swartwout of Saint Louis University. Nearly a third of them were dead on arrival in orbit.

This summer, nine CubeSats belonging to commercial and university teams malfunctioned in orbit and now don't respond to commands.

Many proponents of CubeSats said their tiny spacecraft orbit at such low altitudes that they clean up after themselves by harmlessly burning up in the atmosphere within a few months or years. As a satellite slows, it drops lower and lower, encountering stronger headwinds that create greater friction and heat, until it finally catches fire or vaporizes.

The largest commercial network of small satellites currently belongs to Planet, an imaging company based in San

Francisco, which operates a fleet of 185 CubeSats and five other satellites and plans to launch six more CubeSats in October. Planet said it relies on the natural tendency of a satellite to burn up in the atmosphere to dispose of spacecraft that have outlived their usefulness.

Missing satellites

Among this summer's missing CubeSats is one deployed by Planet in July. It never reached its intended orbit and so far can't be located. The company said it was gathering information to find out what happened.

About a third of the satellites in low Earth orbit don't drop out of space as expected when their mission is done, an international space debris working group reported earlier this year. One of every five CubeSats launched between 2003 and 2014 was in violation of international guidelines calling for satellites to de-orbit safely when their mission is over, according to a separate NASA study.

Military and commercial radar monitors often can't tell where all these small satellites are at any given time. "The number of satellites ride-sharing on a single rocket overwhelms the current process," said Daniel Ceperley, CEO of LeoLabs Inc., which is building a global network of six radars for commercial space tracking and collision warning.

Satellite analyst Hugh Lewis at the U.K.'s University of Southampton and his colleagues studied orbital data collected from 2005 through 2014 by the Center for Space Standards & Innovation, a subsidiary of Analytical Graphics Inc., which issues collision alerts to commercial satellite operators. Combing through data on thousands of orbiting objects, Dr. Lewis identified 163 CubeSats and then reconstructed their travels.

Taken together, the tiny craft passed within 3 miles of other objects more than 360,000 times, with a margin of error of plus or minus a mile or so, in orbits where impacts would deliver the energy that was about equivalent to an exploding hand grenade.

The traffic-management problems could be multiplied by the thousands of small satellites proposed by SpaceX and other companies in filings with the Federal Communications Commission.

mission. These satellites, while still on the drawing board, will likely be large enough to carry propulsion systems and fuel to help steer clear of trouble, aerospace analyst Brian Weeden at the Secure World Foundation in Washington, D.C., said.

Their sheer numbers, though, raise the risks of accidental collisions and growing space debris, Dr. Weeden and several other experts said.

'Trackable debris'

SpaceX is seeking the FCC's permission to orbit almost 12,000 small satellites arranged in two global networks in low Earth orbits to provide internet service. A spokesman for SpaceX declined to comment on how it would handle potential collisions or debris.

In a letter in April to the FCC's Satellite Division, SpaceX counsel William Wiltshire told regulators, "In the unlikely event of a failed satellite, that satellite would merely become another piece of debris and be treated no differently for collision-avoidance screening and risk assessment than any other piece of trackable debris."

The United Nations Committee on the Peaceful Uses of Outer Space has debated new guidelines on orbital debris since 2004. The member states haven't come to an agreement.

Meanwhile, NASA expects to launch a space debris sensor in November to gather more data.

"We do realize we are behind the curve," said Jen Chi Liou, chief scientist at NASA's Orbital Debris Program Office at the Johnson Space Center, Houston.

No company has more direct experience with the hazards of space junk than Iridium Communications Inc., which operates a network of 66 large communications satellites in an orbit about 480 miles above Earth to link up satellite phones and data systems.

In 2009, an abandoned Russian military communications satellite slammed into an Iridium satellite, with a closing speed of about 26,000 miles an

A small pellet moves through space like a 400-pound safe at 60 miles an hour.

hour.

The satellites broke into 2,300 pieces of high-speed shrapnel. Some burned up in the atmosphere, but most are expected to orbit Earth for decades to come. It was the first time an active satellite was destroyed by an accidental impact with another satellite.

Iridium has lost nine satellites in orbit. The company declined to say how. "One moment they were communicating and being controlled, and the next moment they weren't," said Iridium CEO Matt Desch. "They are now what are known as 'rocks in space.'

Iridium is replacing its entire global network with 72 more-advanced satellites. To avoid adding to space debris, it is deorbiting each older satellite as it is replaced so that it burns up in the atmosphere.

"We are going to de-orbit all 66 satellites by late next year," said Mr. Desch, adding that orbital operations are always precarious. "You are operating a bit on a high wire."

was worth the trouble. "I've never seen it before and don't really know what it is."

For now at least, skateboarders seem to have made a rare friend out of the People's Republic—one of the last places on earth where they're not hassled or confined to skate parks.

Charlie Lanceplaine, a Shanghai skateboarder, said he once clambered atop the entrance to a new subway station with a group of friends and began wheeling loudly over its marble slopes until an onlooker called the police. When they arrived, however, they paid no attention to Mr. Lanceplaine's crew.

The only possible explanation, he said, is that Chinese authorities sometimes display surprising indifference toward activities that aren't specifically prohibited by law—such as skateboarding. They do sometimes come down hard on those who they perceive to be troublemakers, however.

For the record, the police did cart somebody away that day. It was the whistleblower who called them.

Xiao Xiao contributed to this article

SKATE

Continued from Page One
foot granite slopes.

Before his trip was over, he would grind edges, ride ramps and perform ollies, top guns and 5-0 grinds without a single dirty look from the security guards.

"People go every day in search of these spots," said Mr. Carpenter, who lives in Long Beach, Calif. "Here, it's every inch of the city."

Inside the skateboarding counterculture, there are two holy grails. The first is any outdoor structure made of smooth natural stone. The most coveted is marble, which is plentiful and cheap in China and which developers enthusiastically adhere to everything from fountains to office utility closets.

Marble, boarders say, is perfect for "grinding," or sliding along a ledge while balancing on the metal trucks that fasten the wheels to the board.

The second holy grail is any alluring structure that isn't crawling with hostile security guards. In the U.S., skateboard-

ers know every marble ledge in every big city, but they're usually attached to courthouses where crackdowns come quickly.

In inland Chinese cities like Changsha, 700 miles due west of Shanghai, "most security guards haven't seen a skateboard before," says Eric Lai, a 36-year-old from Shenzhen.

The breakneck pace of development in China gives skateboarders a steady stream of new architecture to tackle. In Changsha, developers have broken ground on scores of new towers and a nearly \$2 billion indoor ski resort and water park in anticipation of residents who haven't arrived yet.

Die-hard skateboarders will roam the globe looking for the next architectural marvel suitable for shooting videos of their most impressive tricks. But this place, they say, belongs in a category of its own.

CJ Collins, 14, of Victorville, Calif., who spent part of the summer here on a three-city skating tour, summed it up thusly: "China is sick."

Skate pros first arrived in China a decade ago, where they descended on the Deng Xiao-



A professional skateboarder sponsored by the board brand Toy Machine performs tricks at a plaza in Changsha, China.

WILL PHAN

ping Portrait Square in Shenzhen, which includes Marble Wave Park, a series of curvy edifices that skaters can use to launch themselves into the air.

Authorities in some densely populated cities are starting to catch on that skateboarding can tear up public property, so pilgrims started seeking virgin marble farther inland in places like Changsha.

Mr. Lai, the skateboarder

from Shenzhen, said locals, apparently amazed by his ability to stick to the board while executing various acrobatic maneuvers, have asked him if he puts magnets in his shoes.

Most passersby in Changsha seem amused by the sight of scraggly haired foreigners in hoodies, herringbone pants and vulcanized shoes testing the boundaries of physics. "There have been traffic jams because

people are watching us," said Axel Cruysberghs, 22, a native of Belgium.

One thing the skaters don't love about China are the handrails. In the U.S., they tend to be steel and skateboarders can grind them relentlessly. In China, they can be made of aluminum, which makes them liable to buckle under stress, resulting in serious wipeouts.

Then there are the occasional killjoys like Luo Wentao, 31, who stopped on a recent day to watch Mr. Carpenter's crew of mostly professional skateboarders from California, who are sponsored by Toy Machine, a board brand. Watching the skaters attack the U-shaped support beams of a pedestrian bridge,

Mr. Luo began to worry they could hurt themselves. He scouted around in vain for a "keep off" sign he could point out to a pair of security guards who were watching the action impassively.

"I think if those guards were responsible, they wouldn't allow this," he huffed.

Asked why he wasn't hassling the skaters, one of the guards said he didn't think it

GREATER NEW YORK

De Blasio Wins Primary With Ease

After low-turnout race, mayor is set to face off with Malliotakis in fall holding a big advantage

By MARA GAY

Bill de Blasio decisively won the Democratic nomination for New York mayor Tuesday, sailing to victory armed with the power of incumbency and a nearly \$8 million campaign war chest.

The mayor won the support of more than 73% of primary voters with over 82% of precincts reporting late Tuesday, according to preliminary results from the city's Board of Elections.

Mr. de Blasio, at an election-night party in Brooklyn, said it was "a resounding victory."

"Tonight we took another big step toward a fairer city for all," he said.

Mr. de Blasio easily defeated former City Councilman Sal Albanese, who had won just over 15% of the vote, as well as three other little-known primary challengers.

Mr. Albanese said it was hard to compete against the mayor's formidable financial advantages. Speaking from his election night event in Brooklyn, he said his campaign still "beat back the political bosses."

In November, Mr. de Blasio will face Assemblywoman Nicole Malliotakis, a Republican who represents Staten Island and part of Brooklyn. But in overwhelmingly Democratic New York City, the primary win may mean that Mr. de Blasio has all but clinched a second term.



Mayor Bill de Blasio, who is seeking a second term, and his wife, Chirlane McCray, cast their ballots in Brooklyn's Park Slope neighborhood.

MARK LIDDELL/ASSOCIATED PRESS

"It's over," said Kenneth Sherrill, an emeritus political science professor at CUNY Hunter. "The Democratic nomination is tantamount to election in virtually all cases."

Ms. Malliotakis, who ran unopposed for the Republican nomination, said anti-de Blasio sentiment was larger than generally believed, and ran across the political spectrum. She said she would reject attempts by Mr. de Blasio or others to tie her to President Donald Trump, for whom she voted. Mr. Trump is unpopular in New York City.

"This election is not about Donald Trump," she said in an interview. "It's about transit, traffic, trash, all the quality-of-life issues that have deteriorated."

Mr. Sherrill said it was far likelier that Tuesday's result would set off the beginnings of a race among Democrats to succeed Mr. de Blasio four years from now.

Tuesday's primary outcome wasn't unexpected. The mayor has maintained a solid bloc of support in his liberal base over his first term. Several better-

known Democrats chose not to run after federal and state prosecutors said earlier this year that they wouldn't bring indictments in fundraising investigations of the mayor's administration and his allies. The mayor has long said he and his allies followed the law and did nothing wrong.

Turnout appeared to be low, as is generally the case in the city's primaries. With more than 93% of precincts reporting, about 413,000 ballots had been counted, according to the Board of Elections. There are

more than 3.1 million registered Democrats in New York City.

In City Council races, meanwhile, incumbents won most of the competitive primaries.

In the 21st District in Queens, former state Sen. Hiram Monserrate, who spent nearly two years in prison for stealing taxpayer money, appeared to lose to Assemblyman Francisco Moya. With 98% of the votes tallied, Mr. Moya had 55% of the vote to Mr. Monserrate's 44%.

—Melanie Grayce West contributed to this article.

Gonzalez Captures Brooklyn DA Contest

By THOMAS MACMILLAN

Eric Gonzalez cruised to victory Tuesday in New York City's only contested district attorney race, beating five other candidates in the Democratic primary to hold on to his job as Brooklyn's top prosecutor.

Mr. Gonzalez became the borough's acting district attorney last October following the death of the former officeholder, Kenneth Thompson, who succumbed to cancer.

With no Republican candidates running, Mr. Gonzalez's primary victory means he has essentially secured the office. He will be New York state's first Latino district attorney, according to his campaign.

Mr. Thompson's memory loomed large over the district attorney race, as the six candidates vied to claim his legacy of criminal justice reform. Mr. Thompson, the borough's first African-American district at-



GETTY IMAGES

With no GOP candidates in the race, Eric Gonzalez is assured of winning the office.

orney, created a young-adult court for juvenile offenders and a conviction-review unit that dismissed more than 20 wrongful convictions and limited prosecutions on minor marijuana offenses.

Mr. Gonzalez, a Brooklyn native, has promised to follow in Mr. Thompson's footsteps. He supports changes to the bail system and protecting immigrants from deportation.

Mr. Gonzalez was seen as the favorite, leading the field in name recognition, fundraising and endorsements. All of his opponents were former prosecutors, four of whom had also worked in the Brooklyn district attorney's office. The other candidate, a former Queens prosecutor, was a Brooklyn city councilman.

With 91% of precincts reporting, Mr. Gonzalez had captured 53% of the vote. The other candidates each had about 10%. His closest runner-up was Anne Swern, managing counsel for Brooklyn Defender Services, with 11%.

Unions Want Rich to Pay More Tax

By JOSEPH DE AVILA

As Connecticut lawmakers prepare to vote Thursday on a budget to close a two-year, \$3.5 billion deficit, some public-sector unions are making a last-minute lobbying push for higher taxes.

SEIU District 1199 New England, which represents 7,000 public-sector employees in Connecticut, said establishing a surcharge on investment-management service fees, raising taxes on the state's wealthiest residents and increasing tax rates on dividends and capital gains could produce \$893 million in revenue.

Public-sector union officials agreed to \$1.57 billion in wage and benefit concessions earlier

this year, which brought the state's budget gap down from \$5.1 billion to the current mark of \$3.5 billion. Union officials said corporations and the state's wealthy residents now need to do their part.

"Everyone needs to pay their fair share and help put Connecticut on the right path," said David Pickus, president of SEIU 1199 New England.

One of the union's proposals for raising taxes would hit executives of Connecticut's large hedge-fund industry. Bruce McGuire, president of the Connecticut Hedge Fund Association, said increasing taxes to balance the budget would depress business creation and investment.

"It is a fallacy to believe

that the top earners will just sit here and take it if Connecticut raises income taxes," Mr. McGuire said.

SEIU 1199 and **Patriotic Millionaires**, a group of wealthy people who support higher taxes on the rich, will run television advertisements beginning Wednesday calling for tax increases to close the state's budget hole.

Council 4 of the American Federation of State, County and Municipal Employees, the state's largest public-sector union, is encouraging its members to contact lawmakers and press them "to pass a fair share budget that asks for sacrifice from all."

Some Democratic lawmakers in the state have shown

support for higher taxes, including establishing a surcharge on investment-management service fees, also known as carried interest.

Gov. Dannel Malloy, a Democrat, has said he doesn't support a carried interest surcharge. A spokesman for Mr. Malloy said Tuesday the governor doesn't support increasing the personal income-tax rate because it doesn't make sense, adding that Connecticut's top 1% of taxpayers pay for more than 35% of the total taxpayer liability.

"If Connecticut wants to retain these taxpayers and high-wealth individuals, we must have an income tax structure that is stable and that does not encourage anyone to leave," the spokesman said.

Vandals Attack Columbus Statue



DEFACED: The NYPD was investigating after spray paint was found on a monument to the explorer in Central Park.

CHRISTEN CLIFFORD VIA TWITTER

Pearl River Mart Will Expand to Chelsea Market

By KEIKO MORRIS

Pearl River Mart, once a casualty of Manhattan's skyrocketing retail rents, is now in expansion mode.

The eclectic Asian-goods emporium only last November reopened in Tribeca after annual rent at its former SoHo home was about to increase from more than \$1 million to \$6 million, said Joanne Kwong, Pearl River's president and daughter-in-law of founder Ming Yi Chen.

Now, the family-run retailer is planning to open a 3,500-square-foot store at Chelsea Market, a collection of mostly independent specialty shops and food vendors at the base of a former industrial building at 75 Ninth Ave. in Manhattan's Chelsea neighborhood. Pearl

River has signed a 12-year lease.

These days Pearl River Mart, which has been operated by Mr. Chen and his wife, Ching Yeh Chen, for the last several decades, has found itself pursued

The opportunity to open at the site came sooner than expected for executives.

by landlords looking for distinctive retailers that stand apart from cookie-cutter chain stores.

In this case, Pearl River fit perfectly with Chelsea Market's longstanding ethos, which is fo-

cused on local, independent enterprises that often are family-run, said Michael Phillips, president of Jamestown, the building's owner. "Pearl River has been a number one pursuit the whole time we've owned the building, because it is fundamentally a New York business, a local business, a second-generation business," he said.

After the recession, retail rents escalated in most of Manhattan's shopping corridors. But with online-shopping pressures increasing, the run-up in rents was unsustainable.

A number of Manhattan's well-known shopping districts, including Pearl River's old SoHo neighborhood, are pockmarked with "for lease" signs. In the second quarter, SoHo's retail availability rate was 23% and

asking rents fell almost 14% to \$478 a square foot, according to real-estate services firm Cushman & Wakefield.

"Developers and places like Chelsea Market appreciate retailers that have some type of color to them," Ms. Kwong said. "A store like Pearl River is kind of like New York in a way. It's colorful, very energetic and quirky."

Pearl River's executives always knew that they would have to open new stores and expand their digital presence to thrive, Ms. Kwong said. The opportunity to open at Chelsea Market came sooner than expected but was one they couldn't pass up. "For a retailer to have access to that much foot traffic is a dream come true," Ms. Kwong said.



CATLINE OCHS/BLOOMBERG NEWS
In 2016, Pearl River opened a store in Tribeca after the rent rose dramatically at their longtime space on Broadway in SoHo.

Elegance is an attitude

Kate Winslet



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GREATER NEW YORK

METRO MONEY | By Anne Kadet

Kmart's Throwback Vibe Has Appeal



Molly Murphy snapped a selfie in a panda mask as she and Michael Edwards shopped at the Kmart Astor Place store in Manhattan.

I'll never forget the wonder I felt the first time I ventured into the Midtown Manhattan **Kmart**. The unassuming entrance fronting Penn Station's lower concourse is easy to miss. But hang a right at the beauty aisle and suddenly you're confronted with a vast, multistory array of merchandise that feels totally unexpected.

Who knew you could buy fishing rods and beanbag fill at Penn Station?

Not only is the Kmart #7749 dreamlike in size and scope, it's also a bit of a time capsule. From the scuffed linoleum to the signs promoting layaway plans, it recalls a simpler era, before big-box stores started with the self-checkouts and baby kale. It functions almost like a three-story bodega.

If you're curious what sort of person shops there, the answer is, just about everyone. On a return visit last week, I met a model buying \$11 pumps for her fitting appointment, moms shopping for school supplies and businessman Shaun Keegan buying a coffee pot, hand soap and garbage bags for his solar company's new Manhattan office.

He figured Kmart would have everything he needed at low prices, and he wasn't disappointed. Nor did he mind the throwback feel. "I went to Kmart as a kid, and Kmart feels familiar," Mr. Keegan said.

At the chain's second Manhattan location, on Astor Place in the East Village, artist Felix Plaza said he shops at Kmart for groceries, personal-care items, clothes and laundry detergent: "I go almost every day," he said.

The struggling chain, now owned by Sears Holdings Corp., has shrunk from its

peak of 2,000-plus stores to its current count of 610 following another round of closings announced in late August. Some are concerned about losing the Manhattan locations.

"This store is sort of a unique thing. I'm always hoping it doesn't close," said Astor Place regular Simon Bogigian. "But you'd think it has to be one of their more profitable stores."

Kmart wouldn't comment on the stores' performance relative to other locations, but district manager Richard Trksak said sales have grown due to the tourist-focused shop added to the front of the Penn Plaza store, and a convenience store tucked into the Astor Place location that sells snacks, drinks and apparel from nearby NYU.

Kmart also revamped both stores in recent months with

new signage, he noted. The Manhattan Kmart were a big deal when they opened in 1996. Both featured nearly 100,000 square feet of shopping and were expected to generate \$50 million a year in sales.

They also were to serve as a laboratory for new initiatives. The Astor Place store, in particular, was intended as a testing ground for fashions appealing to "the young avant-garde of Manhattan," according to Kmart.

Now, it's fascinating to compare Manhattan's Kmarts to, say, the new Target store in Downtown Brooklyn.

While my survey found the two chains offering similar prices on comparable items, Target boasts a large selection of fresh food ranging from pork chops to whole pineapple, not to mention a full-service Starbucks. Kmart

has a pantry food section and a Mini Melts cryogenic ice cream vending machine.

Target played a relentlessly consistent mix of upbeat pop music. Kmart piped in Spanish-language ballads followed by new-wave electronica, followed by '50s vibraphone jazz.

The biggest contrast is in the merchandising. Target gives the impression that every inch of shelf space was carefully planned by a team of Wharton business school grads. Kmart's displays often look like what your mom might create after too many hits of espresso.

At the Midtown Kmart, you can buy a 3-foot-tall lion garden sculpture or find a "Deal Flash" on audio Bibles. A display of 2018 calendar planners sits next to the houseplants, which abut a bin of leopard-print boxer shorts.

At the Astor Place location I particularly liked the display register at 11, which included cotton balls, Archie comic books, cough drops, dental floss, batteries, candy, tubs of Vaseline, Scotch tape, batteries and a tribute book, "Andrew Jackson, An American Populist."

"It's a strategic move to carry a large assortment of merchandise so that the store is a one-stop shop for our members," Mr. Trksak said.

Moreover, with their often relaxed pace, the Manhattan Kmarts are perhaps the most peaceful locations in their respective neighborhoods. The regulars say they appreciate that.

"There's nothing here," says Mr. Bogigian, "to make you feel like you're in New York."

anne.kadet@wsj.com

GREATER NEW YORK WATCH

NEW JERSEY

Christie Beach Photo Used in Political Ad

Republican Gov. Chris Christie's infamous beach trip is turning up again in a new TV ad for a Democratic mayoral candidate. Jersey City Mayor Steven Fulop released his re-election campaign's first television ad on Tuesday.

The 30-second spot shows Mr. Fulop on a beach chair and briefly flashes between images of him and Mr. Christie from the July 4 weekend at Island Beach State Park. Mr. Fulop says politics wasn't a "day at the beach, until suddenly it was."

An NJ.com photographer captured aerial photographs of Mr. Christie lounging on the beach, which he had closed to the public as part of a budget impasse with the Democratic-led Legislature.

The photos led to ridicule for the two-term governor, whose popularity is at record lows.

Mr. Christie's office didn't respond to a request for comment.

—Associated Press

WESTCHESTER

Man Is Acquitted After Five Trials

A Westchester man is free after being found not guilty of murder in the 1996 slayings of a 79-year-old millionaire and his home health aide.

Tuesday's verdict occurred in Selwyn Days' fifth trial. He had been jailed since 2001, four years after police found the bodies of 79-year-old Archie Harris and 35-year-old Betty Ramcharan in Mr. Harris's Eastchester home.

Prosecutors had argued that Mr. Days believed Mr. Harris had sexually abused his mother, who was previously Mr. Harris's health aide, and sought revenge. Mr. Days confessed to the killings, but his lawyers said it was a false confession.

Mr. Days' first and third trials ended in hung juries. His second and fourth trials resulted in murder convictions. Both convictions were overturned.

—Associated Press

OUT TODAY

alexa

FREE INSIDE THE **NEW YORK POST**

'BIG BANG THEORY' STAR
KALEY CUOCO
SHINES BRIGHT WITH A
NEW LOVE & SEXY STYLES

3NYP101

Working High in the Sky



Man Sentenced to 25 Years For Attack in Union Square

BY THOMAS MACMILLAN

Calling the defendant "a powder keg ready to ignite," a judge Tuesday handed down a maximum sentence in the case of a deadly assault in Union Square.

Manhattan Supreme Court Justice Melissa Jackson sentenced Lashawn Marten, 44 years old, to 25 years in prison

CORRECTIONS & AMPLIFICATIONS

Clothing retailer J. Press was founded in 1902 and is 115 years old. An article Tuesday about a J. Press store coming to Midtown Manhattan incorrectly said the retailer was founded in 1905 and was 112 years old.

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

for manslaughter as a hate crime, as well as assault and attempted assault as hate crimes.

The charges stem from a Sept. 4, 2013, incident in which Mr. Marten, a frequent Union Square chess player, announced he would "knock out" the next white person he saw, according to prosecutors.

Mr. Marten, who is black, then punched passerby Jeffrey Babbitt, a 62-year-old retired train engineer, comic-book collector and live-in caretaker for his elderly mother. Mr. Babbitt hit his head on the pavement and died several days later from his injuries.

Mr. Marten also struck two other men, knocking one—Matthew Cortellesi—unconscious. Mr. Cortellesi, 50, told the court he was coming to Mr. Babbitt's aid when Mr. Marten punched him in the face. "On that day, I was trying to help and he was trying to hurt," he said.

Prosecutor Matthew Bogdanos recounted Mr. Marten's history of violence and more than

20 encounters with law enforcement, including one felony and four misdemeanor convictions, for which he served little jail time.

"Let's not make any more mistakes," Mr. Bogdanos said. He asked for a maximum sentence.

Defense lawyer Michael Croce said that his client has a longstanding mental illness. "His memory is he had a fight with a guy he was playing chess with."

Mr. Croce asked for a 15-year sentence. "Mental illness impacted his ability to make the right decisions," he said. "What benefit is it to warehouse him for the rest of his life?"

"When you are off your medication, you are a danger to society," Justice Jackson said. She noted that Mr. Marten has repeatedly refused to take medication.

"I'm just glad that he's not out on the street doing this again," Mr. Cortellesi said after the sentence was delivered. "I feel much better."

LIFE & ARTS

FASHION

The Power Suit Gets an Update

Designers offer women versatile ensembles for work and beyond that are a far cry from the boxy cuts and big shoulders of the 1980s

BY RAY A. SMITH

AFTER ASSURING WOMEN that they don't have to wear a suit to succeed at work, the fashion industry now is promoting suits—and not just for the office.

Some women might shudder at a revival of the pinstriped power suit from the '80s and '90s, with haunting hallmarks such as double-breasted jackets with linebacker shoulders, long starched shirt collars, big hair and commuter sneakers.

Today's suits are more versatile and come in slimmer styles as well as relaxed, slouchy looks. They work with pants or skirts, long or short jackets or oversized jackets with skinny pants and miniskirts. Most importantly for retailers and clothing companies, they don't resemble suits from decades ago, so women who want to look stylish will have to buy new clothes.

"A suit in the back of your closet is there for a reason. Donate it and get a fresh one," says Solange Khavkine, a stylist in New York. "It's easy to think that what you have is a 'classic,' but most likely the lapel, rise of the pant, and flare of the pant and jacket cut have gone out of style."

Actress Evan Rachel Wood, singer Pink and other celebrities have taken to wearing pantsuits on the red carpet rather than dresses.

Women's suits for spring and fall 2017 showed up on runways at Altuzarra, Balenciaga, Calvin Klein, the Row and others. During New York Fashion Week, which ends Wednesday, suits and blazers appeared in a number of spring 2018 collections, including Tom Ford, Calvin Klein, Christian Siriano, Victoria Beckham and Tracy Reese.

The power-dressing trend also is trickling down to more commercial brands. Theory, an office-wardrobe staple for many women, recently emailed customers with the question: "What's Your Strong Suit?" Theory's offerings include a "Power" jacket made of crepe and a double-breasted jacket made with stretch wool paired with matching, pleated, high-waisted pants. The double-breasted jacket costs \$585 and the pants \$455.

Typically, designers plan collections months in advance, at times unveiling themes that echo current events. Suits for women returned to the spotlight amid Hillary Clinton's presidential run as well as the women's marches around the

world that followed Donald Trump's inauguration in January.

Retailers are long in need of a trend that women of various body types and budgets will embrace. The recent '70s trend, for example, was one a fair number of women were happy to skip. Stores are counting on suits of different styles and silhouettes to have broad appeal. Women who don't want to commit to a full-suit look can just wear the jacket with a non-suit pants, even jeans.

At Saks Fifth Avenue "we believe in it so much we put it on our It list as the top trend for women to try," says Roopal Patel, the senior vice president and fashion director. Last month, Saks started a social-media campaign about power dressing, including a video of Ms. Patel talking up the trend. "The rules no longer apply," she says in an interview while wearing a pink suit from Gabriela Hearst's Spring 2017 collection.



Women's power dressing has evolved since the 1985 ensemble, top left, by Donna Karan. Current looks include those above by Zara, left and Theory and, from left, Calvin Klein 205W39NYC, Gabriela Hearst, Stella McCartney and Céline

with a white T-shirt. "You don't have to wear a traditional button-down white shirt. You can wear a great suit with a T-shirt or you wear it with a sequin underpinning if you want to have a more rock-glam look."

Natalie Kingham, the buying director at luxury retailer Matchesfashion.com, is helping customers navigate the trend. She assembled presentations that address how "to figure out your trouser shape and your jacket shape, whether you need it longer to cover your bottom, whether you need it shorter and nipped in, whether you need the trouser to be wide or skinny and if you're going to wear it in the day versus the evening," she said. Trouser options such as wide leg, kick flare and split hem, from labels including Ellery, Altuzarra and Haider Ackermann "stop the suit from being old-fashioned looking or possibly frumpy," Ms. Kingham

says. As for skirt suits, a miniskirt with a slouchy boot, as seen on the runway of French label Isabel Marant, "all of a sudden gives the suit a fresh new modern edge," she says.

The industry is pushing women to wear suits at a time when men are moving away from them. Ms. Hearst, whose high-end suits are a signature item, is snapping up fabrics traditionally reserved for men's tailoring. "Oh, you don't want to use it?" she says. "We'll take it."

"I've always liked suits, obviously," the Uruguay-born designer said in an interview earlier this year, while wearing a suit from her line. That's due in part to her years at a school in England. "I wore a uniform from age 5 to 17 so I've always been very comfortable in blazers," she says. "I guess that was something in my DNA to communicate." She also likes the strong statement a suit makes, as well as its elegance, sexiness and comfort.

Coco Chanel introduced her
Please see FASHION page A13

FILM

A NEW PORTRAYAL OF VAN GOGH

Hand-painted animated film 'Loving Vincent' is one of several new works to reevaluate his mental health

BY CARYN JAMES

EVER SINCE Kirk Douglas sliced off an ear in the 1956 Hollywood biopic "Lust for Life," Vincent van Gogh has had a grip on the popular imagination, portrayed on screen, stage and in song as a howling, crazed genius.

"Loving Vincent," a new animated film opening Sept. 22, is a radical departure—one of several recent works about Van Gogh that attempt to recast the artist as a rational man.

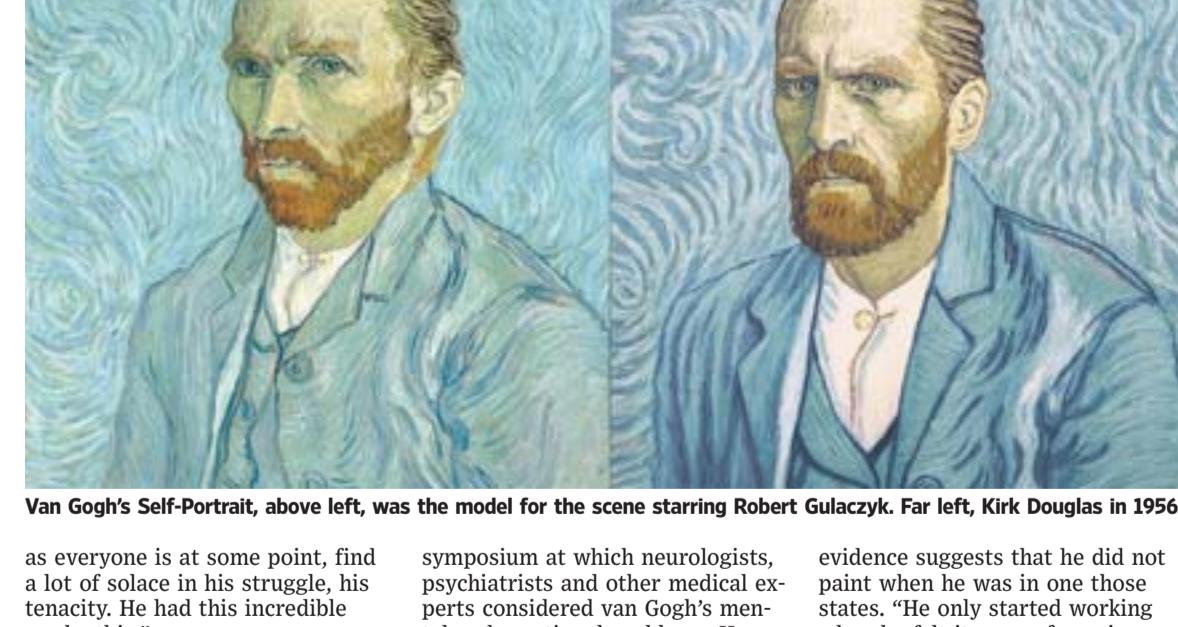
"I think 'Mad Vincent' was a very small part of who he was," Hugh Welchman, who directed the film with Dorota Kobiela, says of those earlier takes on the artist.



year after van Gogh's death. The camera seems to move through the sky of "Starry Night" before zooming in on postmaster Joseph Roulin, portrayed by Chris O'Dowd, who sat for van Gogh many times. He sends his son, Armand, to deliver a recently found letter from Vincent to the artist's brother, Theo.

The journey takes Armand (whose portrait is considered among van Gogh's finest) to Paris and Auvers, where van Gogh died, and into contact with more people who remember Vincent. Saoirse Ronan plays Marguerite Gachet, daughter of Dr. Gachet, another famous model.

The film's Vincent is a man viewers can relate to, Mr. Welchman says. "He failed miserably at four careers, and was written off at the age of 29," when he started painting. "I think people who are despairing of their life situation,



Van Gogh's Self-Portrait, above left, was the model for the scene starring Robert Gulaczyk. Far left, Kirk Douglas in 1956.

as everyone is at some point, find a lot of solace in his struggle, his tenacity. He had this incredible work ethic."

The portrayal of van Gogh as a madman took hold decades ago and snowballed. Don McLean's 1970's pop hit, "Vincent," addressed to the artist, includes the lyrics "How you suffered for your sanity."

In Robert Altman's 1990 film "Vincent and Theo," Tim Roth is a delusional van Gogh.

The Van Gogh Museum in Amsterdam has been reevaluating the artist's mental health. "We should be very careful not to interpret his art as that of a madman," says Teio Meedendorp, Senior Researcher at the museum.

Last fall, the museum hosted a

symposium at which neurologists, psychiatrists and other medical experts considered van Gogh's mental and emotional problems. He did, after all, cut off an earlobe and present it as a gift to a prostitute. He had hallucinations.

Mr. Meedendorp says that the only consensus to come out of the symposium was that van Gogh probably did not suffer from a single disorder. Although his symptoms might indicate being bipolar or epileptic, for example, he most likely had a mixture of conditions, exacerbated by too much alcohol and work and too little food.

Van Gogh's letters reveal that he was aware of the attacks that temporarily separated him from reality, Mr. Meedendorp says. And

evidence suggests that he did not paint when he was in one those states. "He only started working when he felt it was safe again. Making art was a consoling thing." Popular opinion has sometimes seen his work as the visions of a deranged mind. "The swirling lines are a technical and stylistic development that he made as an artist. He knew very well what he was doing," Mr. Meedendorp says.

Recent characterizations reflect that thinking. "Van Gogh's Ear," a theater piece with music, ended an Off-Broadway run on Sept. 10. Its creator, Eve Wolf, says that while her van Gogh is a genius, "I see him as a working artist, a real person confronting everyday obsta-

Please see VINCENT page A13

LIFE & ARTS

CULTURAL COMMENTARY

It Started With a Pig

BY WILL FRIEDWALD

WALT DISNEY FAMOUSLY said "it was all started by a mouse." True enough. But in 1937, as Disney was about to release the first of the classic features that would establish his dominance over animated film, an underpaid, ragtag group of cartoonists on the other side of Hollywood was formulating the style that would represent the first enduring alternative to Disney. For the Warner Bros. cartoon studio, it all started with a pig.

Those groundbreaking results—the Looney Tunes starring Porky Pig, produced between 1935 and 1943—have just been released as "Porky Pig 101," a five-DVD Warner Archive Collection package featuring 101 black-and-white one-reelers (as well as three bonus films and numerous commentary tracks). It is the last significant group of Warner's cartoons never to have been comprehensively released before on home video.

Apart from being very entertaining, these rarely shown one-reelers signify a major shift in the history of animation, film and the larger culture. They also show how three great comedy directors—Tex Avery, Frank Tashlin and Bob Clampett—all jump-started their careers with Porky Pig.

The cartoons are also a time capsule of the late Depression and early wartime years, with the period's songs, references to figures from radio, the movies and politics—and outdated racial attitudes.

There were two styles of Hollywood studio cartoon: Disney strove for believable narrative and overwhelming naturalism—even in a fantasy like his 1937 milestone, "Snow White and the Seven Dwarfs." The Warners style—often conflated with that of Avery, its most innovative director—came to mean uproarious, fast-paced and often transgressively violent hu-

mor in which characters frequently violate the fourth wall and confront you with their artificiality.

When Warners began releasing cartoon shorts in 1930, its efforts were in the Disney mold, primarily because they were the work of former Disney collaborators Hugh Harman and Rudolf Ising. By 1935 a new team was in place and only loosely supervised by studio owner Leon Schlesinger, inclined to give his creative staff a free hand. That year, Warners released "I Haven't Got a Hat," introducing a group of animal schoolchildren,

Case of the Stuttering Pig"), musical ("Porky at the Crocadero"), and love story ("Porky's Romance"), the last giving the series its first masterpiece. Tashlin uses super-fast cross-cutting and positions his "camera" like a director of live action. "Porky's Romance" is a heightened romantic comedy that introduces Porky's love interest, Petunia Pig, and tells its story more effectively in eight minutes than could be done in three times that length in any other medium.

By 1938-39, Clampett had become Porky's dominant director.

On his watch, Porky got considerably cuter, thanks equally to Mel Blanc, who now provided the pig's voice and made the stutter more adorable than grotesque. Clampett's characters are like bouncy balloons manipulated by a maniacal genius. Such surreal epics as "Porky in Wackyland" and "The Daffy Doc" revel in a unique form of absurdity. In "Naughty Neighbors" and "Wise Quacks," Clampett contrasts exaggerated cuteness with extreme violence, as if throwing a grenade in the middle of a Disney Silly Symphony.

The final disc includes "Porky's Preview," Avery's masterpiece cartoon-within-a-cartoon. We reach a finale with Tashlin's "Porky Pig's Feat," which combines screwball comedy with high slapstick. This concluding 1943 episode also includes Daffy Duck and Bugs Bunny, who had already succeeded Porky as the studio's biggest breadwinners. Porky was a passive character—like Laurel & Hardy, things happened to him. He couldn't compete with the aggressive stars of the war years, who belonged to the age of Abbott & Costello. "Porky Pig 101" is not only a 13-hour pig-out of classic cartoons but a document of cultural change.

Mr. Friedwald writes about music and popular culture for the Journal.



Porky Pig, as a Warner Bros. star, became the embodiment of a new kind of cartoon.

and the pig with a speech impediment began to attract notice. Within a year, Porky was starring in his own series of shorts and becoming the embodiment of a new kind of cartoon.

Avery rightfully gets most of the credit for this "second wave" of Hollywood animation, and his innovations are unmistakable even in his first film—Porky's second appearance—"Gold Diggers of '49" (1935): There's already a much faster tempo and a heightened, wise-guy attitude.

Still, the first major director to guide Porky to greatness was Tashlin, later a respected director of live-action features. His Porky vehicles were ingeniously patterned on genre tropes like wilderness adventure ("Porky in the North Woods"), mystery ("The



Actors Robin Hodges and Douglas Booth, above, were filmed against a green screen and digitally placed into backdrops of van Gogh's paintings.

VINCENT

Continued from page A11
cles, like buying paint, cooking, and going to the dentist."

This nuanced van Gogh is captured most directly in a 2010 episode of "Dr. Who," in which the time-traveling doctor meets the sad but lucid artist. The episode was written by Richard Curtis, the writer and director of "Love Actually." He said in an email that van Gogh's biography encourages an emotional response which, along with the accessibility and greatness of the work, helps account for his mainstream popularity.

"That he painted his own little room and chair, that he sold so few paintings, that he painted friends," Mr. Curtis said. "It's just an amazing cocktail, particularly when the biography is reflected in the paintings. Like Beyoncé actually not only being married to, but writing songs about, Jay-Z."

The mystery surrounding van Gogh's death persists. "When we started the film we wanted to get to the bottom of the issue of why he committed suicide," Mr. Welchman says.

Mr. Meedendorp says he knows of no scholar who accepts the idea that van Gogh was killed. "This murder theory is what I describe as new mythology. What we're trying to do at the museum is get rid of the mythologies about Vincent."



Van Gogh's 1888 painting 'The Night Café'

FROM TOP: GOOD DEED ENTERTAINMENT/BREAKTHRU FILMS; YALE UNIVERSITY ART GALLERY

FASHION

Continued from page A11
classic suit with a collarless jacket in 1923. Inspired by menswear, it came with a knee-length skirt rather than trousers, which were frowned upon for women at the time. The suits found followings among the ladies-who-lunch set as well as women building careers in male-dominated industries.

In 1966, Yves Saint Laurent broke ground when he proposed that women wear trousers with suits, such as his "Le Smoking" tuxedo-style outfit. Pants were still considered shocking, said Patricia Mears, deputy director of the Museum at the Fashion Institute of Technology. Ms. Mears recalled that Rep. Charlotte T. Reid caused a stir in 1969, when she showed up in Congress wearing a pantsuit, the first time a woman had worn pants there. In an article, the Washington Post quoted Ms. Reid saying "many male colleagues ran to the floor to gawk."

In the late 1970s and into the '80s, Giorgio Armani offered an alternative to the boxy, broad-shouldered, mannish women's suits that were popular then. Throughout the '90s Donna Karan and others offered new takes on power dressing for career women. But by the millennium, corporate dress codes were easing and women had other options besides suits.

Ken Downing, the fashion director at Neiman Marcus, which is promoting power dressing as one of its top five trends for fall, said suits will look fresh to "an entire generation of young girls" who didn't witness the 1980s women's power-suit moment.

In addition, suits haven't been popular for a while so "customers are looking for something that's not in their closet," Mr. Downing said.

Ranya Marjieh, a graduate



In 1960, structured Chanel suits worked for their designer, Coco Chanel, seated, and actress Romy Schneider. In the late '80s, Giorgio Armani softened the silhouette with draped skirts, below.



student in New York, is among those customers trying out the trend, with their first pantsuits. Ms. Marjieh, who recently acquired a pink pantsuit, wrote in an email that she "will be working it both socially and professionally!" She added, "A pink pant suit not only is a power statement, it shows that women can be bold and

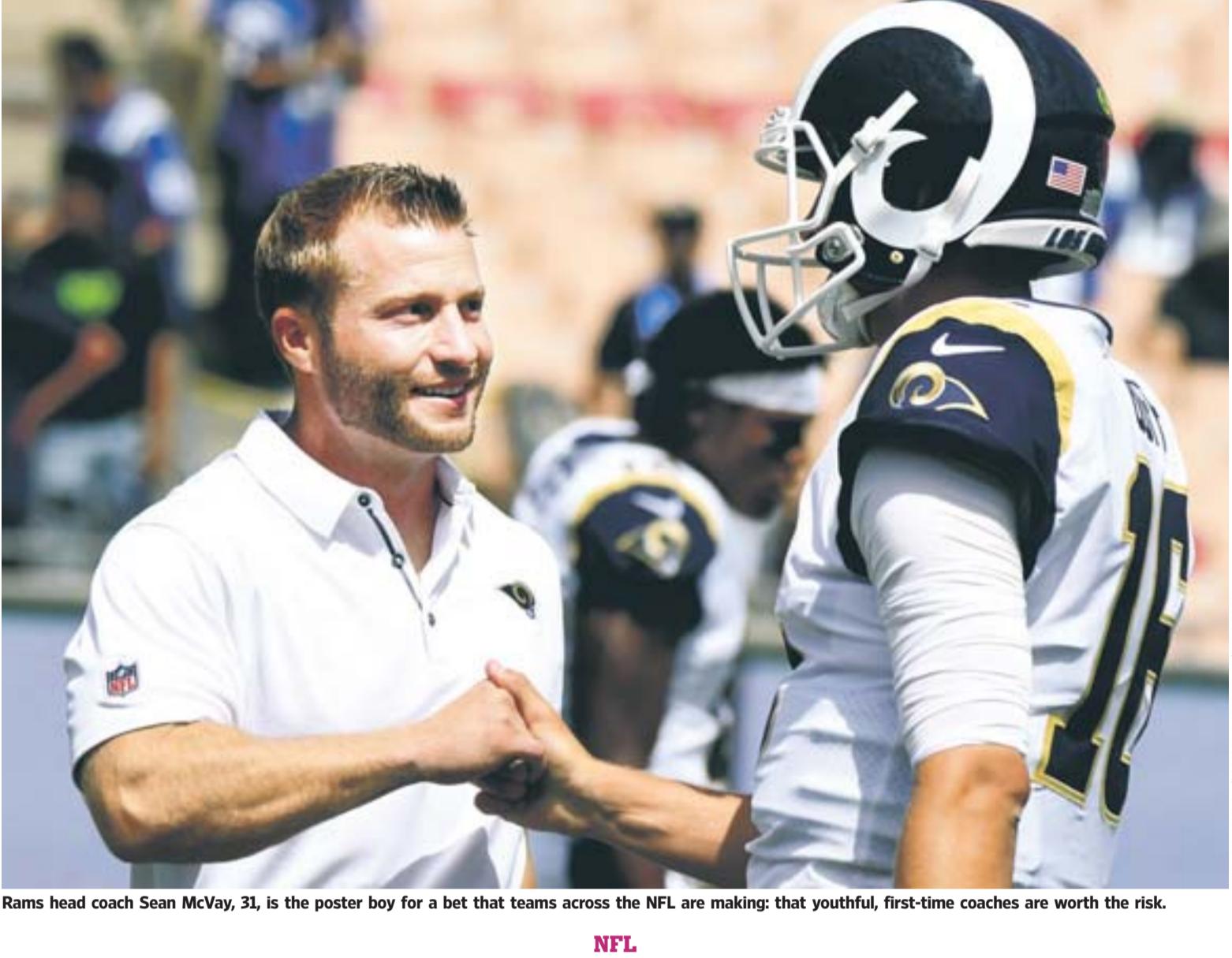
assertive without losing the luster of their divine femininity!"
Designers and retailers say today's suits go beyond the workplace, to cocktails, dinner or events where women before might have worn a dress. Beginners should stick to suits in a neutral color. Ms. Khavkine, the stylist, recommends black, navy or a slimming pinstripe and advises, "no pattern for your first suit." Feel free to swap out the traditional dress shirt with something less formal. "There are lots of choices: a well-fitting T, classic shirt, Nehru collar, turtleneck, chunky or otherwise," she said. The right suit can work for day and evening. Ms. Khavkine suggests pairing it with a lace blouse or T-shirt, a strapless top in satin or a "fun and youthful" crop top. A final pointer from Ms. Khavkine: "Swap out your day shoe with an evening shoe."



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SPORTS



KETHE BIRMINGHAM/PASADENA STAR-NEWS/ZUMA PRESS

Rams head coach Sean McVay, 31, is the poster boy for a bet that teams across the NFL are making: that youthful, first-time coaches are worth the risk.

NFL

A Gamble on Young Coaches

Sean McVay, the youngest head coach in NFL history, led the Rams to a blowout win in his debut

BY ANDREW BEATON

ON THE FIRST day of Rams training camp, an undrafted 31-year-old who has never played an NFL snap lined up at defensive back. He was the Rams' oldest person at the position by a few years.

"My quad's getting a little tight," Sean McVay said a day later. "I can't pull it again."

That's not a problem because McVay's real job isn't playing. He's the team's coach. And he's not just the youngest head coach in NFL history. He's the poster boy for a bet that teams across the league are making: that youthful, first-time coaches are worth the gamble.

The early results in Los Angeles are as positive as can be: McVay walked off the field after his first game Sunday with a resounding 46-9 win against the Colts, an emphatic message for a franchise that hasn't produced much of this type of optimism in recent years. (Even if it came against an Indianapolis team missing quarterback Andrew Luck.)

Most importantly, quarterback Jared Goff, the No. 1 pick of the 2016 draft, played the best game of his career, throwing for 306 yards and a touchdown while completing 72.4% of his passes. A year after he mostly struggled as a rookie—he threw more interceptions (seven) than touchdowns (five) a year ago—amid early murmurs about whether the team had mortgaged its future to trade up for a bust, Goff looked like the possible star this franchise has desperately needed.

But picking a coach with the best shot to tap into Goff's potential was just one of many reasons McVay's hire was an especially weighty decision for the Rams. This was a franchise, perhaps more than any in the NFL, that needed a jolt of energy—and fast.

The recent history hasn't been pretty. The Rams haven't made the playoffs since 2004 and fizzled during five seasons under Jeff Fisher. Last season's 4-12 finish, when Fisher was fired midseason, was an uninspiring premier on their new red carpet in Los Angeles.

So when Rams general manager Les Snead first interviewed McVay, Snead initially figured he would need a couple more years of seasoning. McVay, then 30, had just finished his third season as the Redskins' offensive coordinator and wasn't even a decade removed from graduating college.

But 10 minutes into that interview, Snead's view changed. He wrote in his notebook: "Age doesn't matter." He decided it would be ludicrous to pass on the person he felt was the best candidate just because nobody his age had ever been a head coach in the league.

"Look at our world," Snead said. "Some of our titans in business are in their late 20s and early 30s."

The Rams weren't the only team to follow this logic. The 49ers hired 37-year-old Kyle Shanahan, who had been offensive coordinator of the Falcons, to be the league's second youngest coach.

Of the six coaching changes for this season, five are first timers. All five of those are under 50 years old in a league where the average

is between 52 and 53. That number has slowly ticked up over the decades, reaching a record-high of nearly 54 in 2015, according to Stats LLC.

Teams haven't always hired this way, even in recent years. Of the seven coaching hires before the 2015 season, for example, four previously had head coaching experience.

Meanwhile, the league's players have increasingly been getting younger. The average player age, weighted by snap time, was 26.5 last year, according to Football Outsiders. That number has gone down steadily from 27.2 in 2008.

Teams increasingly want coaches who can relate to this younger generation of players. And this younger wave of coaches has grown up with all the technology that has made its way onto sidelines and into NFL meeting rooms.

"It's not that discipline and expectations have gone out the door," said 49ers general manager John Lynch. More, Lynch says, being a coach comes down to: "Can you be relatable?"

In a league where teams will try to replicate any and every successful blueprint, it's possible the recipe for this has been in Pittsburgh. In 2007, the Steelers hired 34-year-old Mike Tomlin. Bill Cowher and Chuck Noll, their two previous coaches, were also hired in their 30s. All three won a Super Bowl.

Teams envy everything about that. Not just the success, but the continuity—Tomlin, in his 11th season, is just the team's third coach since 1969. It's unrivaled in American professional sports and all began with three young hires who had no previous head coaching experience.

"It's a journey, and it's about growth," Cowher said. "The biggest thing you can do is stay open minded and build a team with sustainability."

But it hasn't always worked so well for the teams that have tried to emulate this. The previous youngest coach in NFL history, Lane Kiffin, lasted less than two seasons with the Raiders and went 5-15.

McVay and Shanahan both say they're wiser than their peers because of their unusual football roots. Both grew up around the game: McVay's grandfather, John McVay, was a top executive with the 49ers when they won five Super Bowls in the 80s and 90s. Shanahan's father, Mike, won 170 games as an NFL coach and two Super Bowls with the Broncos.

"I'm young in age, but in experience I've been doing this a long time," said Shanahan, who had been an offensive coordinator for four teams over the previous nine seasons. After presiding over one of the most prolific offenses in NFL history last year in Atlanta, Shanahan lost his debut in San Francisco Sunday 23-3 to the Panthers.

McVay concedes that in his short time with the Rams so far, some of the players have given him a hard time about being so young. (For reference, the team's oldest player, tackle Andrew Whitworth, is four years older than McVay at 35.)

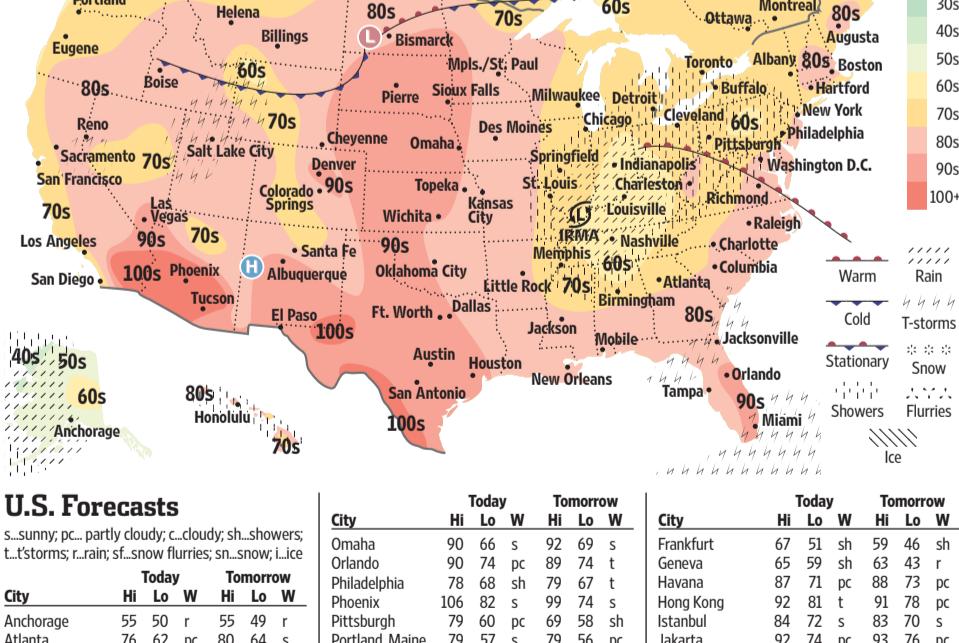
Even one of McVay's coaches took a poke at his youth. That's what happens when the youngest coach in league history hires 70-year-old Wade Phillips, one of the game's oldest and most experienced coordinators, to coach his defense. "Rams have the only staff with DC on Medicare and HC in daycare," Phillips tweeted in February.

The teams' hopes for these coaches are clear: They think they're not only getting one of the best minds in the game, but also someone who's young enough that they can stick around for the long haul. Retirement shouldn't exactly be on their minds anytime soon.

But the counterargument for hiring a rethead that has already cut his teeth elsewhere, even unsuccessfully, is obvious too: In 1991, a 39-year-old began a five-year stint as coach for the Browns. It didn't go so well, and he was fired after a 36-44 record.

Five years after that, the New England Patriots hired that coach. And Bill Belichick has won five Super Bowls since.

Weather



OPINION

Why Home Care Costs Too Much

By Paul Osterman

As baby boomers age into long-term care facilities, Medicaid costs will go through the roof. Americans already spend—counting both public and private money—more than \$310 billion a year on long-term support services, excluding medical care, for the elderly and the disabled. Medicaid accounts for about 50% of that, according to a 2015 report from the Kaiser Commission on Medicaid and the Uninsured. Other public programs cover an additional 20%.

Yet in another decade or so these figures may look small. In 2015 around 14 million Americans needed long-term care. That number is expected to hit 22 million by 2030. There's an urgent need to find ways of providing good long-term care at a lower cost. One fix would be to deregulate important aspects of home care.

There are two million home health aides in the U.S. They spend more time with the elderly and disabled than anyone else, and their skills are essential to their clients' quality of life. Yet these aides are poorly trained, and their national median wage is only a smidgen more than \$10 an hour.

The reason? State regulations—in particular, Nurse Practice Acts—require registered nurses to perform even routine home-care tasks like administering eyedrops. That duty might not require a nursing degree, but defenders

of the current system say aides lack the proper training. "What if they put in the cat's eyedrops instead?" a health-care consultant asked me. In another conversation, the CEO of a managed-care insurance company wrote off home-care aides as "minimum wage people."

Regulations often require that nurses do simple tasks like administer eyedrops.

But aides could do more. With less regulation and better training, they could become as integral to health-care teams as doctors and nurses. That could improve the quality of care while saving buckets of money for everyone involved.

Take hospital readmissions.

When elderly people leave the hospital after an acute incident, they often end up readmitted for another costly stay within 30 days. Or they're sent not home but to an expensive long-term care facility. Home-care aides can improve such transitions. A recent trial program at New York University Hospital found that when aides were trained to work with heart patients upon discharge, the patients were significantly better at maintaining their health.

Aides could act as health coaches, working on diet and

exercise with people suffering from chronic conditions such as diabetes. They could facilitate communication between doctors and nurses, reporting on changes in the patient's condition. Today's rules don't explicitly bar them from these tasks, but the regulations that treat aides as mere drudge workers prevent them from expanding to fill this natural role.

Then, with improved training, aides could take on some tasks now done by nurses, such as giving patients those eyedrops or other prepackaged medicines. It's just a matter of scaling up existing curricula. A monthlong program, developed by the nonprofit Paraprofessional Health Institute, teaches aides about chronic diseases, handling clients with dementia, and performing simple medical tasks. New York state has created an "advanced aide" classification to recognize such training.

Since nurses will continue to supervise aides, there's no reason patients should fear any decline in the quality of their care. A useful comparison is Medicaid's consumer-directed version of long-term support, under which patients can hire, train and supervise their own aides. There are no scope-of-practice restrictions, and research shows patients do just as well as under the typical model.

Yet the potential cost savings are considerable. There are 2.3 million Medicaid patients receiving long-term care at home. Imagine if even

half of them replaced one hourlong nurse's visit a month with a stop by a trained aide. Assuming the nurse makes \$35 an hour and the aide \$15, that's an immediate savings of roughly \$275 million a year.

Additional savings would come from fewer visits to the emergency room due to better care of chronic conditions. The same goes for fewer admissions to nursing homes. The median cost for a year's stay in a nursing home is \$90,000, while the figure for home care is less than half that, according to the AARP.

What's standing in the way of fixing these home-care regulations? Often it's simply the jostling among the health-care professions, no different than the longstanding struggle on construction sites about who can put the plug into the socket. But the people paying the bill for long-term care—state Medicaid agencies, managed-care insurance companies, and (in the end) taxpayers—ought to press lawmakers to scale back these regulations and think more broadly about what aides could do.

Mr. Osterman, a professor at the MIT Sloan School of Management, is the author of "Who Will Care for Us? Long-Term Care and the Long-Term Workforce," just out from the Russell Sage Foundation.

Holman W. Jenkins, Jr. is away.

The Single-Payer Siren Song

POLITICS & IDEAS
By William A. Galston

There must be something special in the waters of Lake Champlain. In 2011 newly elected Vermont Gov. Peter Shumlin announced his intention to shift his state to a single-payer health-care system. He pursued that goal until late 2014, when a study by his staff and consultants projected that it would require imposing a payroll tax of 11.5% and raising the personal income tax by as much as 9.5 percentage points. "The risk of economic shock is too high," Mr. Shumlin concluded as he withdrew his proposal.

There were political considerations as well. Despite successfully campaigning on a single-payer platform in 2010 and winning re-election in 2012 and 2014, Mr. Shumlin never succeeded in persuading a majority of his constituents to support his signature idea. An April 2014 survey found Vermont split down the middle, with 40% of residents approving and 39% disapproving. Perhaps the prospect of increasing the state budget by 45% gave Vermonters reason to doubt the wisdom of an abrupt shift to single-payer health care.

Vermont is not some random canary in the mineshaft. The Green Mountain State is among the most liberal in the country.

Barack Obama prevailed by 37 percentage points in 2008 and 36 points in 2012. Hillary Clinton's snake-bitten 2016 campaign managed a 26-point victory. The state is ethnically homogeneous, with a median household income above the national average. It is hard to think of a state better positioned to embrace single-payer health care, yet a determined governor couldn't get close to pushing it through.

But now Democratic presidential aspirants are rushing to endorse Vermont Sen. Bernie Sanders's soon-to-be-released national single-payer plan. Sens. Elizabeth Warren and Kamala Harris already back it. Sens. Cory Booker and Kirsten Gillibrand have announced plans to co-sponsor it as well.

From the perspective of the contest for the Democratic nomination in 2020, this strategy is easy to understand. Mr. Sanders came closer to upsetting Mrs. Clinton than most observers thought possible. For now, the progressive wing of the party is energized, and the party's ideological center of gravity has shifted.

In 2000, when Al Gore defeated Bill Bradley for the Democratic presidential nomination, 44% of Democrats regarded themselves as moderate and only 28% as liberal. By 2008, when Mr. Obama narrowly prevailed over Mrs. Clinton, the moderates' share had fallen to 41% while the liberal share had increased to 33%.

Since then, the pace of ideological change has accelerated. Today, liberals make up the largest share of Democrats—48%. Moderates have fallen further, to only 36%. And the conservative wing, nearly one-quarter of the total in 2000, now amounts to barely one-seventh of the party.

'Medicare for All' may become the Democrats' version of 'repeal and replace.'

If you want to win the 2020 Democratic presidential nomination, it might seem, the best strategy is to emerge as the champion of its newly dominant progressive faction, and coming out for single-payer might seem the best way to do it.

Whether this is the best formula for winning a general election contest is another matter. Sens. Warren, Harris, Booker and Gillibrand are coastal Democrats from bright-blue states. Ohio Sen. Sherrod Brown, a veteran populist from a swing state that Donald Trump carried by a stunning eight points in 2016, has conspicuously declined to endorse the Sanders bill, preferring to build bipartisan support for a more modest proposal to allow Americans to buy into Medicare when they reach 55. Democrats should ask themselves which of their

elected officials better understands how to win back the Midwestern states that made Mr. Trump president.

This is not just a political calculation. From a policy standpoint, the danger is that "Medicare for All" will become the Democrats' "repeal and replace" ObamaCare.

In May 2016, the Urban Institute—not previously known as a hotbed of conservatism—released its analysis of the Medicare for All proposal Sen. Sanders offered during his presidential campaign. The study found that if the plan were enacted into law, the federal government would absorb the bulk of the current spending by states, localities, employers and households. Federal spending would rise by \$2.5 trillion in the plan's first year, and by \$32 trillion over the first decade.

A parallel study conducted by the bipartisan Tax Policy Center found that Mr. Sanders's revenue proposals would raise only \$15.3 trillion over the first decade, leaving a gap of \$16.6 trillion between expenditures and revenues. "The proposed taxes," the Urban Institute observed, are "much too low to fully finance the plan," and "additional sources of revenue would have to be identified."

It will be interesting to see whether Sen. Sanders's new proposal can meet these objections. Even if it does, Democrats interested in regaining a national majority should look before they leap.

depicted in the statue towers over the Native American, and the work insufficiently addressed how the settlement affected Native Americans. Others felt the statue was important because it depicted a chapter in the history of Kalamazoo.

I led the Arts Council of Greater Kalamazoo at the time. Ultimately the community arrived at a consensus that the fountain, while memorializing troubling events, does not disrespect Kalamazoo's Native American heritage.

The Fountain of the Pioneers is still there today. It is "a rare, if not the only, example of American public sculpture whose primary figurative elements" directly "reference the United States government's 19th Century Indian Removal activity," according to a 2016 listing on the National Register of Historic Places.

What happened in Kalamazoo isn't entirely comparable to the Confederate monument

In 1939 the city of Kalamazoo had commissioned the Italian-American sculptor Alfonso Iannelli to create the fountain. In Kalamazoo at its unveiling, Iannelli stated that the statue depicts "the advance of the pioneers," with the Native American represented in a "posture of noble resistance, yet being absorbed as the white man advances."

The 2006 controversy focused on two aspects of the fountain: The white pioneer

controversy. African-Americans are typically absent from Confederate statues, which focus on military and political figures and rarely acknowledge the suffering endured by slaves. And some of the Confederate statues across the South are identical copies, while the Kalamazoo fountain, with its famous creator, is one of kind.

But Americans should pause before erasing symbols of the past simply because they serve as one-sided reminders of a problematic history. In the South, those many statues commemorating Confederate soldiers and politicians should not be smashed into pieces or melted down, because doing so won't cleanse anything. This Northerner believes they should be preserved as part of the history of this nation. Let's make sure we tell everyone's story.

Mr. Marquardt is an attorney in Kalamazoo.

BOOKSHELF | By Steven Poole

Big Tech's Heavy Hand

World Without Mind

By Franklin Foer
(Penguin Press, 257 pages, \$27)

Silicon Valley is waging a war on knowledge. This might sound like a surprising claim, given all the talk about a "knowledge economy," but the new data monopolies like Google and Facebook don't actually create any knowledge, as Franklin Foer notes in "World Without Mind": "They just sift and organize it." Meanwhile, these companies strive to drive its value to zero, in order to make it easier for users to "share" and for the companies to sell advertising. As a result of these processes, journalism is being hollowed out, and professional writers find it ever harder to keep above water. But it was the professionalization of writing in the

first place, Mr. Foer argues, that democratized it. Without reliable payment, writing will revert to being merely a hobby for the rich or for those lucky enough to attract patronage.

In "World Without Mind," Mr. Foer, formerly the editor of the New Republic, goes on to contend that the giant tech quasi-monopolies that include Google, Facebook and Amazon are systematically "shredding the principles that protect individuality," destroying privacy with their omnipresent data surveillance,

and even declaring "war on free will" (their algorithms nudge us into choosing what is good for their bottom line, not for ourselves). The internet, he concludes, needs tighter regulation (perhaps, though he doesn't say so, on the model of the European Union's), and judges in the U.S. ought to revert to the antitrust principles set out by Supreme Court Justice Louis Brandeis, who in the early 20th century campaigned against untrammeled corporate power.

Toward the end of his short and rather self-admiring volume, Mr. Foer grandly sums up his cultural diagnosis thus: "We have deluded ourselves into caring more deeply about convenience and efficiency than about the things that last." This sentiment, of course, has been expressed with unflagging regularity ever since at least the Industrial Revolution. And indeed, few of his book's points are new. There is no shortage of detailed critiques of the cultural changes wrought by big tech.

The urbanist Adam Greenfield's "Radical Technologies" (2017) argues compellingly against the "colonization of everyday life" by information processing; in "To Save Everything, Click Here" (2013), Evgeny Morozov demolished the rhetoric of "solutionism," according to which Silicon Valley can solve social problems with technology; and computer scientist and polymath Jaron Lanier has argued for years that we give too much of our personal data away. Mr. Foer adds little to such discussions while barely crediting any forebears. "The time has arrived to consider the consequences of these monopolies," he writes early on, as if he is the first to have the bright idea of doing so.

Are companies like Google, Facebook and Amazon 'shredding' individuality with their pervasive collection of our individual data?

It's a drawback, too, that Mr. Foer is substantially less well-informed technically than other writers who have treated these topics. He thinks Google's ability to autocomplete your search term is an example of its proficiency in artificial intelligence, when it is simply applied statistics—the engine offers the term most commonly entered by other users. He credulously asserts that Google's "brain" is one "unhindered by human bias," when the far more serious problem is that modern AI systems routinely reinforce the human biases baked into the data they learn from.

Mr. Foer also appears to think that the term "algorithm" (essentially a step-by-step recipe for performing a task) is relatively newfangled jargon, when it dates from the 19th century. Were he sounder on such basics, one might forgive him for adopting a skeptical tone toward prominent cyber-theorists such as Ray Kurzweil, a computing pioneer who, it says here, began "manically swallowing pills" to prolong his own life. (Surely it's more likely that he swallowed all those pills with great forethought and deliberation.)

The real interest of the book lies in the fragments of memoir scattered about, describing Mr. Foer's own experience in what digital prophets contemptuously call the "legacy media." At the New Republic, Mr. Foer wrote an essay critical of Amazon's abusive and threatening behavior toward publishers, after which Amazon terminated lucrative advertising with the magazine. And he tells, not without an air of spurned-artist score settling, the story of how the New Republic was bought by Chris Hughes, a young investor who had made a fortune at Facebook and initially seemed enthusiastic about preserving the biweekly's cultural and political legacy. Instead, Mr. Hughes ended up pursuing a strategy of maximizing web traffic, to the dismay of the magazine's tweedy team. Mr. Foer resigned, and much of the editorial staff walked out in support.

The answer for "old media" institutions, Mr. Foer concludes correctly, is simply to charge money for what is these days dispiritingly called "content." He points to continued strong sales of books in the U.S., concluding: "Consumers have no inherent problem paying for words, so long as publishers place a price tag on them." Indeed, contrary to the briefly fashionable claims of cyber-hustlers who insisted that newspapers could survive only by being free, some version of what is now with childish resentment termed a "paywall" is plainly what works for publishers—and the public.

Perhaps the continued influence of hurt feelings is what causes Mr. Foer's case throughout to wobble between good arguments strongly expressed and unproductively exaggerated scare-mongering. Given that Mr. Foer is so worried about the prospect of the tech companies eliminating free will, for instance, it seems overblown for him to claim that they are also "destroying something precious, which is the possibility of contemplation." I am a satisfied user of many internet services, but no one has destroyed my ability to switch off notifications on my smartphone and contemplate whatever I want to. To argue otherwise, as Mr. Foer does, is to assume that we are helpless machines without volition. And on the book's last page the author even seems to change his mind: "The contemplative life remains freely available to us." Which comes as a pleasant relief, at least until the robots take over.

Mr. Poole is the author of "Rethink: The Surprising History of New Ideas" and "You Aren't What You Eat."

OPINION

REVIEW & OUTLOOK

How Florida Saved Taxpayers

These columns are often critical of government, especially when public officials put taxpayers on the hook for future risks. Think Fannie Mae, or federal flood insurance. So it's worth pointing out when a government acts to reduce taxpayer liabilities ahead of a fiscal storm, as Florida did before Hurricane Irma.

The example is taxpayer-backed Citizens Property Insurance Corp., the state-owned insurer that not long ago was a fiscal disaster awaiting the next hurricane. But CEO Barry Gilway told us Tuesday that he's "absolutely confident" that Citizens, which boasts a \$7.4 billion fiscal surplus, "can cover all the claims from Irma." The news should come as a relief to policy holders and Floridians who hold other forms of insurance, all of whom Citizens can tax, under state law, to fill fiscal holes.

The Tallahassee-based insurer's good fortune is due to a mix of luck, in the form of 12-year lull in major hurricanes, and some important reforms that weren't always popular when they were made. Since taking the CEO job in June 2012, Mr. Gilway, backed by Chairman Christopher Gardner and Governor Rick Scott, bought reinsurance, built surpluses and aggressively shrank its footprint in the state.

In 2011 Citizens insured 1.5 million policyholders; today it insures 452,000. Private insurers have taken up the slack. This had the benefit of spreading damage risk from hurricanes across the globe via reinsurance rather than keeping it all in Florida.

On current estimates, Citizens could cover a 1-in-100-year storm for \$6.6 billion, at no additional cost to policy holders. If the same storm had hit the Sunshine State in 2011, it would have cost the insurer \$24.5 billion and required an \$11.6 billion assessment to cover the red ink.

That's what happened in 2004 and 2005, the last time big hurricanes hit Florida. Citizens had to levy more than \$2 billion in taxes on policy holders and other Floridians to cover its fis-

Reforms helped a state-backed insurer weather the storm.

cal shortfall, and Tallahassee also coughed up a \$715 million bailout. As recently as 2005, Citizens still shouldered a \$1.8 billion deficit, a far cry from its surplus today.

Alas, there are no permanent victories when it comes to government-owned enterprises, including in Florida, which has a well-earned reputation as a playground for the plaintiff bar. Citizens and private insurers have recently been flooded with "assignment of benefit" (AOB) lawsuits, in which lawyers convince homeowners to sign away their insurance rights. The lawyers then sue the insurers, who find it cheaper to settle than to take the cases to court, thanks to state courts' liberal interpretation of an obscure statute.

Citizens posted its first consolidated net loss since 2005 in March, at \$27.1 million, due to the cost of AOB litigation. Southeastern Florida residents now pay some of the highest insurance premiums in the nation, and costs are rising by double digits. As Mr. Gilway noted last month, litigation costs have forced the insurer "to seek rate increases again this year for more than half of our 452,000 policy holders."

Reform-minded state legislators such as Senator Dorothy Hukill and Representative James Grant introduced AOB reform bills this year, but they were blocked by state Senator Anitere Flores, a Miami Republican who controls a key committee. Ms. Flores has doubled down on her pro-trial bar stance, claiming "Citizens has unfairly raised insurance rates on policyholders since 2010, forcing my South Florida constituents to pay \$700 million more in premiums than in actual claims since 2004."

The real problem is Republicans like Ms. Flores and her protector, Senate President Joe Negron, who will cause Florida homeowners to pay more for Citizens insurance in the coming years. The stars here are Messrs. Gilway and Gardner, who reduced taxpayer liabilities ahead of the storm despite political cheap shots. Now Florida needs to move on tort reform before the next big one hits.

A Disease Called Sarcoidosis

New York City's Office of Chief Medical Examiner has released its conclusion on the death of our colleague Joseph Rago. The official summary: "The cause of death is sarcoidosis involving lungs, heart, spleen, hilar and mediastinal lymph nodes. The manner of death is natural." The medical examiner's policy in such cases is not to release more details to the public beyond that summary, which is on the death certificate.

Sarcoidosis is a rare disease of the immune system in which clumps of inflammatory cells known as granulomas attack the body's organs, most commonly the lungs and lymph nodes. It often attacks people between ages 20 and 40 and can recede without treatment. In severe cases it can become chronic and cause permanent damage to organs and sometimes death if the inflammatory nodules interfere with the functioning of the heart.

The cause of the disease isn't known, nor is

New York's medical examiner determines what killed Joe Rago.

there a known cure, though corticosteroids are sometimes used to relieve the symptoms if sarcoidosis is properly diagnosed. The disease is unusual enough, however, that it often goes undetected and patients can be ill without knowing it. Readers who want to know more can consult numerous medical websites, including the Foundation for Sarcoidosis Research.

New York police found Joe dead in his apartment on July 20 after they were alerted by Dow Jones security when he didn't come to work. Many of our readers have wondered what happened to a seemingly healthy 34-year-old, and the medical examiner's summary is now a definitive public record.

Joe was a brilliant journalist who died too young, but we were fortunate to have worked with him and benefited from his intelligence, his curiosity and a wit that informed and enlightened readers and all of us who knew him as a friend.

The Al Franken Standard

Democrats continue to obstruct President Trump's nominees by every petty means possible, from procedural tricks to anti-Catholic smears (see our editorial, "Democrats and 'Dogma,'" last week). So now might be the moment for Judiciary Chairman Chuck Grassley to show Democrats that there are limits to their abuse of Senate rules.

Minnesota Democrat Al Franken unleashed the latest ploy last week, announcing that he will refuse to return his "blue slip" on the nomination of Minnesota Supreme Court Justice David Stras to the Eighth Circuit Court of Appeals. Blue slips are a bipartisan tradition whereby Senators can block votes on nominees to the lower federal courts from their home states. Mr. Franken wants to turn this courtesy into a pocket progressive veto of Trump nominees.

The Senate comedian is also aiming to establish a new standard for what counts as disqualifying for the judiciary. Judge Stras is held in high esteem across Minnesota legal circles, has earned the highest rating from the liberal American Bar Association, and was elected with greater margins to his court seat than was Mr. Franken to the Senate. Judge Stras was on Mr. Trump's short list for the Supreme Court, and even Mr. Franken's minions have been unable to gin up a flaw in his legal record.

Mr. Franken claims instead that Judge Stras is unfit by virtue of his role models. The Senator is offended that the judge early in his career "worked as a law clerk for Justice [Clarence] Thomas," and that he even once described that Supreme Court Justice as a "mentor." Judge Stras also dared to speak at a Federalist Society event, where he "talked about how the jurisprudence of Justice [Antonin] Scalia helped to shape his own views." Shocking stuff.

Under this Franken Role Model Standard, Democrats are justified in opposing any nominee who admires any widely esteemed Senate-

The GOP can overrule Democratic abuse of the Senate judicial 'blue slip.'

confirmed Supreme Court Justice that he doesn't like. Perhaps he thinks the late Justice Scalia wrote too well and was too intelligent to be Mr. Franken's idea of a judicial model.

Blue slips were once reserved for nominees with ethical baggage, but Mr. Franken wants to use them for the crime of admiring the wrong people. Mr. Trump was elected in part on an explicit promise to appoint judges in the mold of Antonin Scalia, so the Franken standard pre-emptively disqualifies any Trump nominee.

Chairman Grassley needn't stand for such nonsense. The blue slip has been around since 1917, but only a few Judiciary Chairmen have chosen to treat it as an absolute veto. Democratic Senator Ted Kennedy gave home state senators a "reasonable" deadline to return slips, and then put it to a committee vote on whether to proceed if they weren't returned. Democrat Joe Biden reserved the right to ignore blue slips so long as an Administration consulted with home state Senators. Republican Strom Thurmond gave Members a mere seven days to return slips, then sometimes voted on nominees even over blue-slip objections.

Mr. Grassley has authority under Senate rules to suspend the blue-slip tradition on a case-by-case basis, and Mr. Franken's abuse deserves to become his first example. The Iowan would also be justified in setting a time limit for returning a slip, since Mr. Franken also exploited the tradition by dragging out his decision on the Stras blue slip for months.

Democrats blew up the filibuster for judicial nominees in 2013 to pack the D.C. Circuit, and it boomeranged on them with the confirmation of Neil Gorsuch to the Supreme Court. That might make them desperate, but it doesn't give them the right to block a President's nominees merely because a left-wing Senator thinks someone admires the wrong Justices.

LETTERS TO THE EDITOR

Obama, Not Trump, Created the DACA Mess

Regarding your editorial "The Dreamer Debacle" (Sept. 6): As the former general counsel of the U.S. Immigration & Naturalization Service, I challenge any serious lawyer to argue that President Obama's actions weren't wholly unconstitutional, something President Obama admitted himself.

President Trump is actually cleaning up his predecessor's feel-good extralegal mess, and in the process is taking the flak that President Obama avoided because he couldn't get the Dream Act through Congress. Having failed at that effort, he used executive power he acknowledged he didn't have to give desperate people the false hope they would eventually have a pathway to permanence in the U.S.

If you're really concerned about the interests of the Dreamers, then please stop all the hand-wringing about how bad President Trump is. The irony is that he is the only one truly acting for the benefit of the Dreamers, by forcing Congress to do its job and leaving its members no place to hide.

The only reason members are carpings is because they know they will now have to go on the record by voting, and in the end will also have to give something to President Trump (the border wall, the Raise Act or perhaps both) to get these 800,000-plus people relief. If anyone was cruel here, it was President Obama who gave hope to people knowing he lacked the legal authority to do so.

Stop engaging in tiresome bashing of President Trump for having the courage to force Congress to finally resolve the issue.

WILLIAM COOK
Washington

Eight hundred thousand Americans trusted our government when they registered to become "legal" under the Deferred Action for Childhood Arrivals program. They believed that by following the rules, this country, into which they arrived as children and for all intents and purposes is their home country, would accept them as legal immigrants.

Now, President Trump has announced he will terminate the DACA program and threatens to begin deportations within six months. The Dreamers who trusted President

Obama are now at risk. All their personal information is in government files, available to ICE whenever it decides to come after these people, who are our people—your neighbors, our colleagues, our friends, employees and service providers.

This threat and fear extracts a cost, both on Dreamers and on all of us who believe that this injustice does not and should not represent who we are as Americans. Moreover, it destroys the possibility of success for any future.

BRUCE JOFFE
Piedmont, Calif.

No matter how worthy the cause of those affected by DACA is, when did a subjective moral obligation to non-citizens trump, no pun intended, the government's legal obligations to its actual citizens? A totally subjective concept of moral obligations by the government versus one based on the Constitution may sound good for something like DACA, but what is next? Essentially calling something a moral obligation frees government officials to rule by whim, acting and decreeing based on the moral feelings of the moment.

LARRY STEWART
Ponte Vedra Beach, Fla.

The Democrats are screaming foul and creating confusion because they will no longer be able to take credit for DACA once the program is legally enacted by the Republican Congress. President Trump tweeted, "Congress now has six months to legalize DACA." That sure doesn't sound like an order to end DACA, but an order to legalize it. It's a shame that so-called politicians in this country can't tell the truth about what's going on, and instead create confusion and mistrust to bolster their voting base.

BARRY BRANAGAN
Casa Grande, Ariz.

The parents of the young people in question committed the violation, and they should bear some consequence for jumping the queue to get special consideration for their children. They should not benefit in any way, directly or indirectly.

STEVE DONOHUE
North Augusta, S.C.

Bitcoin Can Be a Competitive Store of Value

Regarding Andy Kessler's "The Bitcoin Valuation Bubble" (op-ed, Aug. 28): Is Bitcoin or other cryptocurrency a currency, a commodity or a security in an underlying business?

There is nothing underpinning the value of traditional currencies today other than the good faith of central banks that back them. If central banks or governments choose to dislodge currency bills, they lose all value. This happened in India when certain rupee bills were rendered worthless. The reason this system works is because everyone puts their trust in central banks, and it is this trust that forms the backbone of a legitimate currency. If people choose to trust a different mechanism for currency, such as cryptocurrency, that will work equally well.

Market forces determine the price of currency which can be measured relative to other currencies. The volatility in cryptocurrency pricing is perhaps indicative of a new form of currency with low penetration.

Cryptocurrencies have already achieved initial adoption by a fairly significant number of people. As they convert the next wave of adopters, the

AKSHAY SINGH
Dallas

The main reason that Visa and Mastercard are able to charge their outrageous fees is because the service they provide is incredibly valuable. So using their market value as a proxy for Bitcoin is instructive.

This logic breaks down if brutal competition does indeed lead to prices for payment processing falling over time as competitors break the existing Visa/Mastercard duopoly. But remember, cryptocurrencies (like all currencies) are "network effect" phenomena, which means that Bitcoin or another such cryptocurrency will likely "win" as the dominant blockchain-based payment system. This will return the "industry" to oligopoly-type economics, just as Visa/Mastercard have today.

Gold isn't a medium of exchange, but it is an \$8 trillion asset. Bitcoin only needs to capture a slice of that to become much more valuable.

ANDY EDSTROM, CFA, CFP
Glendale, Calif.

Pepper ... And Salt

THE WALL STREET JOURNAL



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F. PAUL BLAND

Executive Director, Public Justice

Washington

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OPINION

The Republican Tax Plan Better Be Audacious

By David M. Smick

The big question on tax reform is President Trump: Can Republicans really trust him, in the end, to go along with their plan? Or will he pivot at the last minute and play nice with "Nancy" and "Chuck," his two new friends on Capitol Hill? The answer might depend on whether the GOP plan does enough to help average workers.

If the GOP proposal isn't aimed at helping workers, Trump will ask Democrats for a counteroffer.

So far the effort on tax reform seems off kilter. Yes, reducing the corporate tax rate to improve American competitiveness makes sense. So does inducing companies to repatriate—and then put to work—the \$2.5 trillion they have sitting idle offshore. Still, on tax policy the GOP has become like a boxer leading with his chin. Republicans appear a bit too concerned with CEOs and not enough with the wage earners who have been the big losers of the 21st century.

Since the financial crisis, American companies have fared well. Leveraging the Federal Reserve's low interest rates, they have bought back their own stock at an extraordinary clip. Since hitting bottom in March 2009, the Standard & Poor's 500 index has risen 265%. Meanwhile, wage

earners haven't had a meaningful raise in real terms in decades.

Although Congress could help, the quirky way financial legislation is normally passed in the Senate—via reconciliation, which requires only 51 votes—means it probably won't. Imagine that President Trump announces, as promised, a "beautiful" plan that includes a permanent "big league" tax cut for middle-class families. The GOP's razor-thin Senate margin and the vagaries of reconciliation mean the Trump plan would have little chance of becoming long-term policy. At best, working families would get a temporary tax cut. More likely would be a repeat of what happened with the attempt to replace ObamaCare: A small group of Republican outliers in the Senate would say "no."

Fearing this outcome, Republican leaders are being tempted to play small ball. They might suggest modestly lowering the corporate tax rate. They might propose allowing full expensing of business investment, to be scaled back after several years. To help the middle class? They'll throw in a modest hike to the standard deduction. Anything to get something done.

Which brings us back to President Trump. After watching the country tear itself apart politically, economically and socially during more than a decade of mediocre GDP growth, can the GOP trust the president to play small ball? Or will the transactional Mr. Trump try to "triangulate" and undermine the Republican position? If the GOP plan is not bold enough in helping the little guy, my bet is the latter.



GLOW IMAGES

This is a unique moment in America's economic history. Wage earners are being held back by a combination of globalization and technological advancement. A tax reform geared toward middle-class families would help, but Republicans would do well to explore a third cause of the problem:

Large multinational corporations, the institutions Washington favors most, are chilling wage gains in their relentless drive to lower consumer prices and grab market share.

Republican reformers are quick to counter that any corporate tax cut will include the "pass throughs," those smaller enterprises—including partnerships, LLCs and S-Corps—that use the personal tax code. What they don't say is how difficult it would be to cut the "pass through" rate for legitimate small businesses without opening the tax system to widespread abuse. Every billionaire could declare himself a one-man S-Corp, hoping to be taxed at the lower rate. That's why Congress needs a

mini-Manhattan Project of tax specialists to figure out quickly how to help mom-and-pop businesses without inviting abuse and creating a revenue-losing free-for-all.

Ultimately, Republicans are being forced to play small ball because a group of GOP deficit hawks worry that a big tax reform would undermine the budget. This fear seems out of proportion. Since 2000, under a Republican president and then a Democratic one, the national debt has soared from \$5 trillion to nearly \$20 trillion. The fiscal situation will only worsen with the coming entitlement-funding nightmare. Fretting about the deficit now is like worrying about a flickering candle in the front parlor when the entire house is on fire and the roof is about to cave in. Besides, true tax reform would eliminate deductions just as boldly as it slashes rates, achieving revenue neutrality.

Republicans shouldn't play small ball. Their goal should be a tax-reform plan that will create robust economic

growth, which in turn will help heal a bitterly divided nation. What would such a plan look like? Helping wage earners via tax policy is not a simple matter. People who earn less than \$50,000 a year pay an average effective income-tax rate of 4.3%. What's killing them is the payroll tax combined with the rising cost of health care. At minimum, the standard deduction should be tripled. But reformers also need to think creatively. Tax reform, entitlement reform and health-care reform cannot be considered in isolation. Working families need relief across the board.

That requires a bigger play than what some on Capitol Hill have in mind. But in the end, growth is everything. As he was preparing to run for president in 1980, Ronald Reagan was warned in a strategy meeting I attended about John Connally, a fellow candidate in the Republican primary. Connally, a former Texas governor, was raising big bucks from big business. By comparison, Reagan's campaign coffers were lean. The future president's response was aggressive. "Let him have the Fortune 500," Reagan shouted. "I'll take Main Street over Wall Street."

This kind of "lunch pail" capitalism won Reagan the election and transformed the GOP—and the country. Isn't it time for more "lunch pail" policy-making from Washington?

Mr. Smick's latest book is "The Great Equalizer: How Main Street Capitalism Can Create an Economy for Everyone" (Public Affairs, 2017). He was chief of staff to Rep. Jack Kemp from 1979-84 and advised on both the 1981 and 1986 tax reforms.

Another Obama Policy Betsy DeVos Should Throw Out



UPWARD MOBILITY
By Jason L. Riley

When Education Secretary Betsy DeVos announced last week that the Trump administration would revisit its predecessor's "guidance" on adjudicating accusations of campus sexual assault, she added that "the era of 'rule by letter' is over." Well, not quite. A second instance of the Education Department's overreach under President Obama, this one involving discipline in public schools, remains firmly in place.

In 2012 the Education Department released a study showing that black students were three times as likely to be suspended and expelled as their white counterparts. Two years later, the department issued a "Dear Colleague" letter warning school districts to address this racial imbalance, or else. The letter said that even if a disciplinary policy "is neutral on its face"—meaning that the policy itself does not mention race—and is administered in an evenhanded manner" the district

still could face a federal civil-rights investigation if the policy "has a disparate impact, i.e., a disproportionate and unjustified effect on students of a particular race."

The threat worked. Fending off charges of discrimination can be expensive and embarrassing, so spooked school districts chose instead to discipline fewer students in deference to Washington. The Obama guidance didn't start the trend—suspensions were down nearly 20% between 2011 and 2014—but the letter almost certainly hastened it. The effects are being felt in schools across the country, leaving black and Hispanic students, the policy's theoretical beneficiaries, worse off.

After the Los Angeles school district, where more than 82% of students are Latino or black, ended suspensions for nonviolent offenses, the district reported that the number of students who said they felt safe in school dropped to 60% from 72%. When Chicago curbed suspensions, students and teachers felt the increased disorder. And following New York City's reforms making it more difficult to

keep disruptive kids out of the classroom, the schools that showed increased fighting, gang activity and drug use tended to be those with the highest percentages of minority students.

Somehow racial balance in the rates of suspension and expulsion has become more important than school safety. As Max Eden, my colleague at the Manhattan Institute, wrote in a March report, these policies turn the focus toward the

A 2014 guidance letter on racial disparities in school discipline has helped create classroom chaos.

well-being of the bullies rather than their victims. "Advocates of discipline reform often say that they are concerned that a suspension may have negative effects on the student being disciplined," Mr. Eden wrote. "They are largely unconcerned about the potential of discipline reform to increase classroom

disruption and schoolhouse disorder—and the harmful consequences of that disorder for well-behaved and engaged students." When you diminish a teacher's and a principal's authority to discipline students, you undermine their ability to do their job. Disorder only begets more disorder; students who misbehave and face no consequences soon have imitators.

Yet civil-rights activists, liberal academics, policy makers and others calling for fewer suspensions—come what may—insist that what explains imbalances in school discipline is racism, not varying rates of misbehavior. Never mind that these disparities persist in schools with black and Hispanic principals, teachers and administrators, who would have no reason to single out minorities for punishment unless the behavior warranted it. Arne Duncan, the education secretary under Mr. Obama when the "Dear Colleague" letter was issued, said in 2014 that racially uneven discipline is "not caused by differences in children" and that "it is adult behavior that needs to change."

Opponents of suspension also claim that it harms children down the road. A suspended student, for example, is more likely to drop out of school and be incarcerated as an adult. But the "school-to-prison pipeline" theory, which has been advocated by activists with the Civil Rights Project at UCLA, among others, has come under increasing scrutiny. There's plenty of evidence that someone who gets suspended is more likely to drop out of school, but there's little evidence that the suspension caused the dropping out.

In fact, a March paper posted by the University of Arkansas found that students who had been suspended were doing better in math and reading after one year. Suspensions were correlated with improved academic outcomes—the opposite of the chain of negative effects that opponents predicted.

That means the 2014 guidance, which is wreaking havoc on schools, was justified with what Mr. Eden described to me as "old and limited evidence," now called into question by "new and more robust evidence." Mrs. DeVos can't fix this mess soon enough.

Clinical Drug Trials May Be Coming to Your Doctor's Office

By Amy Abernethy
And Sean Khozin

Roger Pickar was diagnosed with a rare cancer in December 2014. A chef, comedian, husband, father and champion of the local arts community, he was successfully treated for more than a year with standard therapies. When the cancer eventually returned, his oncologist prescribed an "off label" drug—one the Food and Drug Administration had approved for other types of cancer, but not the one that afflicted Roger. That meant it wouldn't necessarily be covered by insurance.

The physician mentioned another possibility: Roger could apply to be considered for experimental treatment as part of a special program or a clinical trial at a medical center thousands of miles away. Roger decided to stay close to family and in the care of his own oncologist.

Like countless other cancer patients, he faced difficult choices. He died at 73, two years after his diagnosis.

Roger's story illustrates the challenges facing patients, their oncologists and the cancer researchers who aim to match experimental treatments to the patients best suited for them. Typically, drug development is a multiyear process that begins with a series of laboratory studies and culminates with human testing in controlled clinical trials. There is strong demand for access to experimental therapies in clinical trials, but only an estimated 3% to 5% of adult cancer patients in the U.S. end up participating.

Traditionally, the safety and effectiveness of new cancer therapies is demonstrated through randomized clinical trials—studies in which patients are randomly assigned to receive either an experimental new treatment or a comparator therapy.

Despite the potential for direct health benefits, patients with cancer—especially sicker patients, those in rural areas, minorities and the elderly—enroll at lower rates than those with other diseases.

That's often because of strict eligibility requirements, combined with logistical challenges. Conventional clinical trials are usually conducted at large medical centers, far from where most cancer patients live and get treatment. The trials can also be difficult to find, require time away from work and family, and present complicated insurance challenges.

The good news is that technology innovations are moving us toward modern clinical trial designs. Electronic health records, now common in U.S. medical practices, allow physicians to collect timely and detailed data that could be used for exploring ways of bringing clinical research directly to patients. Those records are becoming the technological building blocks of a new research model based on real-world evidence, which aims to provide insights regarding the usage and potential benefits or risks of a drug by analyzing patient

data collected as part of routine delivery of care.

Real-world evidence captures the experience of real-world patients, who are generally more diverse than the selective cohorts enrolled in clinical trials. Additionally, real-world data from electronic health records may be used after a drug's approval to answer important questions about

Electronic medical records make possible a new research model based on real-world evidence.

its use. Researchers can, for example, search through anonymized data from patients taking a specific cancer drug to see whether those with a certain tumor mutation respond better or worse than other patients. Such information could help doctors personalize therapies based on the patient's genomic makeup.

Moving clinical research to a doctor's office, the point of routine care, may also address the difficulties

patients and doctors face with off-label drugs. If local physicians can participate in conducting real-world randomized clinical trials in their own practices, new uses of approved drugs could be carefully studied, potentially generating evidence supporting approval of a new use. Real-world clinical trials could also limit disruptions to patients' lives by reducing the need for long-distance travel.

The promise of real-world evidence obtained at the point of routine care comes with a responsibility to ensure data quality, privacy and safety, while maintaining ethical standards and compliance with good clinical-practice guidelines. There are reasons why real-world trials are not yet the norm: lack of organizational and technical infrastructure at the point of care makes it difficult to meet the rigorous standards conventional clinical trials are required to meet. Addressing these and other challenges will take a thoughtful, well-coordinated approach involving all stakeholders.

As for Roger Pickar, evidence specific to treatments for his disease could have informed more-individualized treatment decisions—and his experience, gathered as real-world data, could have contributed to our collective knowledge about his disease. He was the father of Amy Abernethy, one of the authors of this article, and he would have wanted others to learn from his experience to help patients like him in the future.

Dr. Abernethy is chief medical officer and chief scientific officer at Flatiron Health. Dr. Khozin is an acting associate director in the U.S. Food & Drug Administration's Oncology Center of Excellence and founding director of the agency's Information Exchange and Data Transformation Program.

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Notable & Quotable: Energy

Mark Mills writing in the Spring issue of the *New Atlantis*:

While a barrel's worth of oil weighs just over 300 pounds and can be stored in a \$40 tank, to store the equivalent amount of energy in the kind of batteries used by the Tesla car company requires several tons of batteries that would cost more than several hundred thousand dollars. Even if engineers were able to double or quadruple battery efficacy, that still would not come near to closing the performance gap

between energy from wind and energy from liquid hydrocarbons for transportation.

These stark facts often elicit the response that the alternative technologies will get better with time and scale. Of course they will. But there are no significant scale benefits left, since all the underlying materials (concrete, steel, fiberglass, silicon, and corn) are already in mass production. Nor are there big gains possible in the underlying technologies given the physics we know today.

Dr. Abernethy is chief medical officer and chief scientific officer at Flatiron Health. Dr. Khozin is an acting associate director in the U.S. Food & Drug Administration's Oncology Center of Excellence and founding director of the agency's Information Exchange and Data Transformation Program.



Optimism

Joy

Contentment

WHAT DO PEOPLE *really* INVEST IN?

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THE WALL STREET JOURNAL.

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Fear Trump will weaken fiduciary rule drives governors, legislators to act

By LISA BEILFUSS

The battle over a rule restricting conflicted retirement advice is shifting to states, which are moving to bolster investor protections out of concern the Trump administration will weaken the federal provision.

In recent months, the governors of Nevada and Connecticut signed bills to expand or amplify "fiduciary" requirements for brokers. Legislators in New York, New Jersey and Massachusetts have introduced similar bills. Several other states, including California, have indicated interest in exploring such requirements.

Unveiled last year, the Labor Department's fiduciary rule requires brokers to act in the best interests of retirement savers rather than sell products that are merely suitable

and potentially more lucrative for the brokers. Financial-industry leaders have fought against the Obama-era regulation, saying it would limit investment options, elevate costs and potentially cut off low-balance customers from some forms of professional advice.

The states' efforts come as the fate of the federal rule, which partially went into effect in June, remains in question. President Donald Trump shortly after taking office ordered the Labor Department to re-evaluate the economic im-

pact of the rule with an eye toward repeal or revision. The states in many cases are looking to go beyond the federal rule, which only governs advice on tax-advantaged retirement savings, and instead require that brokers uphold a fiduciary standard across all accounts.

The piecemeal legislative efforts have galvanized the industry just months after many in it had cheered Mr. Trump's election as a chance to roll back regulations perceived as arduous and costly to comply with. Industry executives and

trade groups said they are watching the states' actions and beginning to lobby at the state level to prevent a scenario where state laws mushroom as the federal fiduciary rule dwindles.

"The states are...picking up the pieces," said John Grady, an attorney who also leads the Alternative and Direct Investment Securities Association. "People feel there's a vacuum they have to fill."

While the industry has decried the federal rule, it has

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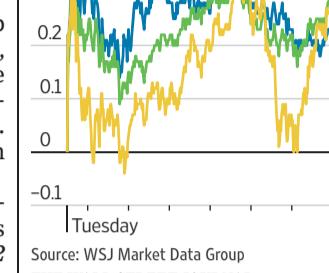
Trifecta

Three major U.S. stock indexes closed at records on the same day for the first time since July.

Nasdaq Composite S&P 500

Dow Jones Industrial Average

0.4%



Source: WSJ Market Data Group

THE WALL STREET JOURNAL.

Stocks Hit Highs In Sights Of Relief

By MICHAEL WURSTHORN

The Dow Jones Industrial Average, the S&P 500 and the Nasdaq Composite closed at records, as investors regained confidence after skirting several dire scenarios.

In the past week: Florida was spared from the catastrophic damage many had forecast from Hurricane Irma, U.S. refiners have ramped back up after Hurricane Harvey battered Texas, North Korea hasn't appeared to have conducted further tests of its nuclear program, and Congress passed a bill to keep the government funded before a month-end deadline.

The stock market's ability to keep rallying after these various crises flare up and recede shows how little it takes to keep the bull market going, many money managers say.

Economic expansion in the U.S., as well as abroad, and solid U.S. corporate earnings have helped markets bounce back, they say. Companies in the S&P 500 recently posted two consecutive quarters of double-digit-percentage growth from the year-earlier period for the first time since 2011, according to data provider FactSet.

Low interest rates have helped justify stock valuations that are running higher than their historical average, some investors and analysts say.

"We're seeing investors come back into the market after we have a little bit of short-term volatility," said Tom Wald, chief investment officer of Transamerica Asset Management. "Stocks are where they are because of the recent earnings growth and expected earnings growth," he said, adding that a big risk to the market in the near term would be investors selling to lock in some gains.

The Dow rose 61.49 points, or 0.3%, to 22118.86 Tuesday, narrowly topping its previous record close set Aug. 7. The S&P 500 gained 8.37 points, or 0.3%, to 2496.48 and the Nasdaq Composite added 22.02 points, or 0.3%, to 6454.28. It was the first time all three major indexes notched record closes together since July 26.

Shares of banks and insurers helped lead the way, reflecting an upswing in bond yields and investors' relief that storm damage likely wouldn't end up as burdensome as feared.

The S&P 500 financials sector rose 1.2% and shares of Goldman Sachs Group added \$4.89, or 2.2%, to \$225.95, accounting for more than half of the Dow's gain. A top Goldman executive detailed how the bank could pull in \$5 billion in additional revenue over the next three years at an industry conference Tuesday.

Investors also attributed financial firms' move to rising long-term bond yields, which helps banks' lending margins.

Early Wednesday, Japan's Nikkei and Australia's S&P ASX 200 were each up 0.5%,

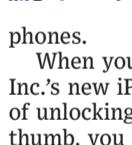
◆ Skeptical investors fail to derail stock rally B16



CURTAIN RISES: Apple introduced not only much-awaited products in California on Tuesday, but also its glass-walled auditorium named after founder Steve Jobs. B5.

PERSONAL TECHNOLOGY | By Geoffrey Fowler

A First Look at Apple's iPhone X: About Face



CUPERTINO, Calif.— Soon, all the cool kids will be smiling into their phones.

When you pick up Apple Inc.'s new iPhone X, instead of unlocking with your thumb, you stop and grin at the phone's front unibrow as a bank of cameras and sensors check to see if it is really you. At a demo after Tuesday's launch event, I

timed the process at about a second.

People unlock their phones hundreds of times a day, so this selfie ritual will turn iPhone X owners into the most-photographed population ever. And showing off the move to others is probably the best iPhone sales pitch in years—even if this one costs \$1,000 or more.

I saw little evidence in Apple's demo that the iPhone X can kick-start a

new decadelong tech revolution. Its most practically useful features may be a bigger screen and (Apple claims) two additional hours of battery life. Yet the X moves the ball forward for our most-used gadgets, making cameras and visual tech central to the future of the smartphone.

A New Relationship

As usual, Apple giveth and Apple taketh away. Let this sink in: The iPhone X has no

home button or fingerprint reader. Not even buried behind the screen. The culprit, Apple says, is the nearly all-screen front, which leaves no space for a button. It is a design tweak that changes how we relate to our phones.

The new screen gives you even more usable screen area than the iPhone 7 Plus in a form that is only slightly larger than the iPhone 7. The new OLED tech used in the screen makes images look rich, and contributes to the

significant improvement in battery life.

In my hand, it feels like a big little phone—perhaps a tad weighty.

It is also a screen style we've seen in rival phones from Samsung Electronics Co., which managed to actually curve its Galaxy S8 screen to the edge on the left and right side. The iPhone X still has a metal rim all the way around that looks like a car bumper.

Please see FOWLER page B5

For Truce, Chemicals Split-Up Is Altered

By DAVID BENOIT

Two weeks after its formation, DowDuPont Inc. is altering its plan to splinter into three companies, defusing a possible fight with as many as four activist investors.

The company, formed by the union of Dow Chemical Co. and DuPont Co. on Aug. 31, has long planned to split into separate companies focused on agriculture, specialty-chemical products and materials. The plan was to break up over 18 months.

The new plan still envisions three separate companies but it moves businesses with more than \$8 billion in annual revenue from the materials spinoff—which is to house the legacy Dow operations and be named Dow—into the specialty-

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INSIDE



STEERING VW OUT OF SCANDAL

BOSS TALK, B9



NEW POWER EMERGES IN BATTERIES

MOBILE, B4

Self-Driving Developers Gain Leeway in Federal Guidelines

By MIKE COLIAS AND MIKE SPECTOR

The Trump administration said Tuesday it would maintain a hands-off approach to federal regulation of autonomous vehicles, even as government investigators placed some blame on Tesla Inc.'s Autopilot technology for a fatal crash last year.

Transportation Secretary Elaine Chao laid out revised guidelines for companies designing robocars, aiming to speed development of autonomous vehicles expected to be safer than those piloted by people. Ms. Chao said the revisions are intended to guide developers as they conduct tests on public roads, adding that the government should "not impede progress with unnecessary or unintended barriers to innovation."

The updates were announced at autonomous-vehicle testing grounds in Ann Arbor, Mich., coming on the same day the National Trans-

portation Safety Board said Tesla's Autopilot semiautonomous feature contributed to a fatal crash in Florida last year. The NTSB's findings marked the first time officials singled out Tesla's technology for responsibility in the crash, which killed the driver of a

Please see CARS page B2



Transportation Secretary Elaine Chao, right, in Michigan on Tuesday.

public, and the National Highway Traffic Safety Administration doesn't want a thicket of local rules to get in the way of technological development.

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portation Safety Board said Tesla's Autopilot semiautonomous feature contributed to a fatal crash in Florida last year.

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STATES

Continued from the prior page turned out to be a boon for Wall Street as firms push customers into the fiduciary-friendly—and typically more-lucrative—accounts that charge an annual fee.

At the same time, the more onerous elements of the regulation, including client disclosures and a contract that would increase litigation risk, have been delayed until July 1, 2019, and are likely to be significantly revised or eliminated.

"We have been concerned that there is momentum under way on the issue" at the state level, said a spokesman for the American Council of Life Insurers, an industry group that has opposed the federal rule.

Some executives and trade groups said state efforts make

mon-sense measure."

States' efforts may have taken on new urgency in recent weeks after Mr. Acosta moved to delay the rule's final compliance deadline by 18 months, a signal that the rule's re-evaluation will result in changes.

In addition, the Labor Department recently suggested it intends to eliminate the rule's main enforcement mechanism, a provision that allows investors to bring class action suits against advisers they say violated their fiduciary duty.

"This is a mobilization based on concerns that the DOL rule may be unhinged," said Erin Sweeney, an attorney at Miller & Chevalier Chartered who counsels firms on fiduciary obligations.

Nevada is emerging as a test case, observers said, because its rule could expand the reach of fiduciary obligations to all investment assets and not just tax-advantaged retirement assets.

The state's securities regulator is writing the regulation, and details aren't yet clear.

Experts say states' actions could face legal challenges. The National Securities Markets Improvement Act of 1996 limits what states can do on their own and aims to prevent patchwork regulation.

Potentially inconsistent state regulations could raise compliance costs more than a single federal rule would have, experts said, with consulting firm AT Kearney estimating that the federal rule would result in as much as \$20 billion in lost industry revenue through 2020.

"This could become a bit like Frankenstein," said George Gerstein, an attorney at Stradley Ronon Stevens & Young LLP who represents financial-services firms. "If states go their own way on this, it could become a nightmare."

New York state Assemblyman Jeffrey Dinowitz, a Democrat, said he began working on a fiduciary bill several years ago and dropped the effort after the Obama administration took it on to protect the \$17 billion it said consumers lose annually to conflicted advice.

"But under the Trump administration, the regulation that would have been in effect this year isn't," he said, referring to the delay in the final compliance deadline. "We're back to square one."

Mr. Dinowitz reintroduced a fiduciary bill on Jan. 20.

Shareholders, including activists Trian Fund Management

CARS

Continued from the prior page
Model S electric car. The driver went long periods without hands on the wheel before colliding with a semi truck, investigators found.

The safety board's judgment follows a separate investigation by the traffic-safety administration that officials closed in January without finding that Autopilot posed an unreasonable safety risk.

While tens of thousands of Americans die in crashes linked to more conventional factors such as impaired or distracted driving, regulators have expressed concerns over how automated-vehicle systems are being marketed, and whether car owners fully understand the technologies' limitations.

Autonomous-vehicle advocates say human drivers are largely responsible for an increasing number of deaths taking place on American roadways. A flood of infotainment features and widespread ownership of smartphones are increasing the likelihood drivers will be distracted. Meanwhile, drunken drivers continue to cause traffic fatalities.

The race to develop autonomous vehicles is forcing a clash between conventional auto makers, including General Motors Co., and Silicon Valley tech companies that are increasingly able to engineer cars. Alphabet Inc.'s Waymo unit is considered the leader in developing self-driving vehicles and has argued steering wheels and pedals will eventually no longer be needed.

The guidelines published Tuesday primarily affect development of more advanced vehicles that aren't yet sold to U.S. buyers.

Auto makers now sell so-called Level 2 automated vehicles that combine features such as adaptive cruise control, automatic steering, self-braking and autonomous lane-changing to allow cars to drive themselves under certain circumstances—with instructions for drivers to remain engaged with their hands on the wheel and ready to take control. Tesla's Autopilot is an example.

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Both the investors and Dow executives appear to have gotten at least some of what they wanted. DowDuPont shares rose 2.5% to \$68.52 on Tuesday.

Shareholders, including activists Trian Fund Management

BLOOMBERG

A Tesla Model S electric vehicle equipped with Autopilot on the streets of New York last year.

Safety Board Says Blame Is Shared In Fatal Tesla Crash

The National Transportation Safety Board, in a judgment released Tuesday, said the driver of a Tesla Inc. electric car went long periods without his hands on the wheel before his fatal collision with a truck in Florida last year.

The safety board found that Joshua Brown, the 40-year-old driver of the Model S, relied too heavily on Autopilot and didn't understand its limitations, and that Tesla could have done more to prevent the technology from being misused. Tesla's technology allowed Mr. Brown to "use the system outside of the environment for which it was designed, and...gave far too much leeway to the driver to divert his attention to something other than driving," said NTSB Chairman Robert Sumwalt.

The driver of an 18-wheel truck that pulled in front of Mr. Brown should have been able to see his car and didn't "give an adequate safety margin before starting the turn," the board found. Mr. Brown, who was the sole fatality, also should have been able to see the truck before colliding with it, the board found.

An earlier investigation by the National Highway Traffic Safety Administration had determined that the truck should have been visible to Mr. Brown for at least seven seconds before the collision, and that Tesla made an

effort in its design process to prevent drivers from misusing Autopilot.

In the latest probe, the safety board determined the probable cause of the May 2016 crash was shared among the truck driver, Mr. Brown and Autopilot. The system has a hands-on-the-wheel feature that forces drivers to check in, but the safety board found it a poor substitute for measuring driver alertness, such as with eye-tracking devices.

A Tesla spokeswoman said the firm prioritizes safety, and that Autopilot "significantly increases" it. "We appreciate the NTSB's analysis of last year's tragic accident and we will evaluate their recommendations as we continue to evolve our technology."

—Mike Spector

millions of test miles being put on these cars."

GM said Monday it is capable of building a self-driving car that theoretically could be safe enough for public roads. It will begin testing it in San Francisco in a few weeks.

Ms. Chao said publishing "best practices" is "the best way to proceed in a field that is changing so rapidly." The NTSB's findings on the Florida crash, however, could boost the case for more rigorous oversight.

—John McKinnon contributed to this article

DOW

Continued from the prior page
chemical concern.

The move will also divide up what had been Dow Corning, a pioneer in silicone technology that was taken over by Dow last year, putting some of it into both the specialty and materials companies. Previously, the silicone business was to be housed entirely in the new Dow, which Dow executives argued was the best fit; that represented the crux of the debate with the activists.

Both the investors and Dow executives appear to have gotten at least some of what they wanted. DowDuPont shares rose 2.5% to \$68.52 on Tuesday.

Shareholders, including activists Trian Fund Management

LP, Third Point LLC, Glenview Capital Management LLC and Jana Partners LLC, had pressed for a dramatic reshaping of the breakup, particularly as it relates to the silicone business.

Dow Chief Executive Andrew Liveris had said in a July interview that "noisy shareholders" were focused too much on short-term results, but added that he was open to any outcome that produces value. Dow executives believe the growth in silicones since Dow took over Dow Corning is evidence of the sales and research opportunities created by putting the two companies together.

On Tuesday, Mr. Liveris said he fully supported the changes. And the investors applauded the moves, the result of a five-month review led by consultants at McKinsey & Co., who talked with 25 of the biggest

shareholders.

"It takes guts for board members to admit they need a do-over, and we're happy the board members here took the time to listen to shareholders and improve their spinoff plans," Jana Partners founder Barry Rosenstein said in an email.

Glenview founder Larry Robbins, who rarely criticizes companies publicly, said in an interview the end result of the review was evidence the "noisy" shareholders were onto the right conclusion.

The new Dow will house products aimed at packaging, infrastructure and consumer care and now have roughly \$40 billion in annual revenue, the people said. The specialty-chemical business will focus on electronics and imaging, transportation, construction and nu-

trition, with some \$20 billion in revenue.

The agriculture business, with about \$14 billion in revenue, will remain the same.

The review process included directors who visited several company plants and sought to account for changes to the markets and the company's portfolio in the nearly two years since the roughly \$60 billion merger and the split were announced in December 2015.

Mr. Liveris, who is executive chairman of the combined company, is tasked with setting up the new Dow before he retires next summer. DuPont's Edward Breen, now CEO of DowDuPont, is in charge of establishing the other two companies and has yet to declare his post-split plans.

—Dana Mattioli contributed to this article

BUSINESS & FINANCE

BUSINESS NEWS

Alexion To Cut Staff

By AUSTEN HUFFORD
AND JONATHAN D. ROCKOFF

Alexion Pharmaceuticals Inc. is cutting its workforce by 20%, relocating its headquarters to Boston and closing sites as it works to reduce its overhead and move on from a sales-practices controversy.

The rare-disease drugmaker has seen a slew of management changes during the past year, including hiring a new chief executive, after an internal investigation showed senior management pressured staff to persuade customers to order its flagship drug earlier than needed to meet financial targets.

The reorganization is the first major step by new Chief Executive Ludwig Hantson.

The New Haven, Conn., company said Tuesday it will incur between \$340 million and \$440 million of restructuring-related charges. However, Alexion said the moves are expected to create \$250 million in annual cost savings by 2019.

The company pledged to spend \$100 million of the annual savings on researching new drugs and business development. During a call with analysts, Mr. Hantson said Alexion will remain in the orphan-disease treatment space, but will focus more on "rare" diseases than on "ultra rare" ones.

"These changes were necessary to enable the company to deliver sustainable long-term performance," Mr. Hantson said in a statement.

The downsizing will eliminate about 600 jobs. At the end of last year, the company employed 3,121 people across seven locations world-wide.

Alexion has signed a lease at 121 Seaport in Boston, a building that is under construction, but which is expected to be ready in June, a company spokeswoman said.

No One Behind the Wheel



ALONG FOR THE RIDE: The Audi Aicon concept car was introduced Tuesday at the Frankfurt car show, where major car makers showcase their latest designs.

California Wants In on Emissions Talks

By MIKE SPECTOR

California officials, long advocates of strict clean-air regulations, said they have been sidelined in recent months from discussions between the Trump administration and auto makers angling for relief from fuel-economy demands.

The state's clean-air officials hold considerable sway in setting emissions standards, which have required auto makers to sell vehicles that get increasingly better mileage. California holds an Environmental Protection Agency waiver that allows the state to set its own tougher regulations, a standard many other states choose to follow.

California's Air Resources Board and other state officials were dismayed when the

Trump administration reopened a review of standards earlier this year and have vowed to fight changes. Gov. Jerry Brown in March called the administration's decision to reopen the emissions review "an unconscionable gift to polluters."

Since then, California officials have wondered openly about when they will join discussions about possible revisions. A Trump administration official contacted CARB Chairwoman Mary Nichols on Monday to discuss inclusion of the agency in future talks, a person familiar with the matter said.

California's rules makers were influential architects behind the regulations currently on the books, calling for a single national standard that

includes ambitious targets on reducing emissions and reliance on gasoline. They also want to spur electric-vehicle sales.

Auto makers want to tweak current regulations while keeping California on board, lest they face conflicting standards across state lines. The companies contend that complying with current standards will ultimately cost \$200 billion and potentially threaten sales and jobs.

CARB spokesman David Clegern had no immediate comment on the call made to Ms. Nichols this week. He has said the agency had "not been involved in discussions" aimed at rethinking U.S. rules.

The EPA review was undertaken with the Transportation Department as a way to ana-

lyze the feasibility of regulations first set in 2012 and reaffirmed in January by the Obama administration.

Those regulations, governing emissions and often expressed in mileage terms, expect auto makers to sell vehicles averaging roughly 50.8 miles a gallon, or 36 mpg in real-world driving, by 2025. The review faces an April deadline, affecting regulations set for as soon as 2021.

Getting California's buy-in is crucial as it and other states adopting its standards represent roughly 40% of the U.S. car market. New York's attorney general and other top state law-enforcement officials wrote to EPA Administrator Scott Pruitt earlier this year vowing to take the agency to court if U.S. standards are

weakened.

California lawmakers earlier this year enlisted former Obama administration Attorney General Eric Holder to fight potential legal battles.

Representatives of car companies have attended at least a dozen meetings with either White House or EPA officials in Washington to discuss their concerns with the current rules, said people familiar with the matter. The plan was to get a handle on auto makers' concerns first before hearing from California officials, and the intention wasn't to freeze the state out, this person said.

"We are happy to meet with any and all interested stakeholders, including states," an EPA spokeswoman said.

—John D. Stoll contributed to this article.

Sir Anthony Hopkins



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TECHNOLOGY

WSJ.com/Tech

Phone-Battery Maker Powers Up

After purchase of Sony unit, Japan's Murata sets course for capacity expansion

BY TAKASHI MOCHIZUKI

KYOTO, Japan—A new phone-battery push by one of Japan's biggest parts makers is likely to increase competition among the companies that power smartphones from Apple Inc. and Samsung Electronics Co.

Murata Manufacturing Co. on Sept. 1 completed its roughly \$160 million acquisition of Sony Corp.'s battery division, which introduced the first commercial lithium-ion battery a quarter-century ago. The parts maker's president, Tsuneo Murata, said he plans to boost capacity in hopes of luring "a North American customer," a phrase often used by Japanese suppliers in the sector when referring to Apple.

Tiny parts from Murata that control electricity flow, among other functions, are already found in most smartphones, including Apple's. In its annual supplier report, the iPhone maker lists 24 Murata factories, including 14 in Japan.

"We are already doing big business with a North American customer, and we believe their trust in us is high," Mr. Murata said during an interview Monday, ahead of Apple's introduction of its new iPhones Tuesday. "We will respond to such expectations by investing actively."

Murata has said it will spend more than ¥50 billion (\$457 million) over the next few years to beef up the newly



A Murata cheerleader robot. The company is already a supplier of parts for Apple's iPhone.

acquired battery unit, with about half of the sum going toward increasing production capacity for batteries used in smartphones and tablets.

Batteries can make or break a smartphone based on safety and their ability to pack a lot of charging power in a small space. Samsung had to pull its Galaxy Note 7 smartphone last year after consumer complaints that the phones caught fire.

The former Sony unit now owned by Murata is known for using a gel instead of a liquid in the part of the battery where charged particles flow. Mr. Murata said the battery drew greater interest from smartphone makers after the

Samsung incidents because the gel is viewed as safer, although it tends to reduce charging speed.

"The industry is paying more attention to the safety aspect of the battery instead of focusing on storing more energy in the same space," said Mr. Murata, the 66-year-old son of the company's founder.

In its push to win more Apple business, Murata faces competition from Amperex Technology Ltd., a Hong Kong-based unit of Japan's TDK Corp., as well as South Korea's LG Chem Ltd. Current iPhones, including those released Tuesday, use batteries from those two companies, people familiar with the supply chain. Samsung said in January

with the supply chain said.

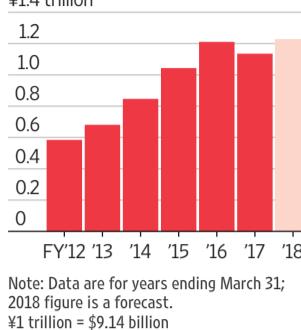
When it was part of Sony, the Murata battery unit occasionally supplied Apple for the iPhone but never became a major supplier, engineers at the unit said.

"When at Sony, the unit wasn't able to do business it could have done because of the capacity issue," Mr. Murata said. "We won't hesitate in making such investments."

Samsung had been using TDK batteries for some of its products, including the Galaxy Note 7, but switched to those made by the former Sony unit after last year's recall, said people familiar with the supply chain. Samsung said in January

Sales Call

The spread of smartphones has helped boost revenue for Murata Manufacturing.



Note: Data are for years ending March 31; 2018 figure is a forecast.

¥1 trillion = \$9.14 billion

Source: The company

THE WALL STREET JOURNAL

that the fire problem was caused by the battery pack and that no issues were found with the handset and its software. A TDK spokesman said the company can't comment on issues related to its customers.

Mr. Murata said capacity would start rising next year and he was willing to accelerate the \$457 million investment plan depending on market conditions. "Customers are demanding that we boost supply as soon as possible," he said.

The company has plenty of financial muscle: With annual sales of more than \$10 billion, Murata sports a market capitalization of about \$34 billion.

Still, Mr. Murata expressed caution about relying too heavily on smartphones. The company wants to reach new customers such as the makers of connected cars and power tools, he said. The company also says its batteries and systems could help homeowners store and use electricity generated by rooftop solar panels.

Microsoft Executive Joins Rival In China

By LIZA LIN

SHANGHAI—In a blow to Microsoft Corp., a top cloud-computing executive in China has been hired by JD.com Inc., the Chinese e-commerce company that is ramping up its cloud-services business.

Samuel Shen, a Microsoft veteran of 24 years and the former general manager of its cloud and enterprise business in China, took the job as president of JD.com's cloud unit, the Beijing-based company said in a statement Tuesday.

Mr. Shen has led Microsoft's China cloud service, known as Azure, since 2015. He was also chief operating officer at Microsoft's Asia-Pacific Research and Development Group, where he led Microsoft's development strategy in big data and the so-called Internet of Things.

Cloud platforms, which provide data storage, computing and networking resources over the internet, reduce the need for on-site servers.

Foreign companies such as Microsoft and Amazon.com Inc. provide services in China through joint ventures with local partners.

U.S. lawmakers have spoken out against draft rules, proposed by Beijing late last year, requiring companies to essentially transfer ownership and operations of their cloud services to Chinese partners.

China's market for cloud infrastructure as a service rose 68% to \$1.47 billion in 2016, according to industry researcher International Data Corp.

The cloud unit of Alibaba Group Holding Ltd. is China's biggest provider of these services with about 40% market share. Microsoft has about 5%, and JD's market share was too small to be ranked in a recent IDC survey.

Microsoft didn't respond to a request for comment on Tuesday. At a conference in Hong Kong in June, Microsoft's Greater China chairman, Alain Crozier, said its cloud business had been experiencing "very nice and very solid growth."

AT&T to Give Free HBO to More Wireless Users

BY DREW FITZGERALD

AT&T Inc. said it would offer free HBO service to more of its wireless subscribers, as video-streaming giveaways become the latest front in the fight for cellular customers.

On Tuesday, the cellphone giant said customers on its midmarket Unlimited Choice wireless plans will get HBO free of charge starting Friday. The company has offered free HBO to subscribers on its more

expensive Unlimited Plus plans since earlier this year.

"This is how we move down market," Chief Executive Randall Stephenson said at an industry conference, adding that any plan that keeps communications customers from leaving makes the overall business more profitable.

Rival T-Mobile US Inc. recently said it would provide free Netflix Inc. accounts to subscribers on its unlimited family data plans.

AT&T is promoting HBO content even as it waits for regulatory approval of its proposed takeover of Time Warner Inc., which owns HBO as well as CNN, sports-heavy Turner channels and movies from the Warner Bros. studio.

Mr. Stephenson said AT&T will run Time Warner's media business as a "self-contained" unit insulated from the needs of its new corporate parent.

"I know very little about running a media company,"

Mr. Stephenson said at the Goldman Sachs conference in New York.

The AT&T chief executive said he thinks the deal would yield a meaningful amount of new revenue from advertising.

The merged businesses should also be able to cut costs by combining information-technology operations and using data on viewing habits to choose what shows and movies to invest in next, he said.

AT&T's takeover of Time

Warner, valued at \$85 billion when it was launched last year, still needs approval from the U.S. Justice Department and regulators in Brazil.

Mr. Stephenson said the company hasn't encountered any surprises so far and still expects the transaction to close by year-end.

He also said he expects the company to be "well down the path" of building a new advertising platform in the coming months.

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BUSINESS NEWS

J.P. Morgan Appoints Lori Beer as New CIO

BY KIM S. NASH

J.P. Morgan Chase & Co. named Lori Beer as its global CIO, effective immediately. Ms. Beer, who was CIO of the corporate and investment bank unit, will succeed Dana Deasy, who plans to retire, according to an internal memo reviewed by The Wall Street Journal.

Mr. Deasy plans to join the boards of some technology companies that J.P. Morgan has partnered with or invested in, said the memo from CEO James Dimon. Ms. Beer inherits an IT organization of 40,000 members world-wide, with a budget of more than \$9 billion. She joined the bank in early 2014 from health-care company WellPoint Inc., now known as Anthem Inc., where she held senior positions for 15 years. A successor to Ms. Beer will be named shortly, Mr. Dimon said.

Mr. Deasy's nearly four-year stint at the bank ends a 30-year career in corporate IT. He had recently orchestrated a global technology overhaul that, in part, moved J.P. Morgan's 20,000 software developers to Agile development



J.P. Morgan Chase has appointed Lori Beer as its global chief information officer.

methods that emphasize breaking large projects into pieces that can be produced and refined quickly. The goal was to produce applications faster as the bank defends its position as the nation's largest by assets.

He also oversaw J.P. Mor-

gan's first use of public cloud technology early this year.

Mr. Deasy joined J.P. Morgan in late 2013 after serving as group CIO of BP PLC. He has also held CIO or senior IT positions at General Motors Co., Tyco International PLC and Rockwell International.

Global Ad Spending Forecasts Lowered

BY ALEXANDRA BRUELL

Media buying agencies Zenith and GroupM have lowered their expectations for global ad spending in 2017 and 2018 due to factors ranging from political uncertainty in the U.K. to slowing growth in China.

WPP's GroupM is expecting 3% global ad growth in 2017, down from the 4.4% it predicted last December.

Publicis Groupe's Zenith predicts global ad spending will grow 4.0% in 2017, reaching \$558 billion by the end of the year, according to the company's new report. That is down slightly from the 4.2% growth it forecast in June.

"Advertising expenditure grew ahead of the wider economy for the third consecutive year in 2016, but we expect it to fall behind over the next three years," Zenith said in its updated report.

In its latest earnings report, WPP blamed disappointing results and a grim outlook for 2017 on a steeper-than-expected slowdown in global ad spending by packaged-goods

The Chinese economy is slowing down after years of blistering growth.

firms, among other factors. In its updated ad forecast, the holding company's media agency group also indicated that a reduction in ad spending growth in China is partly to blame for the slowdown. Pivotal Research analyst Brian Wieser highlighted the drop in a note to investors. GroupM is predicting that ad spending in China will grow by 3.8% in 2017, compared with its previous expectations of 7.8%, according to the company's report. Zenith is predicting 6.9% growth in China, which is up from 6.6% it predicted in June and down from the 7.7% it expected in December, according to Mr. Wieser. "Multinational CPG names appeared to spend a lot less in China in 2016, but this is only TV and print, and tells us nothing about the migration to digital these advertisers surely make," GroupM said. Its China operation also attributes a slowdown in growth in the region to "a consumer pause, as evidenced by Kantar data; further TV regulation; and digital running out of room as it approaches 60% market share."

The Chinese economy "is slowing down after years of blistering growth, and the ad market is slowing alongside it," said Zenith in its report.

Banks Haggle Over Price of Research

BY MAX COLCHESTER
AND CHRISTOPHER WHITTALL

How much are investment research reports actually worth?

The answer: less than the banks that produce them think.

In Europe a tug of war is playing out between banks and asset managers over the value of research that floods investors' in-boxes every day urging them to buy or sell securities.

Currently, banks dole out reports to asset managers for free, hoping to recoup the cost through commissions on trading. But as of Jan. 3, this opaque pricing system will be altered in Europe. New rules mean asset managers will have to disclose how much they spend on research every year.

That means putting a price on research. And banks and asset managers aren't seeing eye to eye.

As the haggling gets under way, a price war has broken out. Earlier this year, banks were quoting Olivier de La-

rouzière, head of interest rates at Natixis Asset Management, an annual fee of as much as €300,000 (\$360,000) for his firm to have unfettered access to fixed-income research and meetings with analysts. Since then, most banks' prices have plummeted, he said, to around €70,000 on average, though some are still trying to charge about €150,000.

"The gap has clearly narrowed a lot," said Mr. de La-rouzière. But he still gets "very, very different proposals," he added.

Overall total spending on research and trading execution could fall by up to \$3 billion, according to consultancy Oliver Wyman.

Banks are increasingly at odds over the scope of research coverage to offer clients, and how much to charge for it. Some are still hoping to negotiate big fees into the millions of dollars a year with the biggest asset managers. Others are looking to give away some of their research reports for free.

Credit Suisse Group AG is

exploiting a loophole in the new regulations to offer some basic bond research free of charge online, according to a person familiar with the matter.

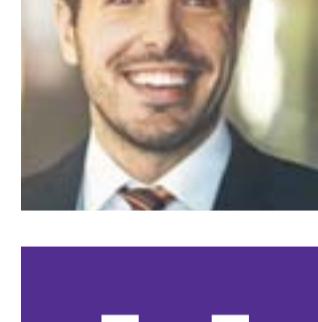
The Swiss bank hopes to make money by charging for access to analysts instead, this person said. Dutch bank ING Groep said it would be giving away some of its economics analysis for nothing, as a way to promote its brand.

For equity research, banks are hoping to charge a little more. J.P. Morgan Chase & Co. is toward the bottom of the pack, quoting basic access to read-only equity reports for \$10,000 a year, according to a person familiar with the matter, with prices steadily increasing for clients who want more face-time with top analysts.

At the other end of the scale, Barclays PLC is trying to price its research as a premium product, according to several clients.

Asset managers are working out how much of this research they actually want.

NEXT LEVEL



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CHINA'S NEXT TARGET: U.S. MICROCHIP HEGEMON

By Bob Davis and Eva Dou

Semiconductor industry, a stalwart of the global economy, is succumbing to fierce nationalism and competition

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TECHNOLOGY



The theater sits on a hill on the new \$5 billion Apple Park campus in Cupertino, Calif., and hosted Tuesday's product launch.

Steve Jobs Theater Debuts

BY CHRISTINA PASSARIELLO

CUPERTINO, Calif.—Apple Inc. on Tuesday accompanied its annual ritual of new product revelations with a different kind of unveiling, the first public look inside the Steve Jobs Theater on the technology giant's new campus.

Apple welcomed nearly 1,000 guests to the glass-walled auditorium named after Apple's co-founder at the \$5 billion Apple Park, which has been under construction for years. Work on the site reached a crescendo in recent months to ready it in time for the iPhone event, amping up anticipation for a product launch that is critical to Apple's future.

This year's event featured a pricier new smartphone dubbed the iPhone X with advanced new features to mark the product's 10th anniversary,

as well as two updated versions of last year's iPhone 7, a new version of the Apple Watch and other items.

In recent years, Apple hosted its September event in rented venues around the Bay Area because it had outgrown its longtime headquarters nearby Apple Park.

That drifting from its roots coincided with what some observers have called a period of relative stagnation in which Apple had no new breakthrough products, and made incremental changes to its cash-cow smartphone.

Apple hopes that centralizing its teams on the campus will lead to closer collaboration—and the iPhone event was the grand kickoff.

"We've been waiting for this for a long time," says Carolina Milanesi, an analyst with Creative Strategies who attended the Tuesday event.

"Will [the campus] make a difference to how Wall Street sees Apple? Of course not, but there is excitement and the atmosphere will be different."

The Steve Jobs Theater is situated on a hill on the new campus, overlooking the main ring building that is designed to house Apple's core divisions.

Outside, the smell of fertilizer mixed in with mulch permeated the air from the landscaping that has taken place this summer.

From the exterior, the theater's metallic carbon-fiber roof appears to levitate over the 20-foot-tall glass cylinder. The stage, seating and other exhibit space where guests can play with Apple's new devices all are located underground.

Steve Wozniak, who co-founded Apple with Mr. Jobs in the 1970s, was one of the guests Tuesday. His immediate

reaction was, "Wow, this is not normal," he said.

He said the design reflected Steve Jobs's Apple, capturing his design instincts.

Its primary use will be for product launches, said Dan Whisenhunt, Apple's head of real estate and development. It also will host seminar talks, small concerts and meetings led by Apple executives that can be simulcast everywhere on campus.

The last two September events have taken place at the Bill Graham Civic Auditorium in San Francisco, a larger space that allowed Apple to invite 2,000 people, including school groups. While the smaller Steve Jobs Theater means cutting the guest list in half, "this venue gets us back to the sweet spot," Mr. Whisenhunt said.

—Tripp Mickle contributed to this article.

Google to Protect Publisher Paywall

BY JACK NICAS
AND LUKAS I. ALPERT

Google Inc. is planning to end its "first click free" policy that enables users of its search engine to bypass paywalls on news websites, a move that could help publishers boost subscriptions, News Corp Chief Executive Robert Thomson said Tuesday.

Google for years has encouraged publishers to be part of the program, which allows search users to access a limited amount of content on subscription-based news sites free of charge. Some publishers say the policy has hurt subscription growth and say their sites are penalized in Google's search rankings if they don't participate in the program.

The Wall Street Journal, which is owned by News Corp, opted out of the program this year and saw its traffic from Google search fall 38% and from Google News fall 89% last month compared with a year earlier because its stories were demoted in search results, a spokesman said.

Now, Google is ready to end the first-click-free program and allow publishers to choose how users access their sites from its search results, Mr. Thomson said Tuesday at a media-business conference hosted by Goldman Sachs Group Inc. People familiar with the situation said Google will still enable subscription-oriented publishers to give search users a free sample of their stories if they choose to, but they won't be penalized if they don't.

"That will fundamentally change the content ecosystem, and not just for us but for many publishers. It will allow the creation of coherent, viable subscription models," Mr. Thomson said. "There's a lot more to negotiate, there's a long way to go, but their willingness to end first click free

should be celebrated by all publishers."

Google, a unit of Alphabet Inc., said in a statement, "We are always evaluating our policies but we don't have anything to announce at this stage."

Up to now, subscription-based sites that didn't participate in first click free have been disadvantaged in Google's search results, because its algorithm only scanned the portions of articles outside the paywall. Under its new approach, Google's technology will be scanning the full article, despite any paywalls, according to one of the people familiar with the situation.

It is unknown when Google's policy and technology changes will go into effect.

Under new approach, Google's technology will be scanning the full article.

Google's plans mark an apparent warming in its relationship with publishers, who have sparred with the tech giant at times over everything from its dominance in mobile advertising to what they perceive to be its role, along with Facebook Inc., in facilitating the spread of misinformation on the internet.

"At one stage I called Google a 'tapeworm in the intestines of the internet,'" said Mr. Thomson, who has been a leading critic, at the conference. "But actually things have changed."

Mr. Thomson and Google CEO Sundar Pichai had a breakthrough in their relationship in July at investment firm Allen & Co.'s annual exclusive media conference in Sun Valley, Idaho, a person familiar with the matter said.

FOWLER

Continued from page B1

Samsung has (temperamental) face and iris unlocking features, but it kept the fingerprint reader on the rear of the phone as a surefire backup.

How well does the face-unlock thing work? That will require some serious testing. In my brief postevent demo, Apple wouldn't let me register my own face. At least once, it missed the face of the Apple product rep. (In dark situations, the phone sends out a beam of light as well as an array of invisible dots to read your face.) And the whole process was slowed by a clunky design: After the phone recognizes your face, you have to swipe up from the bottom of the phone to get to your home screen.

In fact, there is a whole bunch of new finger yoga you will need to learn. To get to the control center, instead of swiping up from the bottom you now have to drag a finger from the top right corner. And since there is no home button, you swipe up from the bottom to get back to your home screen. It reminded me of Snapchat—and like it, I could see some people just wanting to opt out of the confusion.

Special Cameras, Special Effects

The reward for changing your muscle memory is, beyond the face-unlocking trick, a new way to think

about what you can do with a camera. Apple is now putting a lot of energy (and money) into opening up the world of augmented reality, which I agree has huge potential—even if its current applications are more goofy than serious.

The front-facing cameras, buried in the screen's funny notch, get the biggest boost. They include infrared sensors to map your face. You can take selfies with artfully blurred-out backgrounds. A new effect that Apple calls Portrait Lighting lets you create dramatic lighting on and around your subjects. One of the most compelling demos I saw placed my head,

live, in fun contexts, including the Millennium Falcon from "Star Wars."

In the feature that may best sum up 2017, you can turn your head into an animated singing and dancing emoji, called animoji. Yep, you can send your boo a personalized poo face.

The two back cameras are also improved over the iPhone 7 Plus, though less dramatically. The second lens, used for 2X telephoto shots, now has optical image stabilization that should make portraits and zoomed-in shots less blurry. The cameras are also now oriented vertically, which Apple says will help with future augmented reality apps.

New... and Improved?
I won't have all the answers until I review the phone, but here's my initial takeaway: With the iPhone X, Apple's best no longer looks like a three-year-old phone. (Apple's other new phone, the iPhone 8, still does.)

The face-unlocking trick is a strategy to make you feel like you're missing out if you don't have an iPhone X. The jury's still out on its security and effectiveness, let alone those fancy new camera tricks and the vast

future of augmented reality that has hit 11 on the buzz-o-meter. Nevertheless, the larger screen and improved battery life may be reason enough to satisfy even the more practically minded to contemplate an iPhone X.

Disney Is Holdout In Apple Movie Plan

Apple Inc. has signed new deals to sell movies in ultra-high-definition with every major Hollywood studio except the one with which it has long been closest: Walt Disney Co.

At an event Tuesday where he announced the new Apple TV 4K, the tech giant's head of software and services, Eddy Cue, said the device will offer Hollywood movies in the high-resolution format, called either 4K or UHD, for ultrahigh definition. Logos for most major studios briefly flashed on a screen behind Mr. Cue, including Time Warner Inc.'s

Forward Facing

Apple showed off three new phones, two of which are updates and the all-new iPhone X (pronounced 'ten') with edge-to-edge display, facial-ID technology and a dual-lens camera system.

iPhone X \$999-\$1,149	iPhone 8 Plus \$799-\$949	iPhone 8 \$699-\$849
5.8 inches	5.5 inches	4.7 inches
RESOLUTION	1920 x 1080	1344 x 750
CAMERA	12 MP (dual)	12 MP (dual)
STORAGE	64/256 GB	64/256 GB
WEIGHT	6.14 oz.	7.13 oz.
WIDTH	2.79 inches	3.07 inches
HEIGHT	5.65 inches	6.24 inches

Source: the company

THE WALL STREET JOURNAL

Warner Bros. and Comcast Corp.'s Universal Pictures.

Mr. Cue said those studios' movies will be available in UHD at the same price as high-definition movies. Participating studios have agreed to a maximum price of \$19.99 for 4K movies, currently the highest price for HD movies, according to a person with knowledge of the deal making. Apple had pushed studios not to raise film prices above that threshold.

An Apple spokesman didn't immediately respond to a request for comment.

The one absence from Apple's list of big studios selling movies in UHD is Disney. It wasn't immediately clear why the company behind "Star Wars" and Marvel

movies couldn't reach an arrangement with Apple. It sells its films in 4K on other digital stores, such as Wal-Mart Stores Inc.'s Vudu, for \$24.99.

A Disney spokesman declined to comment.

Disney's absence is particularly notable given a longstanding close relationship between the two companies. Disney Chief Executive Robert Iger is on Apple's board of directors and Disney was the first studio to sell television shows and movies on iTunes.

Some other Hollywood studios were concerned about the price for UHD movies being too low, which led to negotiations going down to the wire

—Ben Fritz



Eddy Cue announces the new Apple TV 4K.

Ancestry CEO Steps Down, IPO Is Delayed

BY BOWDEYA TWEH AND AUSTEN HUFFORD

Ancestry said it will delay plans to become a public company and that longtime Chief Executive Tim Sullivan will step down from his post Oct. 1.

Mr. Sullivan, who has served as CEO of the family history and consumer-genomics company since 2005, will become board chairman. Axios first reported about Mr. Sullivan stepping down and about the IPO delay.

Ancestry, which also operates the AncestryDNA testing service and websites such as Ancestry.com, Archives.com and Newspapers.com, said Tuesday that it would continue to evaluate the timing to complete an initial public offering.

The Utah-based company, which said it expects to generate more than \$1 billion of revenue this year, employs about 1,600 people.

The company, which originally published printed genealogy reference books and then its namesake online family database, has been working to expand the genetic-testing service since its launch in 2012. In recent years, genetic testing for family research has expanded as the cost of DNA tests have decreased.

In April, the Food and Drug Administration approved a consumer-genetic test for medical purposes from fellow genetic-testing company 23andMe Inc. On Tuesday, 23andMe said it had raised \$250 million in a new funding round led by Sequoia Capital.

Howard Hochhauser, Ancestry's chief financial officer since 2009 and chief operating officer since 2012, will become interim CEO as the company searches for a permanent successor.

The company, founded in 1983, said it has more than 2.6 million subscribers across its core websites and more than five million people in its AncestryDNA network.

THE PROPERTY REPORT



Storm damage to mobile homes in Naples, Fla. The state has the most such housing in the U.S.

Hit by Hurricane Irma, Florida owners face choice of repairing or walking away

BY NICOLE FRIEDMAN
AND LAURA KUSISTO

Some of the homes hardest hit by Hurricane Irma in Florida are also the least likely to be insured.

Florida has more mobile and manufactured homes than any other state. These homes, which are built in factories rather than directly onto a lot, often house low-income residents and seniors seeking cheaper housing for their retirement.

The homes are also less likely to be insured than many other types of homes, with the Florida Manufactured Housing Association estimating as many as 50% of the homes may lack insurance.

On Florida's west coast, J. Scott Rasbach left his mobile home in Largo over the weekend to wait out the storm with

his mother in her assisted-living facility a few blocks away.

Mr. Rasbach, 58 years old, doesn't have insurance on his mobile home, and said he bought a cheaper, older home with the plan to walk away if a storm ever hit. When he returned to his property on Tuesday, he found it unharmed, though other homes in his park were damaged and a few were totaled.

Because many of his neighbors don't have insurance, "a lot of the damage, people will be repairing themselves," Mr. Rasbach said. "The major damage, they'll just abandon."

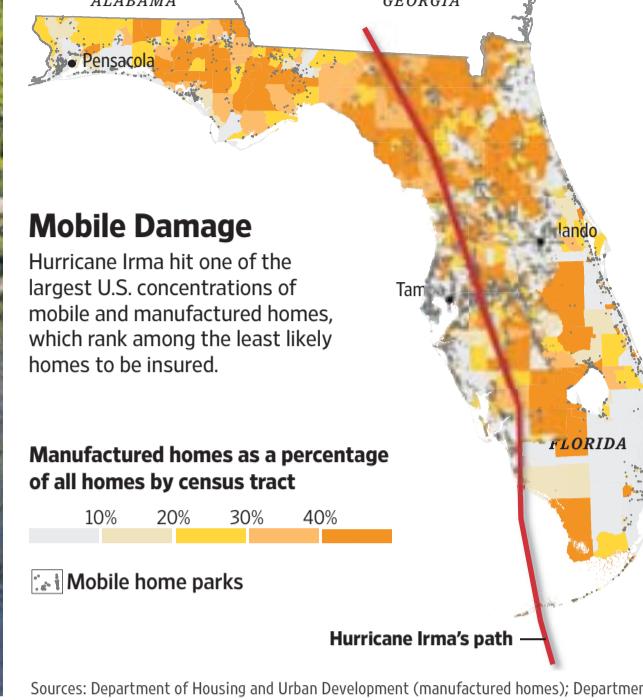
Like all homeowners' insurance, manufactured-housing insurance typically doesn't cover flooding. Most residential flood insurance is provided by the federal government's National Flood Insurance Program. Manufactured homes are eligible for NFIP insurance if they are affixed to a permanent foundation, according to the Insurance Information Institute.

Homeowners with mortgages are typically required to buy insurance, but many homeowners pay for their manufactured homes in cash. A new unit in a Florida manufactured home community costs \$66,391 on average, according to Datacomp/JLT, and a pre-owned home costs \$34,230 on average.

Insurers often offer "actual cash value" coverage for manufactured homes rather than replacement value, which sharply lowers the maximum amounts that insurers will pay out for damage, said Jim Ayotte, executive director of the FMHA.

The biggest writers of insurance for manufactured or mobile homes in Florida in 2016 were a subsidiary of **Assurant** Inc. called American Bankers Insurance Co. of Florida, state-run **Citizens Property Insurance** Corp. and **USAA**, according to ratings agency A.M. Best.

Also exposed to the disaster are several publicly traded manufactured-housing companies with large concentrations of homes in Florida, including Southfield, Mich.-based **Sun Communities** Inc. and Chi-



Sources: Department of Housing and Urban Development (manufactured homes); Department of Homeland Security (mobile home parks)

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Insurance Rare for Mobile Homes

cago-based **Equity Lifestyle Properties**. Both said most of their properties appear to have sustained minimal damage, such as trees being knocked over and minor flooding. An unanswered question is how their communities fared in the Florida Keys, where Hurricane Irma destroyed a quarter of the homes and badly damaged many more. Sun Communities owns five properties in the Keys and Equity Lifestyle owns two. Both said they have been unable to access to the area to assess the damage.

The peak season for these operators is in the winter, when retirees head south, so the storm is likely to have a modest impact on their bottom line as long as they can get the communities cleaned up in the coming months.

Historically, Florida hurricanes have hit manufactured housing especially hard. Hurricane Andrew in 1992 destroyed more than 90% of mobile homes in some areas, according to the National Hurricane Center. Manufactured

homes built before 1976 are the most vulnerable to hurricanes, and those built after 1994 are the least, due to stronger building standards.

Only about 25% of the roughly 830,000 manufactured homes in Florida were built after 1994, said Mr. Ayotte of the state association.

After Hurricanes Charley, Frances, Ivan and Jeanne in 2004, 12% of the manufactured housing affected by the storms was destroyed or not repairable, according to a Florida government assessment of 152 parks. But no homes built after 1994 were seriously damaged, the assessment said.

After Florida, the state with the second-most manufactured homes is Texas, where Hurricane Harvey caused widespread damage and flooding last month. The Federal Emergency Management Agency ordered about 4,500 manufactured-housing units after Harvey to help displaced people, and it could order more for Irma victims, said Patti Boerger, spokeswoman for the Manufactured Housing Institute.

CoStar Pushes Ahead In Rentals

BY PETER GRANT

CoStar Group Inc., one of the world's largest internet real-estate data companies, is purchasing **ForRent.com** in a \$385 million deal that shows the rental apartment listing business is becoming the latest battleground in online property services.

Washington, D.C.-based CoStar is buying ForRent.com as part of its plan to list "every single apartment in the U.S. being marketed, whether it's someone's garage apartment up to the largest institutional property," said Andrew Florence, CoStar's founder and chief executive, in an interview.

CoStar got into the business of hooking up landlords with apartment hunters in 2014 when it purchased Apartments.com for \$585 million. That deal added a new dimension to the company Mr. Florence founded in 1987, whose main business is providing commercial real-estate data services and a marketplace for sales of office buildings, shopping centers and other investment property.

CoStar's purchase of ForRent.com for \$350 million in cash and \$35 million in stock, expected to close later this year, will add scale to its apartment rental business, Mr. Florence said. Norfolk, Va.-based ForRent.com, which began listing apartments in 1982 with paper brochures, gets roughly eight million online visits a month and lists about 17,000 apartment communities, according to CoStar.

CoStar's Apartments.com lists more than one million apartments, including large rental communities and mom-and-pops who own as few as one rental unit. The Apartments.com network of apartment rental sites gets roughly 37 million visits a month, the company says.

The real-estate industry was relatively late to adopt online technology. But in recent years real-estate tech businesses have gotten much more attention from Wall Street and entrepreneurs. Looking for a home has been transformed by listing services like Zillow Inc. and Realtor.com, which is operated by News Corp, owner of The Wall Street Journal.

CoStar, which did an initial public offering in 1998 and last year reported \$838 million in revenue, dominates commercial real-estate information. Its database has four million properties, including more than 450,000 rental apartment buildings.

Landlords have listed apartments online for more than a decade, partly on sites developed by newspaper owners worried about their loss of traditional print ads.

In recent years, large investors such as CoStar and Zillow began to make big bets on the business. There are 46 million rental households, up from 35 million in 2004, according to CoStar.

The rental segment is now Zillow's fastest-expanding marketplace, according to remarks made by Chief Executive Spencer Rascoff during the company's second-quarter earnings call. He said the business expanded 64% year over year in the second quarter.

Rentals have gotten especially hot in the years following the housing bust as millennials and others have eschewed homeownership because of rising prices, difficulty obtaining mortgages and the perception that buying a home is risky.

Like other listing businesses, scale is critical in the apartment rental world because consumers gravitate to sites with the most listings, and owners want their offerings to be on the sites with the most traffic. That is why CoStar and other big players are building scale through acquisitions.

Mr. Florence predicted that the purchase of ForRent.com would increase CoStar's rental business's annual revenue to about \$400 million a year.

In Houston, Self-Storage Is in Hot Demand

BY ESTHER FUNG

Demand for self-storage space has surged in Houston with thousands of people displaced from their homes after Hurricane Harvey.

Storage operators, which typically rent units ranging from 5 feet by 5 feet to as large as 10 feet by 25 feet, often report stronger demand following a natural disaster as residents look for a place to keep belongings while they focus on rebuilding.

Life Storage Inc., which owns and operates 69 storage locations in Houston and Beaumont, Texas, said it saw a pickup in demand after the storm. The Buffalo, N.Y.-based real-estate investment trust said it already had a strong occupancy rate of about 92% in Houston before the hurricane, and it is now nearly full.

Still, the REIT said it would be keeping its rates and leasing incentives—including a free first month—unchanged and is doing the same in Florida after Hurricane Irma.

"We're not taking advantage of people because of their misfortune," said David Rogers, chief executive officer of Life Storage. Mr. Rogers said



CHRISTOPHER ALUKA BERRY/REUTERS

A woman waits to receive some help outside of her apartment building in Houston last week.

that in his experience with past hurricanes, the demand spike after the storm peters out after six to seven months.

Overall, Houston had a vacancy rate of 11.2% in the second quarter in the self-storage sector, up from 10.6% at the end of 2016. Before Harvey,

the rate was projected to rise to 12.2% by the end of 2017, according to data from property researcher REIS Inc.

That projection might

change if developers pull back on construction plans following the storm, said Barbara Denham, an economist at REIS. Houston has a total of roughly 281,000 self-storage units valued at \$8.4 billion.

Before Harvey, self-storage companies had been engaged in aggressive price competition, with incentives such as one-month free rent commonplace.

These landlords will benefit

from an uptick in demand in the short term, but given the pressure not to be seen as price gougers, the potential upside is capped.

The largest storage REIT by assets, **Public Storage**, is offering new customers in Houston \$1 rent for the first month and up to 15% off in monthly rents for online reservations for selected units, according to its website.

The Glendale, Calif.-based

REIT has reopened 115 properties covering 8.5 million square feet of rentable space and opened its 116th building in Houston last week. It anticipates having to demolish and rebuild seven properties severely affected by Hurricane Harvey.

Public Storage on Sunday announced that it has temporarily closed all 284 of its properties in Florida and nine in South Carolina and Georgia for the safety of its customers and staff. The REIT didn't respond to requests for comment.

In Houston, investors hope that an oversupply of office, apartment and self-storage space could be mopped up by displaced residents and companies in the wake of Harvey.

Property brokers in the office sector, which had suffered from vacancy rates as high as 18.8% amid problems in the energy industry in recent years, say they are fielding requests from companies looking for temporary office space.

"The increased demand right now is a sugar high, as most of the need is for less than six months," said Kevin Roberts, Southwest president at Houston-based **Transwestern Commercial Services LLC**.

Developer Makes a Bet on Affordable Housing

BY KEIKO MORRIS

New York developer Jonathan F.P. Rose, founder and president of **Jonathan Rose Cos.**, has raised a \$233 million real-estate fund dedicated to affordable housing, the company's largest such fund in a sector drawing more attention from investors.

The fund, which will acquire, improve and preserve affordable-housing properties, has secured commitments from about 125 investors, including the **Ford Foundation**, **Deutsche Bank AG's** Community Development Finance Group and an affiliate of Nuveen, the asset-management arm of financial-services company **TIAA**, according to Jonathan Rose

Cos. They were joined by other high net-worth individuals and family offices, pension funds, banks and nonprofit foundations, the company said.

One of affordable housing's biggest lures: steady income. After a seven-year luxury-apartment boom across the U.S., a surge in supply has slowed rental growth and pushed landlords to make deep concessions. Enormous demand for low-rent apartments continues to outstrip supply in cities across the country, making these investments low risk, said Mr. Rose. He estimates that about 65,000 affordable units are built each year in the U.S., but 150,000 units are lost every year to buyers raising rents.

Government programs to preserve housing offer tax subsidies and credits that also help lower costs.

That holds appeal for investors looking to remain invested in real estate without increasing their exposure to assets that might be richly priced. Developers looking to buy affordable properties without rental restrictions and boost rents also are entering the sector and cranking up competition.

In the affordable rental-housing market, properties are priced within the range of low- to moderate-income tenants, real-estate executives in the sector said.

Rents at many of these properties are kept affordable

for a certain time because of government incentive programs providing tax abatements, tax credits and rental subsidies. Some, however, are affordable without restrictions.

In some markets such as New York City, a supply surge has helped keep a lid on luxury rental prices, pushing some investors toward affordable-housing properties. Luxury condominiums bought as investments to be rented have exacerbated the situation, adding to the high-end rental supply and putting downward pressure on rents, said Bob Knakal, chairman of investment sales at real-estate services firm Cushman & Wakefield.

Despite growing rent restrictions, some investors are

turning toward affordable-housing investments out of necessity, Mr. Knakal said.

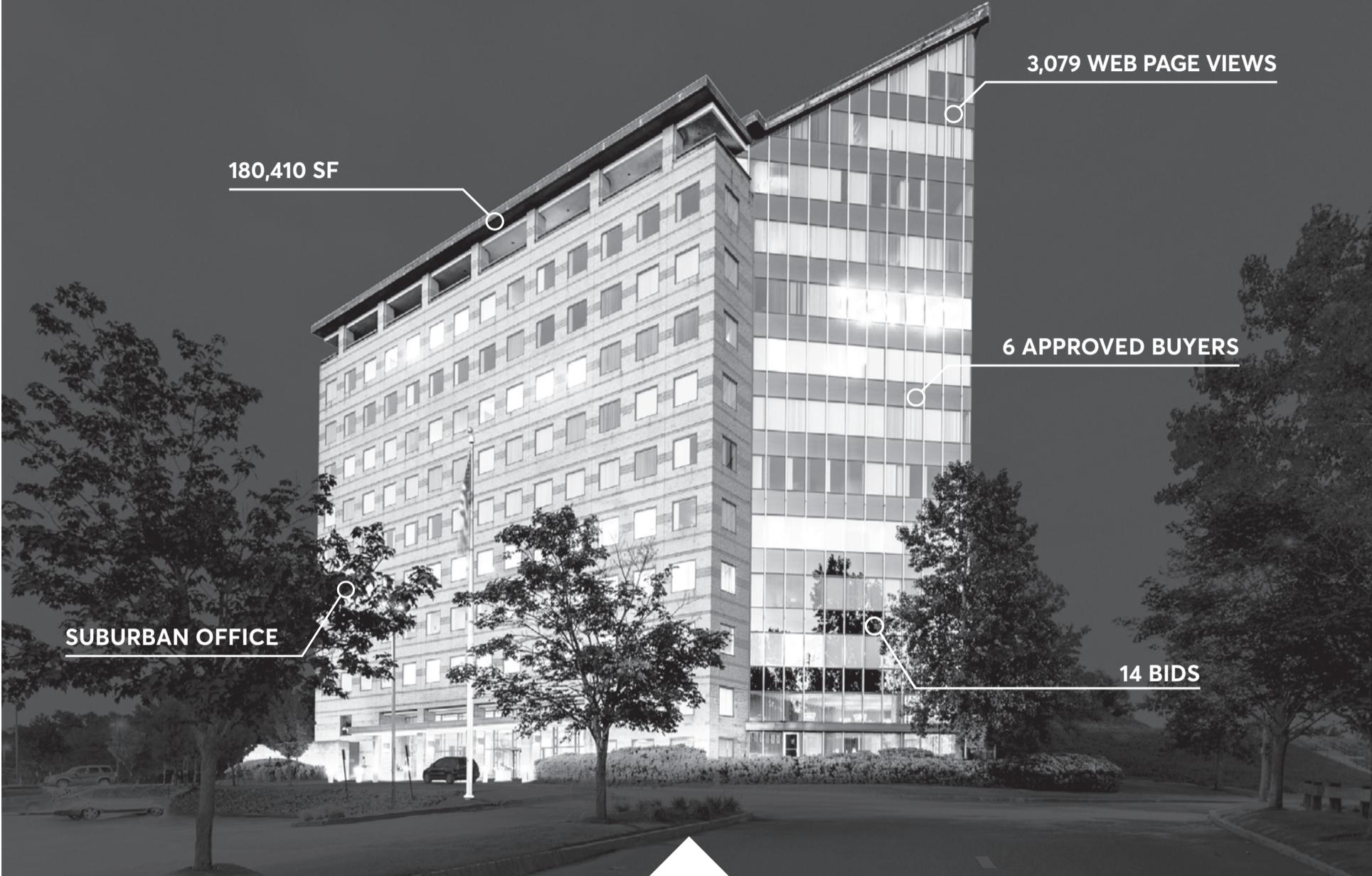
"They can still make some return, and it is the lowest risk of all property types because it's so easy to find people who want to live in those apartments," Mr. Knakal said.

The new fund, called the Rose Housing Preservation Fund IV LP, is well-positioned to compete with those other potential buyers because of the company's decades of experience and deep knowledge of the affordable-housing financial and regulatory world, Mr. Rose said.

As of July, the fund, which closed at the end of August, had made more than \$64 million in equity investments.

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BUSINESS NEWS

U.K. Slows Fox's Sky Deal

By STU WOO

LONDON—The U.K. government referred **21st Century Fox** Inc.'s \$15.5 billion proposal to consolidate ownership of **Sky** PLC to British antitrust regulators and said it likely would have them also review Fox's commitment to the country's broadcasting standards.

British Culture Secretary Karen Bradley said Tuesday she was acting partly out of concern about corporate governance at 21st Century Fox, highlighted by a series of sexual-harassment scandals at the media company's Fox News unit.

She also said Fox had been found to lack proper broadcast-compliance procedures related to transmissions of Fox News in the U.K. until regulators raised the issue.

Ms. Bradley said regulators may also want to review whether Fox is committed to British broadcasting standards, amid what third-party critics of the deal have said is Fox News' partisanship in the U.S. The review will last for six months.

The government's move to widen the review represents a new hurdle in media mogul Rupert Murdoch's yearslong bid to solidify control of British pay-TV giant Sky and further integrate his global media empire.

"We are disappointed by this further delay and that the [culture secretary] is now minded to refer the proposed acquisition to [antitrust regulators] in relation to broadcasting standards despite Ofcom, as the independent broadcast regulator, maintaining its advice that there are not sufficient concerns to justify such a reference," a Sky spokesman said, adding that Sky would cooperate with Ms. Bradley.

21st Century Fox in a statement noted that the company and Sky "have records of com-



British Culture Secretary Karen Bradley cited concerns over corporate governance in her decision.

pliance consistent with other comparable license holders," and said it was "surprised" that Ms. Bradley was "still unable to form an opinion."

Ms. Bradley had previously said she was likely to refer the proposed merger to the country's Competition and Markets Authority on so-called media plurality grounds. The deal had already passed muster with European Union antitrust regulators.

Mr. Murdoch and his family are major shareholders of both Fox and News Corp, which owns a number of British newspapers such as the Times of London, the Sunday Times and the Sun, the U.K.'s best-selling tabloid. Fox already owns 39% of Sky. It is seeking to buy the other 61% for £1.7 billion (\$15.4 billion). News Corp also owns The Wall Street Journal.

Ms. Bradley said Tuesday she decided to ask the CMA to review the merger on plurality grounds, but also said she was now "minded to" refer the deal to the same regulator for a different reason: to determine whether Fox held a "genuine commitment to broadcasting

standards." The "minded to" characterization is used by the government to signal an official intention, but it isn't binding.

Ofcom, Britain's media regulator, had previously recommended against a referral based on adherence to British broadcasting codes, including rules for TV content and considerations like fairness and privacy.

The culture secretary specifically cited a determination made earlier this year by Ofcom that Fox didn't have adequate compliance procedures in place to broadcast Fox News in the U.K. until after regulators raised the issue. At the time, Fox said it was "pleased that Ofcom recognizes that Sky, under full 21st Century Fox ownership, would remain a fit and proper holder of broadcast licenses."

Ofcom didn't specify which procedures were lacking. Fox last month stopped broadcasting Fox News in the U.K., citing low viewership.

Ms. Bradley also cited questions of corporate governance in the wake of the sexual-harassment scandals at Fox News.

The unit's top executive, Roger Ailes, resigned last year as chairman amid a company probe related to multiple sexual-harassment claims against him. Mr. Ailes, who died earlier this year, denied any wrongdoing.

21st Century Fox has said the company had no knowledge of sexual-harassment allegations against Mr. Ailes or settlements of those complaints until former Fox News anchor Gretchen Carlson filed a lawsuit against Mr. Ailes.

Former Fox News anchor Bill O'Reilly left earlier this year after sexual-harassment allegations were made against him. He has denied those allegations.

At the time of his exit, 21st Century Fox said the company and Mr. O'Reilly agreed he wouldn't return to the cable news network "after a thorough and careful review of the allegations."

In addition, U.S. authorities are probing whether Fox violated securities laws in its handling and disclosure of sexual-harassment settlements. Fox has said it is cooperating with the probe.

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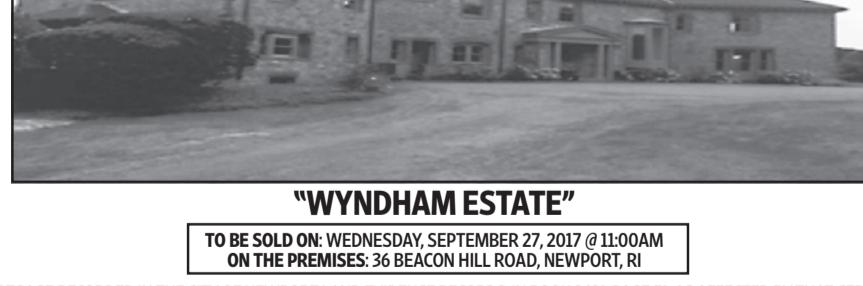
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MANAGEMENT

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Optimistic Gen Z
Is On the Job Now

As the postmillennial smartphone generation begins joining the workforce, bosses would be wise to prepare for young technophiles with an inclusive view of the workplace and a hunger for employers whose values reflect their own.

That is according to a new survey conducted in July by EY at the International Intern Leadership Conference, the business consultancy's annual gathering of interns. The survey of 1,600 Generation Z respondents, born in the mid-1990s or later, aimed to gauge the group's perspective on the future of work, said Larry Nash, the company's U.S. recruiting leader.

The survey's findings suggest the cohort places a priority on "building something better and leaving something better for future generations," Mr. Nash said. "They want to have a purpose in their work."

Gen Z's optimism has been reflected in other surveys. This year **Goldman Sachs Group Inc.** surveyed 1,700 of its summer interns and found the vast majority planned to get married or form domestic partnerships and have children. Some 83% also expected to buy a house by the time they were 40 and 63% planned to buy a car by age 30.

The consulting firm BridgeWorks estimates that Gen Z accounts for 61 million people in the U.S.

Mr. Nash said managers intent on attracting and retaining these young workers should find ways to take advantage of their talents and understand their career values.

Generation Z's inclusiveness is an asset employers can leverage, Mr. Nash said. More than three-quarters of those surveyed said their ability to work well with people from different backgrounds and cultures set them apart from older workers.

These young workers seek out employers with similar values and opportunities to make a difference in their work, Mr. Nash said.

Mr. Nash suggested providing these young workers with the opportunity to give back to their communities and use their skills in a philanthropic way. Some 27% of respondents assigned priority to devoting time to their communities when looking for an employer, according to the survey.

An affinity for technology is another Generation Z trait.

—Francesca Fontana

VW Chief Contends With Scandal

Matthias Müller says he is trying to accelerate change at the auto maker

BY WILLIAM BOSTON

WOLFSBURG, Germany— Almost two years after U.S. authorities said **Volkswagen AG** had been cheating for a decade on emissions tests, Chief Executive Matthias Müller urges workers at a town-hall meeting to be ready for rapid shifts in the auto industry.

"But how can you make sure that the leading executives change?" asks one of the 300-odd employees attending the event.

"You're asking the hardest question," Mr. Müller responds.

Since becoming CEO in September 2015, the former Porsche boss estimates he has spent as much time managing the emissions-cheating crisis as managing the business.

In the U.S. alone, the affair has cost the company nearly \$25 billion in fines, penalties and compensation, and litigation in other countries is expected to drag on for a decade.

The company pleaded guilty to criminal charges in the matter, and two Volkswagen employees in the U.S. have pleaded guilty to conspiracy to defraud the U.S. government and to violate U.S. environmental law.

One has been sentenced to just over three years in prison, and another awaits sentencing.

In an interview, Mr. Müller, 64 years old, talked about managing the emissions crisis, new competition, and shifting political winds.

Edited excerpts:

The Wall Street Journal: It's been two years since the al-

legations were made public. How would you grade VW's progress so far?

Mr. Müller: There is still litigation that hasn't been resolved yet.

We've reached agreements with the U.S. We have agreements with England, South Korea, the Germans and Europeans. Overall, I think we managed the process well.

WSJ: When it comes to changing VW's corporate culture, how far have you come?

Mr. Müller: That's very hard to quantify. We now have board responsibility for legal [compliance] and integrity. We've changed a lot of processes, not just technical but also organizational.

I'd like to see an acceleration of the pace of change because such a large organization is sluggish.

WSJ: Before the scandal, your name was discussed for the CEO's job. What was

'The company is not criminal as a whole. Parts ... engaged in criminal behavior.'

your thought process as you were asked to leave Porsche and take up the reins at VW during the company's worst crisis?

Mr. Müller: The whole thing happened within 48 hours. But what do you do? You have to decide, and the choice was to remain in my comfort zone at Porsche and enjoy the next five years or try to help this company.

Edited excerpts:

The Wall Street Journal: It's been two years since the al-



WSJ: Given how many people were involved in the conspiracy, how have you come to a place where you can trust your executives and employees?

Mr. Müller: We could do a better job, but there is really only one answer: We have to engage people more in dialogue. We've made changes. If there is a new board-level position, for example, now there is a compliance check.

This way we can be sure that a candidate is above all suspicion.

WSJ: You are a consummate insider, but your job requires that you approach VW as an outsider. How do you do that?

Mr. Müller: I'd like to presume that I am a person of integrity. [From my time at] Porsche, I know the company very well. On the other hand, I have enough distance to resolve problems objectively.

Revolution carries the big risk that the company goes to the dogs. Evolutionary change may take longer, but the risk of failure is smaller.

WSJ: With Brexit and

"America first," is globalization at risk?

Mr. Müller: The prosperity that we enjoy, at least in the developed countries, is a result of globalization. The challenge is to ensure that the less-developed countries also benefit.

Going backward into isolation, which is the intention of Brexit, is certainly the wrong way to go.

WSJ: Fast forward to the end of your contract in 2020. If you were to leave then, what's the state of the company your successor would inherit?

Mr. Müller: It should be a company that has largely dealt with the diesel crisis. [The scandal involved evasion of emissions requirements for diesel-powered vehicles.]

There will still be litigation; that will probably take 10 years or so. The operating issues should be dealt with.

It should be a very successful company in a position to secure its core workforce and play a leading role in the new mobility field.

BUSINESS WATCH

UBER TECHNOLOGIES

Head Lawyer to Exit Amid Changes at Top

The top lawyer at **Uber Technologies Inc.** plans to depart the company as it faces three federal investigations into its operations and welcomes a new chief executive.

Salle Yoo, who joined Uber as its first general counsel in 2012 and held the role until being promoted to chief legal officer earlier this year, plans to step down from the company as soon as it hires a new general counsel, she said Tuesday in an email to staff.

"Last spring I began considering a future beyond Uber," Ms. Yoo said in the memo, which was reviewed by The Wall Street Journal. "I've spent over five years at this company, and while it's been the most exhilarating experience of my life, it's also incredibly hard work." Ms. Yoo didn't respond to a request for comment.

Her departure adds to the urgency Chief Executive Dara

Khosrowshahi faces in replenishing Uber's executive ranks. In addition to its search for a new general counsel, Uber is seeking to hire chiefs of finance, operations and marketing, as well as a new independent chairman.

The Information website previously reported Ms. Yoo's plans to resign.

—Douglas MacMillan and Greg Bensinger

CENTENE

Deal Reached For Fidelis Care

Continuing its rapid expansion, **Centene Corp.** said it would take over nonprofit insurer **Fidelis Care** in a \$3.75 billion deal, vaulting the company to a leading position in the New York Medicaid market.

The acquisition announced Tuesday would give Centene, already a giant in the Medicaid managed-care business, more than 1.6 million members in New York. In the first half of the year, Fidelis Care generated \$4.8 bil-

lion in revenue, Centene said Tuesday, and Fidelis Care said its operations have been profitable.

—Anna Wilde Mathews and Maria Armenta

CATERPILLAR

CEO Calls Capacity Sufficient After Cuts

Caterpillar Inc.'s CEO, Jim Umpleby, says the heavy-equipment maker's manufacturing capacity is "sufficient for the foreseeable future," after a reduction of its factory footprint of about 25%.

Caterpillar closed more than 30 facilities and slashed its workforce by about 16,000 employees between late 2015 and the end of 2016.

Mr. Umpleby, speaking at an investor presentation in Arizona, laid out how he said CAT was positioned to run leaner and focus on profitable growth.

In an interview, Mr. Umpleby said some suppliers have had issues ramping up to meet increasing demand, but not Caterpillar.

—Andrew Tangel

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The acquisition announced Tuesday would give Centene, already a giant in the Medicaid managed-care business, more than 1.6 million members in New York. In the first half of the year, Fidelis Care generated \$4.8 bil-

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A Caterpillar bulldozer pushing raw coal at a coal mine near Wylo, West Virginia, in August.

MARKETS DIGEST

EQUITIES

Dow Jones Industrial Average

22118.86 ▲ 61.49, or 0.28%
High, low, open and close for each trading day of the past three months.



Bars measure the point change from session's open

Weekly P/E data based on as-reported earnings from Birinyi Associates Inc.

S&P 500 Index

2496.48 ▲ 8.37, or 0.34%
High, low, open and close for each trading day of the past three months.



Nasdaq Composite Index

6454.28 ▲ 22.02, or 0.34%
High, low, open and close for each trading day of the past three months.



Major U.S. Stock-Market Indexes

	Dow Jones		Latest		52-Week		YTD		% chg	
	High	Low	Close	Net chg	% chg	High	Low	% chg	3-yr. ann.	
Industrial Average	22134.57	22087.09	22118.86	61.49	▲ 0.28%	22118.86	17888.28	22.4	11.9	9.2
Transportation Avg	9550.61	9477.30	9544.55	60.86	▲ 0.64%	9742.76	7755.40	22.8	5.5	3.7
Utility Average	754.07	737.99	742.12	-12.68	-1.68	754.80	625.44	12.6	12.5	10.5
Total Stock Market	25821.35	25751.72	25819.08	97.42	▲ 0.38%	25819.08	21514.15	17.3	10.9	7.6
Barron's 400	653.02	649.66	653.01	4.91	▲ 0.76%	661.93	521.59	20.6	8.5	6.9

Nasdaq Stock Market

Nasdaq Composite	6455.02	6429.54	6454.28	22.02	▲ 0.34%	6454.28	5046.37	25.2	19.9	12.2
Nasdaq 100	6002.97	5968.09	5995.64	15.11	▲ 0.25%	5995.64	4660.46	26.9	23.3	13.8

Standard & Poor's

500 Index	2496.77	2490.37	2496.48	8.37	▲ 0.34%	2496.48	2085.18	17.4	11.5	7.9
MidCap 400	1751.29	1742.16	1751.25	12.23	▲ 0.70%	1791.93	1476.68	15.4	5.5	7.2
SmallCap 600	854.15	849.14	853.91	6.18	▲ 0.73%	876.06	703.64	16.2	1.9	8.7

Other Indexes

Russell 2000	1423.93	1415.18	1423.46	8.64	▲ 0.61%	1450.39	1156.89	17.4	4.9	7.0
NYSE Composite	12061.05	12028.71	12057.12	46.85	▲ 0.39%	12057.12	10289.35	14.4	9.0	3.4
Value Line	524.00	520.18	523.64	3.46	▲ 0.67%	533.62	455.65	11.1	3.5	1.7
NYSE Arca Biotech	4209.69	4172.08	4209.69	5.78	▲ 0.14%	4232.90	2834.14	25.3	36.9	11.0
NYSE Arca Pharma	549.36	546.38	548.46	2.70	▲ 0.49%	549.20	463.78	6.3	13.9	1.2
KBW Bank	93.90	92.30	93.51	1.51	▲ 1.64%	99.33	69.71	31.6	1.9	8.8
PHLX® Gold/Silver	90.46	88.95	90.20	0.60	▲ 0.66%	99.20	73.03	-2.2	14.4	-0.5
PHLX® Oil Service	130.59	126.48	129.52	2.94	▲ 2.33%	192.66	117.79	-14.1	-29.5	-22.7
PHLX® Semiconductor	1123.11	1113.57	1120.20	4.74	▲ 0.42%	1138.25	776.73	44.2	23.6	20.5
CBOE Volatility	10.95	10.29	10.58	-0.15	-1.40%	22.51	9.36	-40.7	-24.6	-7.4

\$Philadelphia Stock Exchange

Percentage Gainers...

Company	Symbol	Volume (000)	Last	Net chg	% chg	After Hours	High	Low
iShares MSCI Emg Markets	EEM	6,812.2	45.44	...	unch.	45.46	45.40	
SPDR S&P 500	SPY	6,705.3	250.14	0.09	0.04	250.19	249.80	
Allscripts Healthcare	MDRX	6,234.9	13.72	0.002	0.01	13.72	13.72	
General Electric	GE	4,797.6	23.97	0.06	0.25	23.97	23.73	
Van Eck Vectors Gold Miner	GDX	3,438.8	24.68	0.01	0.04	24.69	24.65	
PwrShrs QQQ Tr Series 1	QQQ	2,925.0	146.27	0.05	0.03	146.36	146.01	
iShares Russell 2000 ETF	IWM	2,578.7	141.66	0.12	0.08	141.66	140.71	
iShares MSCI Brazil Cap	EWZ	2,134.5	42.21	-0.16	-0.38	42.86	42.21	

Late Trading

Most-active and biggest movers among NYSE, NYSE Arca, NYSE Amer. and Nasdaq issues from 4 p.m. to 6:30 p.m. ET as reported by electronic trading services, securities dealers and regional exchanges. Minimum share price of \$2 and minimum after-hours volume of 5,000 shares.

Most-active issues in late trading

Company	Symbol	Volume (000)	Last	Net chg	% chg	After Hours	High	Low
iShares MSCI Emg Markets	EEM	6,812.2	45.44	...	unch.	45.46	45.40	
SPDR S&P 500	SPY	6,705.3	250.14	0.09	0.04	250.19	249.80	
Allscripts Healthcare	MDRX	6,234.9	13.72	0.002	0.01	13.72	13.72	
General Electric	GE	4,797.6	23.97	0.06	0.25	23.97	23.73	
Van Eck Vectors Gold Miner	GDX	3,438.8	24.68	0.01	0.04	24.69	24.65	
PwrShrs QQQ Tr Series 1	QQQ	2,925.0	146.27	0.05	0.03	146.36	146.01	
iShares Russell 2000 ETF	IWM	2,578.7	141.66	0.12	0.08	141.66	140.71	
iShares MSCI Brazil Cap	EWZ	2,134.5	42.21	-0.16				

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.	3.0525	3.0525	3.0005	3.0155 -0.0305	3,858	
Sept	3.0525	3.0525	3.0005	3.0155 -0.0305	211,857		
Dec	3.0710	3.0750	3.0190	3.0360 -0.0300			
Gold (CMX)	-100 troy oz.; \$ per troy oz.	1327.00	1327.00	1325.20	1328.00 -3.00	820	
Sept	1327.00	1327.00	1325.20	1328.00 -3.00	41,494		
Oct	1328.30	1323.20	1322.90	1328.80 -3.00	41,494		
Dec	1331.70	1336.30	1326.70	1332.70 -3.00	451,372		
Feb'18	1337.30	1340.20	1331.00	1336.80 -3.00	36,753		
June	1344.90	1347.40	1339.60	1344.40 -3.10	9,325		
Dec	1353.30	1358.70	1352.70	1355.90 -3.40	9,784		
Palladium (NYM)	-50 troy oz.; \$ per troy oz.	936.00	955.85	936.00	949.05 11.75	20	
Sept	936.00	955.85	936.00	949.05 11.75	32,298		
Dec	930.15	953.00	929.10	943.40 11.75	996		
Platinum (NYM)	-50 troy oz.; \$ per troy oz.	129.60	94.00	929.60	938.75 11.60	996	
Sept	986.00	987.00	985.90	985.60 -12.30	1		
Oct	993.80	994.50	983.60	986.50 -12.30	62,856		
Silver (CMX)	-5,000 troy oz.; \$ per troy oz.	17.7885	17.7975	17.7885	17.8900 -0.012	160,530	
Crude Oil, Light Sweet (NYM)	-1,000 bbls.; \$ per bbl.	48.12	48.44	47.73	48.23 0.16	332,807	
Oct	48.12	48.44	47.73	48.23 0.16	384,200		
Nov	48.71	48.96	48.28	48.75 0.13	337,695		
Dec	49.13	49.40	48.72	49.17 0.10	337,695		
Jan'18	49.45	49.70	49.05	49.48 0.06	196,072		
June	50.07	50.40	49.84	50.20 0.02	174,737		
Dec	50.25	50.56	50.05	50.38 0.03	204,650		
NY Harbor ULSD (NYM)	-42,000 gal.; \$ per gal.	1.7428	1.7479	1.7240	1.7406 -0.0021	95,588	
Oct	1.7428	1.7479	1.7240	1.7406 -0.0021	88,762		
Gasoline-NY RBOB (NYM)	-42,000 gal.; \$ per gal.	1.7330	1.7407	1.7171	1.7344 0.0010		
Oct	1.7330	1.7407	1.7171	1.7344 0.0010			
Coal, CapLC, 1,250,000 Btu, 1,2502-R	\$5.250	5.250	5.250	5.250 0.00			
Coal, PwdrRvrBsn, 880,000 Btu, 0.8502-R	11.500	11.500	11.500	11.500 0.00			

Contract

Open	High	Low	Settle	Chg	Open interest	
Corn (CBT)	-5,000 bu.; cents per bu.	346.00	346.00	336.00	340.00 -5.50	803
Sept	346.00	346.00	336.00	340.00 -5.50		
Dec	357.00	357.25	345.50	351.50 -6.00	799,012	
Oats (CBT)	-5,000 bu.; cents per bu.	233.75	233.75	233.75	235.50 ...	3
Sept	233.75	233.75	233.75	235.50 ...		
Dec	235.00	238.75	232.75	234.25 ...	4,470	
Soybeans (CBT)	-5,000 bu.; cents per bu.	955.25	955.25	937.50	944.25 -10.50	59
Sept	955.25	955.25	937.50	944.25 -10.50		
Dec	960.75	965.50	937.50	950.50 -9.50	369,304	
Soybean Meal (CBT)	-100 tons; \$ per ton.	299.30	299.30	292.80	295.10 -3.80	226
Sept	299.30	299.30	292.80	295.10 -3.80		
Dec	303.90	304.40	296.40	300.00 -3.60	187,689	
Rough Rice (CBT)	-2,000 cwt.; \$ per cwt.	34.79	34.87	34.61	34.84 .05	678
Sept	34.79	34.87	34.61	34.84 .05		
Dec	35.16	35.42	34.66	35.19 .04	215,185	
Wheat (CBT)	-5,000 bu.; cents per bu.	1241.00	1241.00	1269.50	1295.00 29.50	90
Sept	1241.00	1241.00	1269.50	1295.00 29.50		
Dec	1266.00	1269.00	1263.50	1295.00 29.50	9,514	
Wheat (CBT)	-5,000 bu.; cents per bu.	415.00	418.75	415.00	419.50 7.25	33
Sept	415.00	418.75	415.00	419.50 7.25		
Dec	434.00	433.75	428.25	442.00 7.25	261,814	
Wheat (CBT)	-5,000 bu.; cents per bu.	626.25	626.25	626.25	626.25 ...	6
Sept	626.25	626.25	626.25	626.25 ...		
Dec	643.50	647.75	626.75	641.75 -.50	42,917	
Wheat (MPLS)	-5,000 bu.; cents per bu.	24.67	24.67	24.67	24.75 .08	1,297
Sept	24.67	24.67	24.67	24.75 .08		
Dec	25.00	25.00	24.67	25.15 .08	1,297	
Hogs-Lean (CME)	-40,000 lbs.; cents per lb.	60.72	60.925	59.25	59.450 -2.125	78,359
Oct	60.72	60.925	59.25	59.450 -2.125		
Dec	57.900	58.100	57.025	57.100 -1.525	82,032	
Lumber (CME)	-11,000 bd ft.; \$ per 1,000 bd ft.	394.30	397.30	389.80	395.00 3.20	210
Sept	394.30	397.30	389.80	395.00 3.20		
Dec	375.40	379.30	372.10	376.10 -2.00	4,266	

Agriculture Futures

Open	High	hilo	Low	Settle	Chg	Open interest
Soybeans, No.1 yellw IL-bp,u						9,210
Wheat, Spring 14%-pro Mnpls-u						7,192
Wheat, No.2 soft red St.Louis-bp,u						4,250
Wheat - Hard - KC (USDA) \$ per bu-bu						3,7375
Wheat, No.1 soft white,Portland,OR-u						5,0500
Beef, carcass equiv. index						166.09
choice 1-3,600-900 lbs.-u						164.21
select 1-3,600-900 lbs.-u						164.21
Broilers, dressed 'A'-u						n.a.
Broilers, National comp wghtd-u.w						0.8976
Butter, AA Chicago						2,4275
Cheddar cheese, bb,Chicago						157.00
Cheddar cheese, blk,Chicago						164.00
Milk, Nonfat dry, Chicago lb.						82.00
Cocoa, Ivory Coast-w						2,198
Coffee, Brazilian, Comp						1,7266
Coffee, Colombian, NY						1,5039
Eggs, large white, Chicago-u						0.9750
Flour, hard winter K.C						15.20
Hams, 17-20 lbs, Mid-US, bbf-u						n.a.
Hogs, Iowa-No. So. Minnesota-u						64.04
Pork bellies, 12-						

BIGGEST 1,000 STOCKS

WSJ.com/stocks

How to Read the Stock Tables

The following explanations apply to NYSE, Arca, NYSE MKT and Nasdaq Stock Market listed securities. Prices are composite quotations that include primary market trades as well as trades reported by Nasdaq, OMX BXSM (formerly Boston), Chicago Stock Exchange, CBOE, National Stock Exchange, ISE and BATS. 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.

Tuesday, September 12, 2017

NYSE

Stock	Symbol	Net Close	Chg	Stock	Symbol	Net Close	Chg	Stock	Symbol	Net Close	Chg	Stock	Symbol	Net Close	Chg	Stock	Symbol	Net Close	Chg				
ABB	ABB	24.32	.09	BoardwalkPipe	BWP	15.12	.06	I Dover	DOV	88.04	.10	Hubbell	HUBB	114.82	1.86	NovoNordisk	NVO	48.52	-.17	AlexionPharm	ALXN	144.07	1.14
AES	AES	11.24	-.15	Boeing	BA	240.58	-.01	I DowDuPont	DWDP	68.52	.62	Humana	HUM	255.10	-.21	Nucor	NUE	53.48	-.09	AlignTech	ALGN	185.66	1.54
Aflac	AFL	82.24	-.23	BostonProperties	BXP	47.55	.56	I EOG	EOG	27.75	.27	HuntingtonBank	HII	213.56	.78	NuSTAREnergy	NRG	41.16	.39	Alkerme	ALKS	53.39	0.95
AT&T	T	36.26	.52	BristolMyers	BMY	63.02	.30	I GE	GE	36.16	-.03	Fidelity	FDX	20.11	.03	OGE Energy	OGE	36.16	-.03	ONEOK	ONEOK	56.09	-.03
AbbottLabs	ABT	52.25	-.20	BrixmorProp	BRX	19.18	-.01	I ICICI	ICICI	9.12	...	FidelityInstl	FIDU	27.75	-.01	OccidentalPetrol	OXY	60.78	0.37	OrbitalCorp	OC	2.90	-.01
AbbVie	ABBV	87.75	.75	BroadridgeFin	BDF	48.08	.32	I ING	ING	18.15	.29	HyattHotels	H	60.30	.25	OmegaHealthcare	OHI	32.66	0.11	OtisTech	OTIS	32.49	0.06
Accenture	ACN	136.22	-.01	BrownForman	BFX	29.01	.06	I INVESCO	INVZ	32.51	.41	JPMorganChase	JPM	90.89	.10	Petroleum	PET	81.44	.47	OccidentalPetrol	OXY	60.78	0.37
AcuityBrands	AYI	182.56	.61	BrownWarner	BWP	120.20	-.51	I IP	IP	121.69	.99	OrbitalCorp	OC	9.12	...	OmniCorp	OMC	72.94	-.04	OrbitalCorp	OC	9.12	...
AffiliatedMgns	AMG	178.83	.58	BrownWarner	BWP	120.20	-.51	I INFY	INFY	14.50	-.03	OrbitalCorp	OC	9.12	...	Oracle	ORCL	52.77	0.22	OrbitalCorp	OC	9.12	...
Aigent	ADNT	73.88	.29	BrownWarner	BWP	120.20	-.51	I INTC	INTC	142.85	.33	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AdvanceAuto	AAI	97.26	.28	BrownWarner	BWP	120.20	-.51	I INTL	INTL	142.85	.33	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AdvSemiEngg	ASX	6.16	-.03	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
Aegon	AEG	5.87	.17	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AerCap	AER	49.58	.41	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
Aetna	AET	162.83	.33	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AffiliatedMgns	AMG	178.83	.58	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
Aigent	ADNT	73.88	.29	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AdvanceAuto	AAI	97.26	.28	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AdvSemiEngg	ASX	6.16	-.03	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
Aegon	AEG	5.87	.17	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AerCap	AER	49.58	.41	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
Aetna	AET	162.83	.33	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AffiliatedMgns	AMG	178.83	.58	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
Aigent	ADNT	73.88	.29	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AdvanceAuto	AAI	97.26	.28	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AdvSemiEngg	ASX	6.16	-.03	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
Aegon	AEG	5.87	.17	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
AerCap	AER	49.58	.41	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
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AffiliatedMgns	AMG	178.83	.58	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
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AdvanceAuto	AAI	97.26	.28	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC	9.12	...				
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AdvSemiEngg	ASX	6.16	-.03	BrownWarner	BWP	120.20	-.51	I INVESCO	INVZ	32.51	.41	OrbitalCorp	OC	9.12	...	OrbitalCorp	OC						

BANKING & FINANCE

Banks Weigh Shift From Equifax

TransUnion, Experian are poised to pick up business in the wake of big data breach

BY ANNAMARIA ANDRIOTIS AND EMILY GLAZER

Banks and other financial companies are considering the possibility of moving some business away from **Equifax** Inc. in the wake of its data breach and to some of the firm's credit-reporting rivals, according to people familiar with the firms.

Lenders are unlikely to take any immediate action and are seeking more information from Equifax about the hack that exposed sensitive personal financial information about potentially 143 million Americans. Still, large banks, in particular, have expressed dismay privately that their customers' information was compromised, that they received no advance warning of the breach announcement, and that they still have little insight into what went wrong,

these people said.

Equifax didn't immediately respond to requests for comment.

Equifax has already faced widespread criticism from consumers. In the aftermath of the breach disclosure many consumers said they struggled with the firm's website and policies.

Equifax is also facing political ire: Two congressional committees are planning hearings into the hack, and the Senate Finance Committee on Monday sent the company a list of requests for information about the attack, the company's response to it, and who knew what and when about the problem.

Executives at financial firms in recent days have publicly expressed concern about the breach. James Dimon, chief executive officer of **J.P. Morgan Chase & Co.**, the biggest U.S. bank by assets, spoke about Equifax twice at conferences on Tuesday.

Mr. Dimon said he is interested in understanding more about whether the hack is the sort of attack that could have

TransUnion Feels Effects of Hack

TransUnion's finance chief said the credit-reporting firm doesn't believe it was subjected to the same type of breach as at **Equifax** Inc., but that the company has been hit by the resulting fallout.

Todd Cello, TransUnion's chief financial officer, said at a **Barclays** PLC financial-industry conference on Tuesday that his

company "had to ramp up [its] capabilities" that pertain to "dealing directly with consumers" in the wake of the breach disclosure last Thursday.

"This may have happened with the competitor, but from our perspective the consumer also calls us," he said, explaining that the company's call centers were overwhelmed on Friday. TransUnion has been investigating its own security systems and has "no reasons to believe" that it has been subjected to "a similar type of

breach," he said.

Mr. Cello said the company continues to monitor its own systems. He added that TransUnion uses some of the same software as Equifax and that it has "made certain that all of the versions of this software are up to date with the current patches."

Mr. Cello said TransUnion's call centers, which are normally closed on the weekends, stayed open and the firm used a third party to help out.

—AnnaMaria Andriotis

happened to any company or if there was something specific that Equifax didn't do correctly. "All that will matter, it's obviously important," he said.

He also said, "It depends what happened and how it happened, whether they could've or should've." Mr. Dimon said that the bank was in contact with Equifax.

Speaking at a conference the day before, **Capital One Financial Corp.** CEO Richard Fairbank said the cost of the attack would be borne by both

consumers and financial companies. "A bunch of our customers are affected," he said. "It's going to be costly to them and to us."

It is unlikely that financial firms would cease doing business with Equifax altogether. But, as contracts with the company come up for renewal, they might look to shift some of their business to rivals such as **TransUnion** or Experian PLC, the people familiar with the matter said.

For most loans, excluding

mortgages, lenders often don't check credit reports from all three big credit-reporting firms. Moving away from Equifax would likely result in more market share to TransUnion and Experian.

The possibility of losing market share could add to the pressure on Equifax, which is already facing lawsuits and investigations related to the breach. The company's stock has fallen nearly 20% since just before the hack was announced last week.

Berkshire Set Back On Stake In Lender

BY BOWDEYA TWEH

Shareholders in Canada's **Home Capital Group** Inc. voted down a plan for **Berkshire Hathaway** Inc. to increase its stake in the company, dealing a blow to investor Warren Buffett's rescue package for the home-mortgage lender.

Berkshire Hathaway in June agreed to indirectly acquire a 38.39% stake in Home Capital as part of a rescue package that included a loan of 2 billion Canadian dollars (\$1.5 billion), which has since been repaid. Home Capital board member Alan Hibben told The Wall Street Journal in June that while the company had weighed several financing offers, it opted for Mr. Buffett's because the plan could help restore confidence in the company after a deposit flight.

But shareholders holding more than 88% of Home Capital shares voted at a special meeting held Tuesday not to allow the company to expand its stake.

Brenda Eprile, who chairs Home Capital's board, said the board respects the shareholders' decision. "This decision is a clear message that the majority of our shareholders believe that Home Capital's improved deposit inflows and liquidity position diminish the need for additional capital," she said. "We are pleased to still have Berkshire as our largest shareholder."

The deal was structured in two tranches. The first resulted in Berkshire, through its subsidiary Columbia Insurance Co., spending \$153.2 million to acquire a 19.99% stake in Home Capital. The remaining stake, expected to cost about \$246.8 million, was subject to the shareholders vote.

Berkshire had said it would vote just 25% of the lenders' stock, to comply with Cana-

38.39%

Size of stake in Home Capital sought by Berkshire Hathaway

dian rules that restrict investors from voting more than one-quarter of a bank's shares.

Proxy-advisory firm Institutional Shareholder Services Inc. had recommended investors vote against Berkshire's acquisition of a larger stake in the company. However, Mr. Buffett, in an Aug. 30 interview with Bloomberg News, said he wasn't dissuaded by ISS's action.

"So we'd like to buy the stock, but if they vote it down, if the shareholders vote it down, we'll be fine," said Mr. Buffett, according to an interview transcript.

A different proxy adviser, Glass Lewis & Co., recommended shareholders approve the deal.

Before the capital infusion, Home Capital had faced a liquidity crisis after depositors withdrew money at a rate the company found to be alarming. The accelerated pace of withdrawals followed allegations from Canada's leading securities regulator earlier this year that the company, its founder, former chief executive and its chief financial officer misled investors about the scale of a mortgage-application fraud Home Capital uncovered in 2014.

The company and the executives settled with the Ontario Securities Commission for C\$29.5 million without admitting any wrongdoing.

Home Capital has taken steps to shore up its balance sheet in recent months, including securing a C\$2 billion credit line and selling half of its commercial mortgages for C\$1.16 billion to a unit of private-equity investor KingSett Capital.

Home Capital is one of the country's largest mortgage lenders to higher-risk borrowers, many of them immigrants or self-employed workers with limited credit histories.

—Cara Lombardo contributed to this article.

China Tech Bets Pan Out for Hedge Funds

BY LAURENCE FLETCHER AND EMMA JOHANNINGSMIEIER

Hedge funds betting on China have chalked up some of the biggest profits of 2017, fueled by concentrated bets on the technology sector.

But echoing concerns voiced in the U.S. about the relentless surge of the tech-oriented Nasdaq Composite Index, some fund managers are expressing worries about the Chinese technology sector's potential for overheating.

Among the hedge-fund industry's top performers globally this year is **Pinpoint Asset Management**, which runs \$1.9 billion and which gained 23% in its China fund through August. **Greenwoods Asset Management**'s \$1.6 billion Golden China Fund gained 30.4% this year to date. **Zeal Asset Management**, which runs \$1.1 billion, has gained 23% in its China fund through Sept. 8. Hong Kong-based **Oceanwide Asset Management**, which runs \$100 million, had gained around 35% in its Quam China Focus fund through August.

The gains stand out in a hedge-fund industry where strong returns have been hard to come by. Hedge funds globally are on average up just 3.9% this year through Sept. 8, according to data group HFR. Returns have been lackluster in recent years. Many blame this on huge central-bank stimulus, which has pushed up stocks across the board and can make it hard for managers to pick between strong and weak companies.

"Our largest exposure is in technology," said Chris Choy, Oceanwide's chief investment officer. Its Quam fund has a big position in the smartphone-components sector, where it owns stocks such as lens maker **Sunny Optical Technology Group** and **Qtech**, which makes camera parts for phones. It also has a large exposure to internet-platform stocks, with positions in **Tencent Holdings** Ltd., the fund's biggest holding, **Alibaba**



An Alibaba Group Holding event in Hangzhou Friday. Chinese tech stocks like Alibaba have driven gains at a number of hedge funds.

Tech Tide

Total returns since September 2015



*Index of performance of hedge funds investing in China Note: Monthly data through August Source: Thomson Reuters Datastream

The tech-heavy Bank of New York Mellon China index is up 46% this year.

As in the U.S., tech's gains in China have raised concerns among some commentators over whether gains in the sector represent a bubble.

Chinese tech stocks such as **Baidu**, Alibaba, Tencent and **NetEase** Inc. are consensus investments, said Joel Werner, founder of Hong Kong-based Solitude Capital Management. His fund is up 57% this year, though he doesn't own such stocks.

He drew a parallel with U.S. stocks **Facebook**, **Amazon.com**, **Apple**, **Netflix** and Google parent Alphabet: "They're consensus trades and driving the market globally," he said. He said such stocks are expensive and could be vulnerable to a macroeconomic shock.

However, Oceanwide's Mr. Choy, whose fund increased its exposure to tech in the final quarter of last year, said that the internet-platform sector is "very solid and sustainable."

He added: "Some of our peers are concerned about val-

uations. We do very in-depth analysis, and we think there is still a huge space [the companies] can develop their business."

Mr. Choy is instead concerned about sectors such as domestic banks and property developers, which he believes could be hurt if problems develop in China's shadow-banking system. Technology stocks have also helped drive gains at Pinpoint, which said it has been building a position in Alibaba, and at Zeal.

A tough operating climate for industries including technology has meant that "some clear leaders have emerged while others have left the business," said a Zeal spokesman. These survivors "have grown in market share through industry consolidation. Further need to vastly invest in capital expenditure [has] decreased and so the companies are enjoying much stronger cash flow."

He added that Zeal doesn't believe that a "major bubble" has formed, but said that "there is a risk that some of the largest cap stocks are overheating."

Bridgewater's Dalio Reassures Clients on China

BY ROB COLEMAN

Bridgewater Associates LP founder Ray Dalio told clients in a private note that they can trust him to be honest about China, his first comments following a Wall Street Journal article last week that discussed his business ambitions in the world's second-largest economy.

Bridgewater plans to raise a huge investment fund in China aimed at both Chinese and international investors, according to the front-page story in the Journal.

Mr. Dalio has told staff to avoid writing outright negative research on the country, and asked to personally review all the firm's China reports before publication.

He told clients in the note that he couldn't discuss media reports but said "we assure

you that we are shooting straight with you."

"We were both very early in identifying China's challenges and steadfast in saying that these are manageable challenges and Chinese leadership has the abilities to manage them well," Mr. Dalio wrote in the note, a copy of which was reviewed by the Journal. "Most others didn't identify the challenges early or steadfastly called for China's economic collapse."

The subject of China was raised separately with Mr. Dalio on Tuesday at an investment conference in New York where he was asked about his plans to launch the China investment fund.

He cited the "wonderful relationships" he has built with people there over three decades and said, "I found the Chinese leadership to be intel-

ligent, having equanimity and like good chess players."

Bridgewater's existing Chinese clients include the **China Investment Corp.** sovereign wealth fund and State Administration of Foreign Exchange, which manages the country's currency reserves.

Mr. Dalio over the past 18 months has been critical of media reports on his firm, occasionally using LinkedIn to present his views.

In the note to clients Monday, he wrote that he couldn't get into specifics about the recent story because of privacy reasons.

Instead he offered the widely used quote: "If you don't read the newspaper, you're uninformed. If you read the newspaper, you're misinformed."



Ray Dalio's firm plans to raise a huge investment fund in China.

A Bridgewater spokesman declined to comment.

MARKETS

A 100-Year Bond Is Hit With Investors

Austria taps debt markets as interest rates are expected to remain low

BY EMESE BARTHA AND GEORGI KANTCHEV

Investors lined up Tuesday to buy an Austrian government bond that won't be repaid until September 2117, earning just 2.1% interest along the way.

It was the first public, centurylong bond issued by a government in the eurozone—a currency union established 18 years ago.

Austria sold €3.5 billion (\$4.2 billion) of the bond and received more than €11 billion of orders for it, according to one of the banks handling the deal. Superlow yields in the

eurozone helped spur demand, investors said. Austria also sold €4 billion in five-year bonds Tuesday, which yield around minus 0.2%.

Extremely long bonds are unusual. Last year, Ireland and Belgium sold small century-long bonds in private placements, which are offered to a handful of buyers. Argentina and Mexico issued 100-year bonds in 2017 and 2015, respectively.

Longer-dated bonds tend to be popular with investors such as pension funds and insurance companies, which buy them to match their investments with their long-term liabilities.

Companies also have dipped into the ultralong debt market. In 2015, French state-owned railroad company SNCF issued a 100-year euro bond for €25 million, and power utility Elec-

Going Long

Government sales of 100-year bonds

Year	Country	Value*
2017	Austria	\$3.6B
2017	Argentina	2.8
2016	Belgium	0.1
2016	Ireland	0.1
2015	Belgium	0.03
2015	Belgium	0.06
2015	Mexico	1.6
2014	Mexico	1.7
2010	Mexico	1.0
1997	Philippines	0.1
1996	China	0.1

*Excludes tranches retained by issuer

Source: Dealogic

THE WALL STREET JOURNAL

tricité de France SA sold 100-year bonds in 2014.

The strong demand for ultralong debt is another indication that even as the European

"Yields continue to be low and a 100-year bond is attractive in this environment, compared to what else is out there," said Seamus Mac Goran, global rates portfolio manager at **J.P. Morgan Asset Management**.

Later last year, Austria sold a €2 billion, 70-year bond at a yield of 1.53%.

The long time until maturity and the low interest payments make the bond's value vulnerable to changes in interest rates. And because Austria doesn't issue its own currency, buying the bond involves a long-term bet on its ability to repay euros.

Because of those risks, longer-dated bonds typically pay investors a higher return, which has made these securities more popular when yields are low across fixed-income markets. Twenty-year to 50-

year government bonds have mushroomed in the eurozone in recent years.

Longer-dated maturities aren't "as exotic as five years ago when Austria debuted there" with a 50-year bond, said Elmar Voelker, senior fixed income analyst at LBBW.

The €4 billion September 2022 leg of Tuesday's issue was priced at a yield of minus 0.165%, while the €3.5 billion September 2117 leg of the transaction was priced at a reoffer yield of 2.112%, said one of the lead managers.

Austria held on to €500 million of each bond, one of the banks on the deal said.

The joint lead managers of the dual transaction are Bank of America Merrill Lynch, **Erste Group**, **Goldman Sachs International**, **NatWest Markets** and **Société Générale CIB**.

Demand for Treasurys Falls as Tensions Ease

BY DANIEL KRUGER

U.S. government bonds weakened for a second consecutive day as investors sold assets perceived as relatively safe after Hurricane Irma abated and geo-political tensions eased.

The yield on the 10-year Treasury note rose to 2.171% Tuesday from 2.125% Monday, notching its biggest two-day jump since early March. Yields rise as prices fall.

Demand for safer assets such as Treasurys has softened this week as damage from Hurricane Irma appeared less than the worst-case scenarios feared by investors and geopolitical concerns spurred by recent North Korean nuclear tests receded. Gold, another preferred haven for investors in periods of risk, fell for a second day.

Investors' tepid response to a \$20 billion auction of 10-year notes reflected their reassessment of the risks facing the economy, some analysts said.

The offering attracted below-average demand from investors, with the yield on the securities reaching its lowest level for an auction since November.

With hurricane recovery efforts under way, investors were beginning to assess the potential for the federal aid headed to Texas and Florida

to temporarily lift economic growth. The Trump administration and Congress agreed to a \$15.25 billion relief package for regions affected by the storms, and also postponed until December the government's deadline to address its borrowing limit.

Investors may also be apprehensive about buying long-term securities before the Federal Reserve's meeting next week, some analysts said.

AUCTION RESULTS

Here are the results of Tuesday's Treasury auctions. All bids are awarded at a single price at the market-clearing yield. Rates are determined by the difference between that price and the face value.

FOUR-WEEK BILLS	
Applications	\$122,263,453,000
Accepted bids	\$35,000,263,000
* noncompetitively	\$494,890,000
* foreign noncompetitively	\$0
Auction price (rate)	99.924556 (0.970%)
Coupon equivalent	0.984%
Bids at clearing yield accepted	15.54%
Cusip number	912796K99

The bills, dated Sept. 14, 2017, mature on Oct. 12, 2017.

FIVE-WEEK BILLS	
Applications	\$63,210,597,500
Accepted bids	\$20,000,305,500
* noncompetitively	\$202,397,500
* foreign noncompetitively	\$9,200,000
Auction price (rate)	98.746222 (1.240%)
Coupon equivalent	1.269%
Bids at clearing yield accepted	5.32%
Cusip number	912796N17

The bills, dated Sept. 14, 2017, mature on Sept. 13, 2018.

NINE-YEAR, 11-MONTH NOTES	
Applications	\$45,666,555,700
Accepted bids	\$20,000,010,700
* noncompetitively	\$10,155,700
* foreign noncompetitively	\$0
Auction price (rate)	100.619500 (2.180%)
Interest rate	2.250%
Bids at clearing yield accepted	97.85%
Cusip number	912828R20

The notes, dated Sept. 15, 2017, mature on Aug. 15, 2027.

OPEC Output Curbs Make Progress

BY CHRISTOPHER ALESSI

LONDON—OPEC crude-oil production fell last month for the first time since April, a boost to its efforts to reduce output and rein in the global supply glut.

COMMODITIES The Organization of the Petroleum Exporting Countries' output declined 0.24% to 32.76 million barrels a day in August, down 79,000 barrels from July. The decline was driven mainly by a drop in Libyan production as well as reduced output in Gabon, Venezuela and Iraq, according to OPEC's closely watched monthly market report.

The report comes as Saudi Arabia—OPEC's largest member and the world's biggest crude exporter—has been debating whether to extend the cartel's production-cutting deal after it expires next year.

OPEC and 10 producers outside the cartel including Russia first agreed late last year to cap production at around 1.8 million barrels a day lower than peak October 2016 levels, with the aim of alleviating global oversupply and boosting prices.

The deal, which was extended in May through March 2018, has failed to have a significant impact on prices, in part due to a continued surge in U.S. shale supply.

Soaring production over the past few months in Libya and Nigeria—two OPEC nations exempt from the deal because

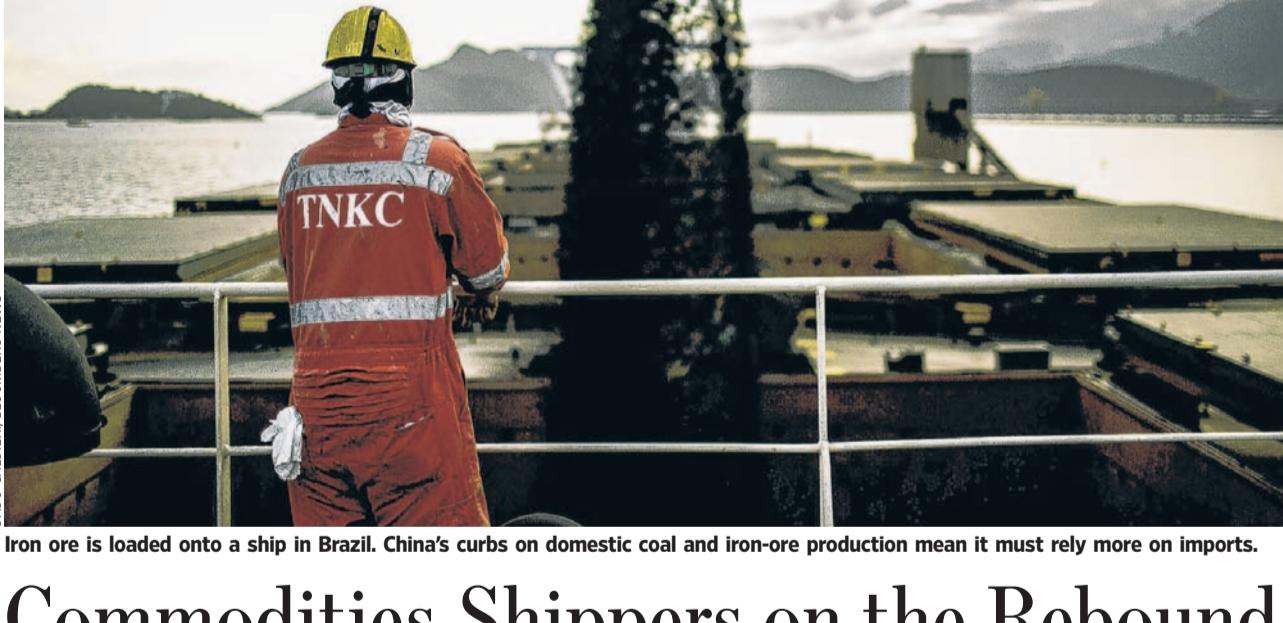


their oil industries had been crippled by civil unrest—also has weakened the cartel's effectiveness in cutting global supply. But Libyan production fell significantly by 112,300 barrels in August, to 890,000 barrels a day, a result of pipeline closures and disruptions at its oil fields, the report showed.

OPEC's report also highlighted non-OPEC oil supply, which declined in August by 32,000 barrels a day to 57.68 million barrels a day, the cartel said. The decline was driven by disruptions to U.S. oil production in the Gulf of Mexico due to Hurricane Harvey and lower crude output from the North Sea and Kazakhstan on the back of seasonal maintenance.

Commercial inventories in the Organization for Economic Cooperation and Development—a group of industrialized, oil-consuming nations—fell for a third consecutive month in July, to 3.002 million barrels a day. That is 195 million barrels above OPEC's target of the last five-year average.

OPEC also again raised its forecast for global oil demand growth this year, by 50,000 barrels a day. OPEC now expects oil demand growth of 1.42 million barrels a day in 2017, helped by "better than expected data" for the OECD region in the second quarter.



Commodities Shippers on the Rebound

BY COSTAS PARIS

LONDON—A long slump for dry-bulk shipping companies, which transport the raw materials of global trade, may be coming to an end.

After two years of below-break-even freight rates that pushed the world's biggest ship operators deep into losses and smaller ones out of business, strong growth in the global economy has shipowners rejoicing.

The Baltic Dry Index, one of the world's leading trade indicators which measures the cost of moving commodities such as coal and iron ore, is hovering at 1,355 points, the highest in 34 months after falling to its lowest level ever at 292 in February 2016. Shipping brokers say the rise will likely continue in the short

term.

"Things are looking better all around," said Robert Bugbee, president of **Scorpio Bulkers** Inc., one of the world's biggest carriers. "There is strong growth in the world economy, and this translates to more shipments of everything from cement and grains to aluminum, coal and iron ore."

Scorpio, which now operates 48 ships, sold about 20 of its biggest vessels at a sharp discount in late 2015 to maintain financial viability after charter rates tanked to less than half of break-even levels.

The International Monetary Fund expects the world economy to grow 3.5% this year and 3.6% in 2018, up from 3.2% in 2016.

The market surge is mainly driven by China's move to

limit this year's production of coal and iron ore in 10 provinces by around 25% and 20%, respectively, compared to last year, according to data by Athens-based Allied Shipbroking.

The move aims to cut pollution levels in major urban centers, but comes amid an increase in infrastructure investment from Beijing, which means greater reliance on seaborne imports.

"China's economy is turning around with a resurgence in infrastructure spending, at a time when its steel inventories are low," said Basil Karatzas, CEO of New York-based Karatzas Marine Advisors & Co. "The dollar [in which commodities are priced] is also at an 18-month low, which makes it a good time to buy."

Brokers in Singapore and London said they have seen in-

creased demand for commodities such as grains, lumber, cement, coal and copper.

Dry-bulk shippers were hurt over the past few years after China, the world's biggest commodities importer, began shifting away from heavy industry as the main growth driver. Like Scorpio, other big players shrank their fleets in the face of losses while some smaller operators went bankrupt.

At the same time, banks turned off access to ship-financing amid rising nonperforming loans.

But analysts warn that bursts of optimism in the past have prompted owners to order new vessels, worsening an overcapacity of tonnage in the water that they see as the main culprit behind the industry's woes.

—Paul Hannon contributed to this article.

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MARKETS

Skepticism Fails to Derail Stock Rally

Reasons multiply for the bull to tire, but none drive investors to exits

By AKANE OTANI

Ask investors how they feel about the U.S. stock market, and a typical response is: cautiously optimistic.

Even with major indexes at records, many investors and analysts are finding reasons for the eight-year bull market to draw to an end. Some are concerned that stocks have risen with few prolonged interruptions, especially given the uneven pace of U.S. economic growth. And others are nervous that the Federal Reserve, which is looking to raise rates and wind down an unprecedented asset-purchase program, could send stocks tumbling.

"There's a lot of people out there wondering what could be the next catalyst for a market correction," said Marcelle Daher, senior managing director of asset allocation at Manulife Asset Management.

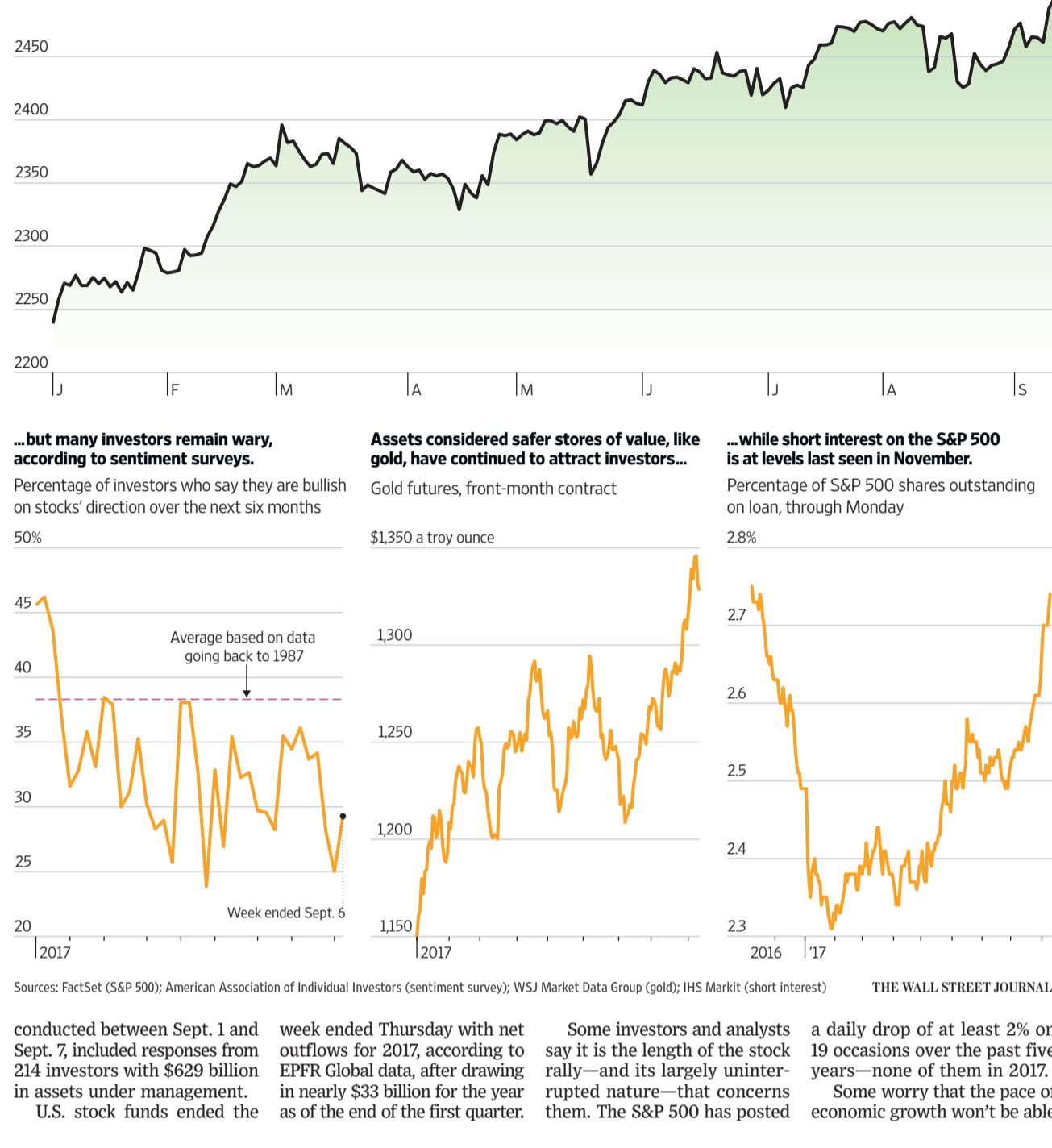
Last week, fears of an escalation in conflict between the U.S. and North Korea and the possibility of catastrophic damage from severe storms sent major indexes lower. But stocks bounced back, and on Tuesday the S&P 500, Dow Jones Industrial Average and Nasdaq Composite closed at records on the same day.

Even with stocks rebounding relatively quickly from pullbacks this year, investors have generally been lukewarm about the stock rally. The share of fund managers who have positioned their portfolios to be underweight U.S. stocks—or holding a smaller share of U.S. stocks in a portfolio relative to its benchmark—rose to a 10-year high in September, Bank of America Merrill Lynch found in its latest monthly global fund-manager survey. The survey,

Uneasy

U.S. stocks keep climbing, but there are signs that investors aren't confident the rally will last.

The S&P 500 has risen 12% this year and posted 32 records...



INNOVATIONS IN HEALTH CARE

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HOSPITALS ARE MAKING A PUSH TO FIX

one of the most irritating issues in health care: the crowded, slow emergency room.

Armed with new research and strategies borrowed from the business world, some facilities are trying to ease the frustrating experience of waiting, filling out forms, explaining a problem—and then waiting some more.

In many cases, making things smoother for patients means completely rethinking how emergency rooms work. Some hospitals are scrapping the traditional triage process and putting patients straight into exam rooms, while others are creating treatment areas for patients with only minor complaints. Other facilities are installing software to monitor ER wait times and predict bottlenecks before they happen.

These pioneering hospitals model different ways for hospitals throughout the country to rethink the way they handle emergency care.

"There's a lot hospitals can do that they haven't done yet," says Jesse Pines, professor of emergency medicine at George Washington University, whose research published in the journal Health Affairs in 2015 shows that on average hospitals have adopted less than half of the proven interventions they were surveyed about.

Adding urgency to the search for solutions: Not only are wait times dauntingly long, but they're not improving at the national level. The median length of stay for patients treated in the ER and then discharged was 138 minutes, according to data for October 2015 to September 2016 submitted to the U.S. Centers for Medicare and Medicaid Services. Researchers analyzing wait times in 2006 found virtually the same median.

Long waits don't just bring patient frustration. Crowded ERs and long wait times have bad effects

HOW TO FIX THE ER

Emergency rooms are notorious for interminable waits, endless forms and inconsistent care. Now researchers and hospitals are rethinking the ways ERs work—with impressive results.

BY ELLIE KINCAID

for patient outcomes and satisfaction, research shows. For instance, it takes longer for patients to get pain medications, antibiotics or the care they need if they're having a heart attack.

The overall evidence "paints a pretty clear picture that under more crowded conditions, quality of care declines," says Benjamin Sun, an emergency-medicine physician at Oregon Health and Science University, who was involved in a study on ER wait times and strategies recently published in the journal Annals of Emergency Medicine.

Improving conditions on a wide scale won't be easy. Researchers say there must be sustained management support to make changes stick. And many of these solutions don't just mean reorganizing the way things get done—they also mean taking on additional staff, which can be a hard sell.

That said, many hospitals are seeing strong results from their efforts, and the movement is spreading. Here's a look at some of the interventions that are helping make things smoother for patients.

RETHINK (OR ELIMINATE) TRIAGE. One of the biggest frustrations people encounter in the ER is one of the first things they have to put up with: registration and triage. After signing in and giving information, patients see a nurse who asks questions to judge how urgently they need care and the amount they'll need, on a five-point scale. Then patients wait to see a doctor who may ask them the same things all over again.

With the traditional triage and registration,

Please turn to the next page

◆ How does your hospital do? See ER times for hospitals around the country in a searchable, sortable table, at WSJ.com/HealthReport

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To Curb Unnecessary Care, Hospitals Use Alerts

Electronic systems warn doctors

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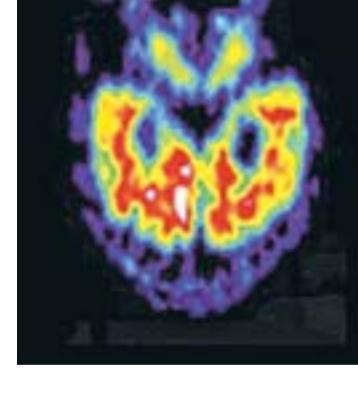
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Uses include planning surgery and creating drugs

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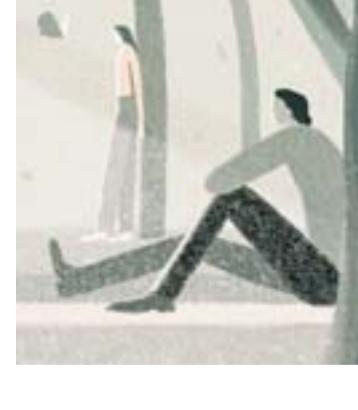
A focus on biological changes in the brain, not memory loss

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Drug Companies Tie Costs To Outcomes

But early signs show little evidence that the plans lower prices

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JOURNAL REPORT | INNOVATIONS IN HEALTH CARE

Hospitals Use Alerts to Curb Unnecessary Care

With electronic medical records, doctors can be warned if their course of action may be unwise

BY MELANIE EVANS

TOO OFTEN, A STAY in the hospital leads to unnecessary procedures, screenings and medication that do little for patients—other than driving up anxiety and costs.

But efforts to weed out unnecessary care face obstacles. Doctors often rely on memory and outdated training to deliver what they believe to be the best care. Patients may demand relief from a prescription or seek a referral to quell anxiety, even when such options are unwarranted. Fear of a missed diagnosis can prompt doctors to order additional tests.

Now, doctors and hospitals see potential in a digital fix: alerts embedded in patients' computerized medical records that force doctors to reconsider possible treatment. The electronic alerts are triggered when doctors write orders that research has shown may be outdated, unnecessary and even potentially harmful.

Alerts in use at hospitals in California, Texas and Utah have reduced unnecessary radiation from imaging, curbed prescriptions for opioids and antibiotics, and saved millions of dollars, doctors say. "We think it's really important that we make doing the right thing as easy as possible," says Mark Briesacher, president of the medical group at Intermountain Healthcare, a Salt Lake City-based

Ditching Paper

The percentage of U.S. hospitals with "comprehensive" electronic health records, which include alerts to guide clinical decisions



Sources: U.S. Office of the National Coordinator for Health Information Technology; American Hospital Association

health system with 22 hospitals and 1,500 doctors.

Less widely recognized than errors that withhold recommended medical care from patients, overuse of medicine is nonetheless pervasive, costly and harmful. One estimate found 24% of people in Medicare get unnecessary surgery, cancer or cardiac screening or diagnostic testing at a cost of \$1.8 billion annually, according to a study in *JAMA Internal Medicine* in 2014.

Nearly all U.S. hospitals have computerized records, but the use of alerts is still limited. As of 2015, only 40% of U.S. hospitals had records that send alerts to guide doctors' decisions, according to the most recent federal data, though that was up from only 9% four years earlier. Some hospitals operate with older software that lacks alerts, says Barry Blumenfeld, a senior physician informaticist at the nonprofit research institute RTI International. Others may be able to send alerts, but don't because keeping the system up-to-date is expensive, Dr. Blumenfeld says.

Some early efforts to embed alerts take aim at the over-prescribing of antibiotics, a thorny problem across medicine and a public-health risk. Overuse of antibiotics contributes to growth of drug-resistant bugs.

Intermountain has computer prompts that recommend to doctors whether to prescribe

Too Much Medicine

Patients get too much of some medical care, with no benefit and added risk. Researchers estimated the annual amount of waste, in millions of dollars, for these 11 medical services:

Antipsychotics for dementia patients	\$765.1
Vitamin D deficiency screening	198.6
Feeding tubes for dementia patients	148.9
Back-pain imaging	35.6
Cervical-cancer screening	23.4
Dual-energy X-ray absorptiometry scan	16.8
Cardiac screening	9.4
Opioids for migraine patients	3.3
Preoperative cardiac test, noncardiac patients	3.2
Pre-cataract-surgery cardiac test	0.6
Benign prostatic hyperplasia imaging	0.3

Source: Journal of General Internal Medicine, "Choosing Wisely: Prevalence and Correlates of Low-Value Health Care Services in the United States"

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an antibiotic for sinusitis, or swollen nasal passages that can cause headaches or trouble breathing. Sinusitis often doesn't require an antibiotic. With Intermountain's system, doctors can bypass the recommendation, but are asked to enter a reason why they did so. It's too early to say how the alert may have changed doctors' habits, Dr. Briesacher says.

The lists used by electronic alerts to identify conditions under which certain steps in medical care could be considered unnecessary are maintained by doctors and health-care organizations. Medical societies around the U.S. contribute to a list first published in 2012 by the ABIM Foundation, a non-

profit founded by the American Board of Internal Medicine. The list now includes more than 500 recommendations.

One example, from the American College of Cardiology, aims to prevent superfluous cardiac imaging tests. Doctors should not perform stress cardiac imaging on new patients unless they have other issues that put them at risk, such as diabetes among older adults, the recommendation says. Doctors can also skip annual stress cardiac imaging for patients without any symptoms. Excessive cardiac imaging unnecessarily exposes patients to radiation, the cardiology group says.

The cardiac alert was one of the first to be added to Intermountain's recently upgraded computerized medical records, and hospital officials say it quickly slashed spending on cardiac imaging tests by \$15 million annually. Intermountain officials expect to eventually add 100 alerts to prompt doctors on what to order—or not. The system is designed so that only alerts pertinent to each patient are embedded in their record, to avoid overwhelming doctors with alerts that aren't relevant to the case.

In 2013, Cedars-Sinai Medical Center in Los Angeles added flags to its computerized health record for 100 things doctors shouldn't be doing. The alerts cut spending at Cedars-Sinai by \$1.6 million

in the year ended June 30, a hospital spokesperson says.

Still, while alerts can make some headway in reducing overuse, doctors inundated with alerts will start to ignore them, says Michael Kantor, executive vice president of the Permanente Federation and chief quality officer Kaiser Permanente, in Oakland, Calif. At Kaiser Permanente, doctors with data-analysis training determine what alerts to deploy based on their potential effectiveness, to keep the warnings to a minimum, Dr. Kantor says.

To encourage compliance with an alert about overuse of CT scans for head injuries, Kaiser Permanente leadership endorsed the alert, and doctors were informed about it in an online course. Use of CT scans in such cases declined 5.3% across 13 Kaiser Permanente hospital emergency departments after the alert was added, according to a 2017 study in the *Annals of Emergency Medicine*.

Not every situation where patients get unnecessary care can be addressed with an alert, says Dr. Kantor. In some cases, not enough is known for treatment options to be clear-cut. "There is overuse and underuse," he says, and "then there is uncertain use."

Ms. Evans is a Wall Street Journal reporter in New York. She can be reached at melanie.evans@wsj.com.

Continued from the prior page

"there's no way a patient can get to a physician in less than 30 minutes, even if there's nobody in the ER," says Assaad Sayah, senior vice president and chief medical officer of Cambridge Health Alliance, a hospital system with many uninsured and Medicaid patients.

In 2006, Cambridge Health Alliance set up a system where arriving patients give their name, Social Security number or birth date, and chief complaint. They are then brought to a treatment area so a provider can start caring for them right away, and don't have to complete registration until they've gotten that initial help.

Patients in the Cambridge Health system waited to see a provider for a median of 10 minutes, compared with a national median of 29 minutes for other ERs seeing a comparable number of patients, government data show.

Rich Petrik, the ER physician director for Ocala Regional Medical Center in Ocala, Fla., has adopted another strategy to cut repetition: having a doctor listen to the patient during triage and begin to formulate and execute a plan of care. After Ocala Regional Medical Center put that change in place last year, as well as other fixes, patients were treated and sent home a half-hour faster than before. (The results don't include patients who were admitted to the hospital.) Other facilities have gotten similar results from rethinking triage, according to researchers.

ELIMINATE DETAILS THAT WASTE TIME.

Another approach to streamlining emergency rooms comes from the world of business—the "lean" management system where an organization looks at every step in its processes and figures out how to improve them, cutting out as much waste as possible.

As part of the Canadian province of Labrador's efforts to reduce ER wait times, the staff at Labrador Health Centre in Happy Valley-Goose Bay went through lean training last April with consulting company X32 Healthcare. Looking at their operations through the lean lens, the staff noticed that "supplies were kind of everywhere," says Donnie Sampson, co-chairwoman of the regional steering committee for emergency-department improvement, who oversaw the hospital's work.

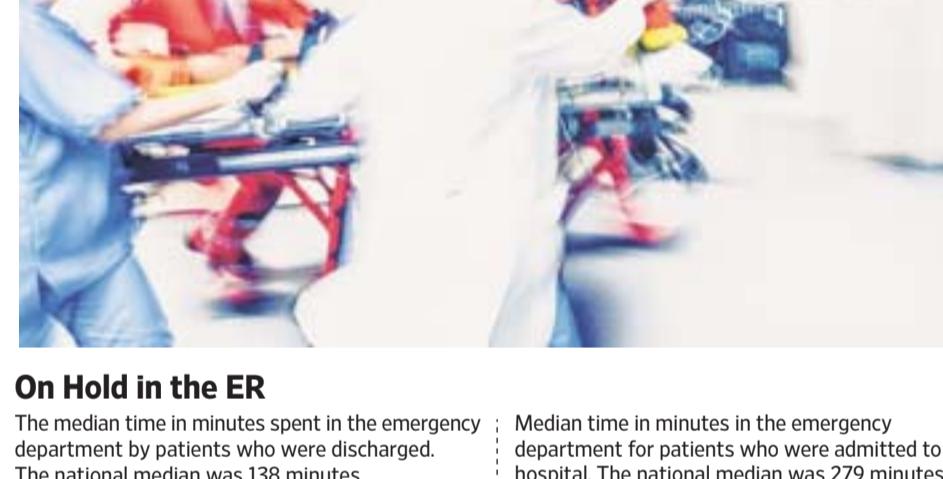
So the staff collected the supplies in one room, giving the nurses only one place to keep stocked—instead of the previous five carts—and look for the items they needed. The staff also noticed nurses were taking time to escort patients to other areas of the hospital for testing such as X-rays, so they put up colored tape that patients could follow to where they needed to go.

Another big change involved how doctors and nurses communicate. The hospital set up whiteboards for nurses and doctors to write up the most current patient information for other staff to see, such as the status of test completion. Instead of walking around the ER to find another staff member to ask, the boards "allowed people to see flow without actually having to talk to another provider," says Ms. Sampson.

HELP PATIENTS WITH MINOR COMPLAINTS QUICKLY... One of the most widely adopted fixes to emergency rooms has to do with patients who have minor issues. How to make sure that they don't face endless waits—and crowd ERs—while doctors are dealing with seriously injured patients?

Some 40% of hospitals in the U.S. are giving the people with small complaints their own spot in the ER. Labrador Health Centre's redesign included an area where patients in need of a medication refill or with mild complaints like a sore throat could be seen right away by a nurse practitioner or physician dedicated to seeing only such patients. Seeing the low-acuity patients quickly means there's "not a huge pileup of people in the waiting area," says

How to Fix the ER



ISTOCKPHOTO/GETTY IMAGES

On Hold in the ER

The median time in minutes spent in the emergency department by patients who were discharged. The national median was 138 minutes.

Note: Figures are for the 12 months ended September 2016.

Source: Centers for Medicare and Medicaid Services

Median time in minutes in the emergency department for patients who were admitted to the hospital. The national median was 279 minutes.

TOP 10 STATES BOTTOM 10 STATES

North Dakota	99	Maryland	215
Minnesota	104	D.C.	212
South Dakota	108	Washington	173
Kansas	108	Arizona	170
Oklahoma	109	Delaware	170
Iowa	109	Massachusetts	166
Nebraska	114	New York	164
Montana	114	California	163
Mississippi	114	Florida	154
Wyoming	116	New Jersey	154

Note: Figures are for the 12 months ended September 2016.

Source: Centers for Medicare and Medicaid Services

Median time in minutes in the emergency department for patients who were admitted to the hospital. The national median was 279 minutes.

TOP 10 STATES BOTTOM 10 STATES

South Dakota	178	D.C.	485
Kansas	192	New York	381
Wisconsin	203	Maryland	372
Iowa	207	Delaware	364
Nebraska	209	Nevada	353
North Dakota	210	New Jersey	351
Minnesota	210	California	342
Wyoming	215	Connecticut	339
Utah	215	Massachusetts	324
Oklahoma	218	Rhode Island	307

Note: Figures are for the 12 months ended September 2016.

Source: Centers for Medicare and Medicaid Services

Median time in minutes in the emergency department for patients who were admitted to the hospital. The national median was 279 minutes.

Doctors often schedule those surgeries early in the week so that patients will recover by the weekend (and doctors won't need to look in on them past Friday). The result: Early in the week, elective patients take up a lot of hospital beds, and there's no room for ER patients who have been admitted. So these patients must stay—or "board"—in the ER instead, reducing its capacity and bringing longer wait times.

The uneven surgery scheduling "creates a very unbalanced demand for inpatient beds," says Dr. Pines. Boarding is "the elephant in the room when it comes to crowding."

In a study of one emergency room, researchers from Boston University calculated what happened on days when the hospital had a typical number of elective-surgery patients and the maximum number of ER patients. They found that elective admissions added 35 hours to the total time all patients spent in the ER, in their findings published in 2007 in *Annals of Emergency Medicine*.

Some hospitals have chosen to schedule elective surgeries evenly throughout the week to avoid buildups. The strategy "sounds great in theory and has been proven to work," says Dr. Sun, "but is very difficult to do because of physician preferences and culture." Dr. Pines' research showed that in 2010 less than 5% of hospitals had smoothed their surgery schedules.

Another way hospitals can release pressure from boarding is through rules dictating that boarding patients must be taken from the ER to inpatient floors to wait for a bed when the ER is out of space. That makes room for new arrivals and patients waiting to be seen.

After the Canadian province of Alberta instituted full-capacity protocols for its hospitals in December of 2010, boarding decreased by

more than half. What's more, the time admitted patients spent in the ER decreased to about 11½ hours from an average of 17, according to research led by the University of Calgary and presented at the 2012 Society for Academic Emergency Medicine Annual Meeting. Although the admitted patients still wait for open beds, moving them to wait in another part of the hospital allows other patients to move through the ER more quickly.

EASE ADMISSIONS FROM THE ER TO THE HOSPITAL. When emergency-room patients are admitted to the upper floors of the hospital, getting them from the care of one medical team to another can be complex. Especially in a teaching hospital, the process can involve multiple conversations between ER staff and a medical student, resident and then the attending physician on the upper hospital floor.

Beginning in 2006, Dr. Sayah at Cambridge Health Alliance oversaw changes to get the ER and inpatient floors working together better. They cut the handoff down to one phone call to discuss the patient's care. The handoff between nurses was also simplified down to a single phone call between secretaries for the ER and inpatient floor.

Meanwhile, even before the phone call is made, a nurse upstairs has seen a brief page of information about the patient and, barring any concerns that would keep the person in the ER longer, the patient will be moved in 10 minutes after the call. The system's hospital in Cambridge, Mass., cut the average total length of stay in the emergency room for all patients to about 2½ hours from nearly 3½ hours, according to research Dr. Sayah published in 2014 in *Emergency Medicine International*.

ANTICIPATE BACKUPS WITH SOFTWARE. It can be daunting for harried staffers to keep track of how many patients are in the emergency room and how long they've been waiting. So some hospitals are using software to deliver real-time data on patient numbers—and advice on how to shorten waits as they're happening.

Mercy, a 44-hospital health system in Arkansas, Kansas, Missouri and Oklahoma, is using data collection and analysis software from health-care analytics company Qventus in nine of its ERs, and plans to roll out the program in another



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The Search to End the Scourge of Misdiagnoses

Researchers are finding new ways to make sure doctors make the right diagnosis

BY LAURA LANDRO

DOCTORS ARE developing novel solutions to make sure they come up with the right diagnoses.

A flood of new initiatives by researchers, physicians, health-care systems, nonprofits and malpractice insurers is yielding new insights and approaches. These include sophisticated computer programs, some that use artificial intelligence to help analyze and diagnose tough cases (see article below), and others that scan records for errors such as missed test results and appointments. Advanced technologies aren't just bringing the processing power of big data and machine learning to bear.

They are also allowing more doctors to share their knowledge—including lessons they've learned from their own diagnostic mistakes.

Misdiagnoses are a leading cause of medical malpractice suits in the U.S., and they don't have simple causes or solutions. Most people will experience at least one diagnostic error in their lifetime, sometimes with "devastating consequences," according to a landmark 2015 report by the National Academies of Sciences, Engineering and Medicine.

For decades, inaccurate or delayed diagnosis has been "a blind spot in the delivery of quality care," said the report, which is broadly credited in scientific circles with inspiring the recent multipronged push for improvements.

"There is a huge opportunity to put knowledge and tools into the hands of clinicians to help them make a better or more timely and accurate diagnosis," says Janet Corrigan, head of the patient-care program at the nonprofit Gordon and Betty Moore Foundation, which is funding several projects to improve the accuracy of medical diagnoses.

Here are some of the most promising efforts:

SPOTTING MISTAKES

A Pennsylvania hospital is experimenting with the first formal computerized program to track, measure and analyze doctors' diagnostic mistakes—sometimes as they are happening. The Safer Dx Learning Lab is being implemented at Geisinger Medical Center, the flagship of **Geisinger Health System**, based in Danville, Pa.,

which has 13 hospitals, a health plan and a medical school. The project is funded by a Moore Foundation grant and is led by Hardeep Singh, chief of health policy, quality and informatics at the Michael E. DeBakey VA Medical Center and an associate professor at Baylor College of Medicine in Houston.

Once fully installed, the system will scan electronic medical records to identify patients who are experiencing potential or actual diagnostic mistakes or delays, based on certain clinical criteria, such as abnormal chest X-rays or CT scans for which there is no documented follow-up. Flagged records will then be reviewed for confirmation, analysis and further action.

"Knowledge from systematically analyzing missed opportunities in correct or timely diagnosis will inform improvements and create a learning health system for diagnosis," Dr. Singh says.

A 2013 study led by Dr. Singh reviewed 190 diagnostic errors detected by unexpected returns of patients after an initial primary-care visit. A large variety of common diseases such as pneumonia, cancer and urinary-tract infections were missed on the initial visit. Many errors were related to problems with medical history-taking, physical exams, ordering of diagnostic tests for further work-up and failure to review previous records. Other issues included clinicians failing to initiate referrals to specialists and failures in follow-up and tracking of diagnostic tests.

"We could ask the question in every patient diagnosed with cancer, was the appropriate diagnosis made in a timely fashion, or were there opportunities, on review, to have made this correct diagnosis earlier?" says Dennis Torretti,

associate chief medical officer at Geisinger Medical Center.

Geisinger also is adding a confidential hotline reporting system where clinicians can call and leave a recorded message. Similarly, Geisinger will ask patients how it can do a better job related to diagnosis.

"We all see patients who had to see doctors several times before a diagnosis was achieved and had a feeling all along that something was being missed, or were discharged from the ER and felt the diagnosis didn't explain their symptoms," says Benjamin Hohmuth,



Dennis Torretti, second from left, Benjamin Hohmuth, second from right, and other Geisinger Medical Center doctors are developing a system that uses electronic records to improve diagnostic accuracy and identify patients who may be experiencing errors.

uth, principal investigator on the Safer Dx project and associate chief medical informatics officer at Geisinger.

HELP FROM AI

Many online tools have been developed to analyze symptoms and help doctors arrive at a diagnosis—with mixed results. Now a system that uses AI can synthesize opinions from many doctors into a single cohesive perspective.

The Human Diagnosis Project has developed an electronic consulting system that lets participating doctors enter a patient's background, symptoms, test results and other findings, then invites expert doctors to review the case, suggest a diagnosis and recommend next steps. Users can include specific questions, such as, "Does this patient need an MRI?"

As doctors post their responses, the AI-enhanced software combines and analyzes all the input, weighted by each doctor's relative expertise.

More than 6,000 doctors and 40 medical specialties have been building the system since 2014, backed by an alliance that includes medical schools, medical specialty boards and research experts.

The aim is "not only to deliver the best possible diagnosis for the patient at hand, but to form a record that doctors can draw on for similar cases in the future," says Shantanu Nundy, a primary-care doctor at Mary's Center, a community-health center in Washington, D.C., and director of the nonprofit arm of Human Dx.

"Generally, doctors can diagnose better than computers, but doctors supported by technology like this system could help improve the accuracy of clinical decisions across the

What Went Wrong

The leading causes of diagnostic errors in a sample of 583 physician-reported cases

Failure/delay considering diagnosis	110
Failure/delay ordering needed tests	63
Erroneous lab/radiology test reading	61
Too much weight to competing diagnosis	44
Failed/delayed follow-up of test result	42
Failure eliciting history data	40
Failure eliciting physical-exam data	37
Failure/delay reporting result	30
Clinician error in test interpretation	25
Technical error processing specimen/test	17
Inaccurate interpretation of history data	15
Inaccurate interpretation of physical exam	14

Source: Archives of Internal Medicine, Dr. Gordon Schiff et al.

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board," says David Westfall Bates, professor of health policy and management at Harvard T.H. Chan School of Public Health and chief innovation officer at Brigham and Women's Hospital in Boston.

SHARING LESSONS

Another effort to improve practices and training, though not necessarily through a single tool, is a network in Massachusetts including Brigham and Women's Hospital; Crici, a Harvard-owned malpractice insurer; and the Boston-based second-opinion service Best Doctors. The network, known as Pride, short for Primary Care Research in Diagnostic Errors, plans to identify, analyze and classify diagnostic errors and delays with the help of electronic medical records,

to develop and share interventions that can overcome diagnostic errors and delays, especially in primary care.

The network will disseminate insights and lessons to doctors through forums, newsletters, journals and webinars. Among the advances it hopes to deliver are screening tools to uncover issues related to drugs or exposures that can lead to missed or delayed diagnosis, such as patients who are on multiple drugs, or who may have been exposed to toxins on the job or at home.

It also plans to help doctors avoid ordering unnecessary and wasteful tests by developing "principles of conservative diagnosis," says Gordon Schiff, associate director of Brigham and Women's division of general internal medicine and quality and safety director at Harvard Medical School's Center for Primary Care.

Crici, meanwhile, is also funding a project overseen by Dr. Schiff to develop five tools to help avoid pitfalls that leave doctors open to malpractice claims. For example, studies have shown that as few as

40% to 50% of orders for colonoscopies result in patients' getting the test. In response, the project plans to develop and test "loop-closing" tools for electronically tracking doctors' recommendations of tests and procedures that aren't carried out.

BETTER THINKING

Some medical schools are creating programs to overcome pitfalls in thinking that can affect a doctor's diagnostic skills and become ingrained early in medical training.

The University of Pittsburgh Medical Center has developed videos of cases with actors posing as patients. The videos feature expert commentary, animation and Q&As. The aim isn't only to improve the clinical reasoning skills of new doctors, but to make them aware of the prevalence, causes and consequences of diagnostic errors, according to William Follansbee, director of the UPMC Center for Medical Decision Making and a professor of cardiovascular medicine.

In making diagnoses, doctors may rely on shortcuts or simple rules of thumb based on what they've seen in past cases, Dr. Follansbee says. They may also anchor their thinking in an initial impression of a case or prematurely make a diagnosis before pursuing alternative possibilities.

The most important first step in making a diagnosis, Dr. Follansbee says, is to ask good questions.

"These might seem like common, simple questions we all know," he says, "but they are frequently overlooked."

Ms. Landro is a former Wall Street Journal assistant managing editor. Email her at reports@wsj.com.

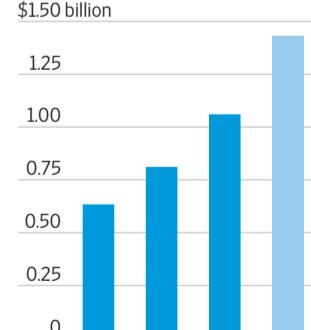
AI Holds Promise for Improving Diagnoses

With artificial intelligence, machines can see what many humans may have missed

BY NEIL PARMAR

More Brainpower

Global spending on artificial intelligence and cognitive computing systems in health care



*Projected
Source: Frost & Sullivan

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RADIOLOGISTS can scrutinize hundreds of images before identifying an area of concern in a patient's body. Mark Michalski likens the process to "playing Where's Waldo?" on each of those images."

But a type of artificial intelligence known as deep learning could soon help medical experts pinpoint problems faster and more accurately, says Dr. Michalski, executive director of the Boston-based Center for Clinical Data Science at Massachusetts General Hospital and Brigham and Women's Hospital.

Deep learning includes algorithms, or computer programs, that search for, identify and analyze problems without direction from people, though many humans still guide the algorithms today. For months, Dr. Michalski has used hundreds of thousands of medical images to train a deep-learning system to detect pulmonary nodules and strokes, measure tumors and look for traumatic injury and fractures, among other tasks.

Now he's testing the system in his hospitals. The early results "are promising," he says. "The technology really does work."

More hospitals, universities and tech companies are training and testing systems that use AI, including deep learning, to see how they might be used to improve the medical diagnosis process. Most efforts today are focused on recognizing patterns in medical images



and corporate executives say there is still an important role for people; it is still a person who makes a formal medical diagnosis. "What we're developing is a suite of applications to make them [people] more effective" through better diagnosing and treating patients, says Charles Koontz, chief digital officer of GE Healthcare.

Health-care experts and companies say most AI-assisted tools have helped doctors make faster decisions and consider more possibilities when making diagnoses. "There's no doubt it's more accurate," says Siddharth Saha, vice president of transformational health for Frost & Sullivan.

In December, a study published in the medical journal JAMA presented a deep-learning algorithm capable of interpreting signs in photographs of diabetic retinopathy—an eye condition that can cause blindness. It performed on par with ophthalmologists, according to researchers at Google, who co-wrote the study.

In the future, some experts argue that AI could improve the accuracy of diagnoses at smaller hospitals, including in countries where there may be shortages of doctors. Says Mr. Koontz, "We believe these applications will really improve outcomes in midsize hospitals, and quite frankly, in developing countries."

Mr. Parmar is a writer in Toronto. He can be reached at reports@wsj.com.

as a market-research firm. That is projected to increase as more AI-driven apps arrive.

"A lot of what we're doing right now is taking what has been proven in the lab and trying to commercialize it," says Steve Tolle, global vice president and chief strategist for IBM Watson Health Imaging.

Some tech companies working in this space are teaming up with health-care systems, academic medical centers and other partners to get access to medical data. Through these partnerships, experts say, deep-learning algorithms can become more accurate and ultimately help more clinicians.

IBM Watson Health, which launched in 2015, formed such a medical-imaging collabora-

tive last year to help doctors address different types of cancers and other diseases. The network, in which the health-care systems get to see results from tests run by IBM Watson Health, has expanded to 30 members from 15. One tool being worked on is a score indicating how confident the system is that something found is, say, a cyst or a tumor. Another tool would flag areas of concern that a physician might have missed.

"The goal is to scale the expertise of the clinician," says John Smith, manager of multimedia and vision at IBM Thomas J. Watson Research Center. "The computer can see a lot more data than any clinician can ever see."

There are certain limitations to these kinds of approaches, however. Some images, for instance, don't label areas to help machines identify what they are looking at.

Another hurdle is companies are competing to identify and recruit data scientists. GE Healthcare, for one, is working with some colleges to advance their curricula in science, technology, engineering and math.

There also are some security concerns in the health-care industry about companies accessing medical records and patient data. But there seems to be a greater worry about whether radiologists or other medical experts might get displaced by AI altogether.

Both health-care experts

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JOURNAL REPORT | INNOVATIONS IN HEALTH CARE

To Reduce C-Sections, Change a Hospital's Culture

Views and practices of staff in a hospital's labor ward may explain big differences in caesarean rates

BY AMY DOCKSER MARCUS

CAESAREAN DELIVERY rates in the U.S. remain high at many hospitals despite years of effort to lower them. Now, some researchers are focusing on an often overlooked reason: the culture of the labor ward.

Caesarean deliveries, surgical procedures that involve cutting into a mother's abdomen to deliver a child, make up close to a third of U.S. births. The procedure generally is safe but is associated with increased risk of certain health problems, such as hemorrhage and infection, and with complications in future pregnancies.

Researchers have theorized about a number of factors that may explain the persistence of high rates of caesarean deliveries, including higher-risk pregnancies involving women who are older, heavier, or got pregnant using in vitro fertilization, and some women choosing elective caesareans. But none of that explains why the rate of caesareans varies so widely from hospital to hospital.

Instead, says Neel Shah, an obstetrician and public-policy researcher, the biggest factor in whether a woman will have a caesarean delivery "is the door she walks through" to give birth.

Dr. Shah and other researchers believe some of the differences in delivery methods arise from culture—the views and practices of the doctors, nurses and managers of a labor ward. The way the staff communicates, the managers' risk tolerance, attitudes toward employing technology, and even the design of the ward may tip a decision about how to manage a woman's labor and lead to greater intervention, these researchers say.

Low-risk patients

That argument is starting to gain attention at hospitals around the country. Dr. Shah joined Beth Israel Deaconess Medical Center in Boston as a practicing obstetrician in 2013, when an effort to change unit culture was already underway, led by the medical director of the labor and delivery ward, Toni H. Golen. The caesarean delivery rate at the hospital among low-risk women—defined as those who haven't previously given birth

and are carrying a single fetus in a head-down position—fell from 35% in 2008 to 21% in 2015, according to a paper published this year.

The U.S. Department of Health and Human Services has set a goal of reducing the national rate of caesarean deliveries among low-risk women with no prior caesarean delivery from 26.5% in 2007 to 23.9% by 2020. Beth Israel Deaconess's Dr. Golen says that the hospital's 2016 rate was 20%, and that the staff believes they can go even lower and still ensure the health and safety of mothers and babies.

Dr. Shah, who is also director of the Delivery Decisions Initiative at Ariadne Labs in Boston, has started looking at unit culture at hospitals around the country. He spearheaded an examination of the views and practices of the directors of labor and delivery wards at 53 hospitals.

In a paper published in July, the researchers found that hospitals with more "proactive" management cultures—which they defined as following practices designed to anticipate and lessen the severity of challenges before they arise—had higher caesarean rates.

The authors suggested that sometimes hospitals face pressures that compete with the drive to reduce caesarean deliveries. For example, vaginal deliveries can be more costly to hospitals because labor can take a long time and require more staff, Dr. Shah says.

In another recent Ariadne Labs study of 12 hospitals, researchers found higher caesarean rates in hospitals where delivery rooms were farther apart or located farther from rooms where doctors and nurses sleep and shower when they are on call. Dr. Shah says more work is needed to understand why, but he theorizes that in the highly complex and rapidly changing environment of a labor and delivery unit, a simpler layout saves time and alleviates stress. "Design is never neutral," Dr. Shah says. "Things that increase a unit's workload may make it more likely for providers to use caesareans."

Caesarean rates for hospitals and providers are now more readily available, which some hope might affect delivery practices. In July, Yelp—working with the California

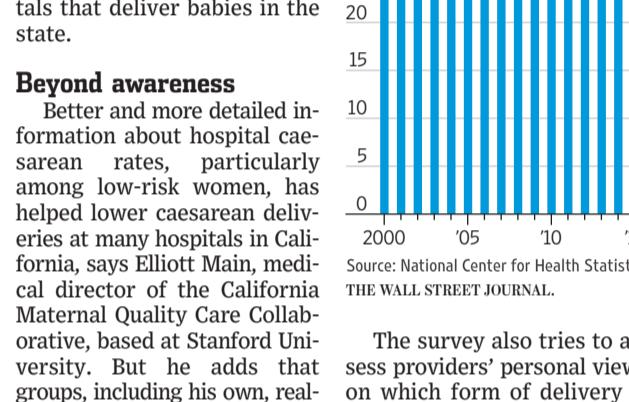


Obstetricians Neel Shah and Toni Golen have helped Boston's Beth Israel Deaconess Medical Center reduce the rate of C-sections substantially among low-risk women.

JAMES DEREK DUNN/BIDMC

Special Deliveries

C-sections as a percentage of all U.S. births



Source: National Center for Health Statistics

also concerned." She led a team of people trying to figure out why the rate was high and to safely lower it.

One morning, walking around the labor and delivery ward, Dr. Golen says that among the key findings that emerged from the research was the recognition that, "with childbirth, you frequently need to do nothing." But it is difficult not to deploy every available resource, she says, especially when the results are uncertain.

In one room, Dr. Golen points out the fetal heart-rate monitor, a ubiquitous presence for decades at the bedside of pregnant women. Monitoring a fetal heart rate can reassure a physician or nurse that the baby is receiving adequate oxygen or indicate that something is likely amiss and intervention is needed.

But frequently, says Dr. Golen, the results fall in the middle—and the ambiguity and uncertainty can be drivers of caesarean delivery.

Role of uncertainty

Indeed, one of the most difficult challenges when trying to make cultural change is how to shift "the tolerance for uncertainty," says Dr. Shah.

In cases of ambiguous fetal heart-monitor results, this might mean trying other therapies, such as a change in the mother's position or intravenous fluids to see if oxygen delivery is improved, or to keep monitoring but not immediately move to surgery if

"The decision for a caesarean should be based on what is happening with the labor," Dr. Golen says.

To reinforce the hospital's success in reducing its caesarean rate, Dr. Shah, bleary-eyed after a night spent on call delivering babies, gives a talk to a 7 a.m. gathering of young doctors, a group embarking on years of training in the labor and delivery ward. Changes in culture aren't easy to maintain, he says. "So much of the system pulls you toward action."

Ms. Dockser Marcus is a Wall Street Journal reporter in Boston. Email her at amy.marcus@wsj.com.

3-D Printing Adds a New Dimension to Health Care

Recent advances have made the technology more useful for surgery and creating drugs

BY AILI MCCONNON

A YEAR AGO, an 11-year-old girl named London Secor had surgery at the Mayo Clinic to remove a rare tumor located in her pelvis. In the past, surgeons would have considered amputating one of Ms. Secor's legs, given that the tumor had spread to the bone and nerves of her sacrum and was encroaching on her hip socket.

That didn't happen this time, however, due largely to advances in 3-D printing.

Before the surgery, Mayo printed a 3-D model of the girl's pelvis, scaled to size and showing her bladder, veins, blood vessels, ureters and the tumor. Members of the medical team were able to hold the model in their hands, examine it and plot a surgical approach that would allow them to remove the entire tumor without taking her leg.

Planning cuts

"There is nothing like holding a 3-D model to understand a complicated anatomical procedure," says Peter Rose, the surgeon who performed the operation on Ms. Secor, an avid swimmer and basketball player from Charlotte, N.C. "The model helped us understand the anatomy that was altered by the tumor and helped us orient ourselves for our cuts around it."

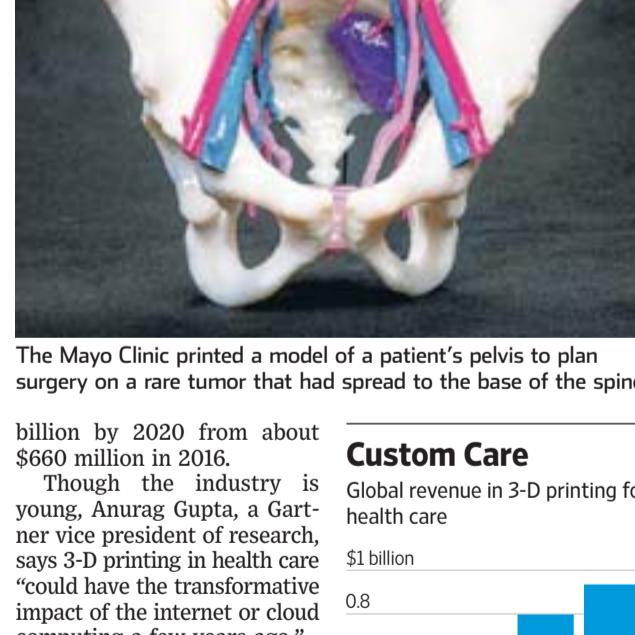
The pelvis model was one of about 500 3-D-printed ob-

jects created at the Mayo Clinic last year. It's part of a web of organizations racing to find ways to use 3-D printing to improve health care.

Some research institutions, including the Mayo Clinic, have set up on-site printing labs in partnership with such makers of 3-D printers as Stratasys, 3D Systems and Formlabs. General Electric Co. and Johnson & Johnson are diving in, too, with GE focused on 3-D printers and translating images from various sources into 3-D objects, and J&J focused on developing a range of materials that can be used as "ink" to print customized objects.

Using data from MRIs, CT scans and ultrasounds, as well as three-dimensional pictures, 3-D printers create objects, layer by layer, using materials ranging from plastics to metal to human tissue. Beyond organ models, the printers are being used in health care to create dental and medical implants, hearing aids, prosthetics, and even human skin.

Research firm Gartner predicts that by 2019, 10% of people in the developed world will be living with 3-D-printed items on or in their bodies, and 3-D printing will be a central tool in more than one-third of surgical procedures involving prosthetics and implanted devices. According to research firm IndustryARC, the overall market for medical 3-D printing is expected to grow to \$1.21



in the manufacturing of drugs in the dose and shape best suited to certain groups of patients. **Aprecia Pharmaceuticals** recently launched a 3-D printed epilepsy drug called Spritam, a high-dosage pill that dissolves quickly with a small amount of water and in a shape that is easy to swallow.

Printing skin

Printing whole organs, such as livers and kidneys, remains the Holy Grail, but that is more than a decade away, says Gartner's Mr. Gupta.

Printing smaller pieces of human material, however, has already begun.

Researchers at the University Carlos III of Madrid, along with the Spanish biotech company **BioDan**, have printed human skin to eventually help burn victims and others suffering from skin injuries and diseases. The process involves a 3-D printer that deposits bioinks containing cells from an individual as well as other biological molecules to create a patch of skin. Like the real thing, this printed skin consists of an external layer, the epidermis, and the thicker, deeper layer, the dermis.

Organovo Holdings Inc. of San Diego prints pieces of liver and kidney tissue to test new therapies and the toxicology of early-stage drugs. Johnson & Johnson is working with **Aspect Biosystems** Ltd. to develop bioprinted knee meniscus tissue. And 3D Systems is developing 3-D-printed lung tissue with **United Therapeutics** Corp.

While entry-level 3-D printers used by hobbyists can cost a few hundred dollars, industrial 3-D printers used by hos-

pitals can range from \$10,000 to \$400,000 for those that print plastics and polymers.

Another hurdle for hospitals is the "hidden cost" of operating 3-D printers, says Jimmie Beacham who leads GE Healthcare's 3-D printing strategy. Engineers are required to transform dense digital images from MRI, CT and ultrasound scans into information that can be printed into a 3-D model. What's more, printing a 3-D object doesn't yet happen with the click of a button. It took 60 hours for Mayo Clinic to print Ms. Secor's pelvis and tumor, for example.

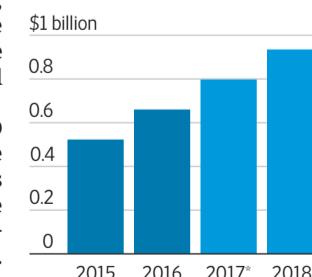
Still, 3-D printing can lead to cost savings in other areas, say experts such as Jonathan Morris, a Mayo radiologist. Allowing surgeons to practice on 3-D models of a specific patient's organs before surgery can significantly reduce time in the operating room. Printing implants and prosthetics on demand and on location means fewer middlemen in the supply chain and less waste. And given the better fit of customized implants from 3-D printers, patients may not have to replace them as often.

The Mayo Clinic and a half dozen other cutting-edge research hospitals have blazed the path in terms of creating 3-D printing labs on site. Now some larger city network hospitals are beginning to purchase their own 3-D printers, while smaller hospitals and doctors can order 3-D models for complicated surgeries on a case-by-case basis from 3-D printing companies.

Ms. McConnon is a writer in New York. Email her at amcconnon@wsj.com.

Custom Care

Global revenue in 3-D printing for health care



* Figures are estimate/projection

Source: IndustryARC

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ual patients, also has helped fuel growth of 3-D printing in health care, as more patients and doctors seek out customized medical devices, surgical tools and drugs.

One of the areas in which

the technology may hold particular promise, experts say, is

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JOURNAL REPORT | INNOVATIONS IN HEALTH CARE

An Alzheimer's Diagnosis—Before Any Symptoms

A group of researchers is studying a radical change in how the disease is identified

BY SHIRLEY S. WANG

AN EFFORT IS under way that could redefine the way Alzheimer's is diagnosed, putting the focus on biological changes in the brain rather than on symptoms such as confusion and forgetfulness.

Supporters say if their plan moves forward, it could help ensure that experimental therapies are tested on the correct population, accelerating research. Earlier detection also one day could make it easier to target people with more effective therapies.

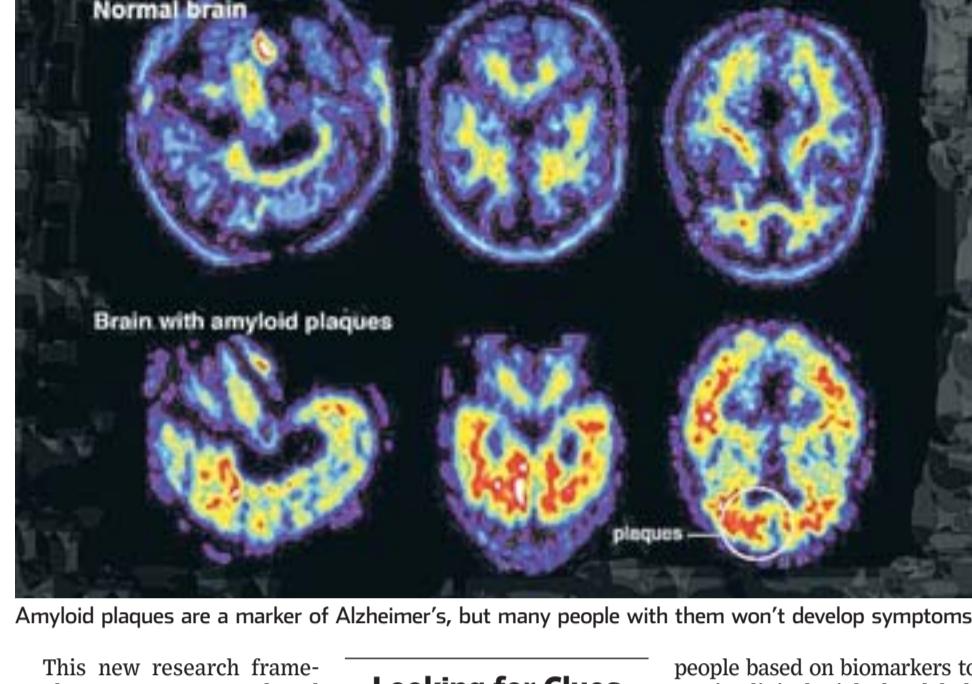
The new proposal—which has sparked debate among Alzheimer's researchers and doctors—centers on the way the disease is defined in research studies, including people enrolled in clinical trials.

The diagnosis of Alzheimer's has long hinged on a doctor's assessment of a person's cognitive skills and symptoms. But in a recent report, a committee convened by the National Institute on Aging and the Alzheimer's Association recommended that researchers instead use tests of the biological markers of disease, such as brain imaging and the measurement of substances in cerebrospinal fluid, when seeking to study participants.

A diagnosis based on biology "is the best way forward to understanding the mechanism [of the disease] and finding treatments for targeting those mechanisms," says Clifford Jack, the committee chairman and a professor of radiology at the Mayo Clinic in Minnesota. (Dr. Jack also is a consultant for Eli Lilly & Co., which makes a tracer used for a brain-imaging test to detect Alzheimer's pathology.)

Alarm bells

The new proposal wouldn't change the way doctors diagnose patients currently. But if after thorough study it is validated, there could be implications in the clinic.



Amyloid plaques are a marker of Alzheimer's, but many people with them won't develop symptoms.

Looking for Clues

Some of the inexact connections between biological markers of disease in the brain and symptoms of disease

30%

or more of cognitively normal people show signs of amyloid plaques in the brain, according to autopsy studies

3X

The increased likelihood that individuals with positive amyloid scans will experience worsening memory problems, compared with those with negative scans

40%

Approximate percentage of people with positive amyloid scans who progress to have Alzheimer's symptoms

Sources: Alzheimer's Research & Therapy; Molecular Psychiatry

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signs of pathology in their brain with Alzheimer's could add many to the total number of people considered to have the disease, the group says.

"To me, it's fine to identify

people based on biomarkers to put in clinical trials, but labeling people with the disease label before it's ready for prime time could cause a lot of harm," says P. Murali Doraiswamy, director of the Neuropsychiatric Disorders Program at the Duke University Health System, who has conducted clinical trials on biomarkers.

There also are questions about potential conflicts of interest of committee members, which include industry executives and Food and Drug Administration employees, as well as academics.

Committee members disclosed their financial conflicts to each other at the beginning of the process, and the group has sped up publishing those disclosures in response to feedback from the draft proposal, says Dr. Jack. Although he finds talk of conflicts "insulting," he says he modified his consulting agreement with Lilly in August so he no longer accepts compensation.

Until recently, the biological changes to the brain seen in Alzheimer's patients—specifically, clumps of a protein called amyloid and another

clump tau—were visible only upon autopsy. But tests to identify these biomarkers have improved so much that doctors occasionally use some on patients, mainly to rule out Alzheimer's in people with cognitive problems.

But the committee contends that rather than working "backwards," by starting with clinical symptoms and then incorporating biomarkers, it makes more sense to start with the biomarkers, according to a draft of the proposal circulated and presented at the Alzheimer's Association International Conference in London in July.

"The ultimate goal of all this is to provide a framework where for research purposes we can think about tackling this disease much before the symptoms occur," says Maria Carrillo, chief science officer of the Alzheimer's Association.

Who will get symptoms?

Some critics say that while brain imaging using radioactive tracers can reliably detect amyloid in the brain, there is interpretation involved in deciding whether a person has enough present to be considered amyloid-positive or -negative.

There's also no way of telling if a particular person with a positive scan will ever develop symptoms, they say.

The likelihood that someone with a positive scan is going to progress to having clinical symptoms—called the positive predictive value—within the next few years is only about 40%, according to Duke's Dr. Doraiswamy, who conducted one of the first studies on one of the brain-imaging tracers, florbetapir.

The committee sees that as irrelevant. "People die without complications from diabetes all the time," says Dr. Jack. "Does that mean that diabetes isn't a disease? Does that mean it shouldn't be treated unless complications are present?"

Maria Glymour, a professor in the department of epidemi-

ology and biostatistics at the University of California, San Francisco, worries that an emphasis on amyloid rather than actual symptoms could eventually lead the FDA to approve a drug because it removes amyloid, without having to show the drug actually improves clinical symptoms.

"What patients care about are memory changes and cognitive changes," she says.

Other Alzheimer's experts say that minorities were underrepresented in the scientific evidence used to support the new research framework, and that the cost of biomarker tests, which can run thousands of dollars per brain scan, could limit Alzheimer's research. Dr. Carrillo says those concerns are legitimate and efforts to address them are under way, but they "shouldn't slow progress that will help us get to better treatments, prevention and a cure."

Then there is the question of what this change might mean for patients. Since no therapy exists today that can change the course of Alzheimer's, some wonder how patients, even those enrolled in studies, will react to being told they have the disease.

Dr. Jack points to prostate cancer as an example of an often slow-moving cancer where if an older person is diagnosed, the appropriate treatment is "watchful waiting."

That age was an important factor in treatment recommendation was discovered by diagnosing the disease biologically through biomarkers and observing how the disease progressed, says Dr. Jack.

"If we stick our heads in the sand and ignore the concept of biologically based diagnosis...how's the field ever going to find out what the risk-benefit ratio is" in Alzheimer's disease?

Ms. Wang, a former Wall Street Journal reporter, is a writer in London. Email her at reports@wsj.com.

Drug Firms Tie Costs to Outcomes

But early signs show little evidence that the plans lower prices

BY PETER LOFTUS

FOR DECADES, health insurers and patients have paid for prescription drugs based on the volume of pills or vials purchased—whether or not the medicines helped individual patients as intended.

Now the outcry over high drug prices has raised the profile of a different approach to paying for prescription drugs. Pharmaceutical companies increasingly are offering to tie a portion of their reimbursements from insurers to how well drugs work in patients. In effect, such agreements say that if for some patients certain drugs don't meet preset targets for performance, the drug companies will accept less reimbursement, thus lowering the cost for consumers. In some cases such rebates are applied on an individual basis; in others they are applied more broadly—for example, to all patients taking a medicine that average test results show is underperforming.

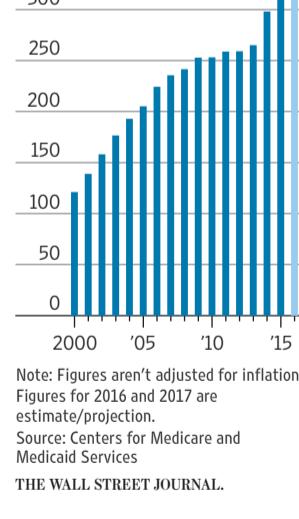
Last year, Merck & Co. and Eli Lilly & Co. each agreed to pay insurers back—effectively cutting prices—if their diabetes drugs don't reduce patients' blood-sugar levels to specified targets. Amgen Inc. this year agreed to pay a 100% refund to an insurer and patients if patients taking a \$14,000-a-year cholesterol-lowering drug suffer subsequent heart attacks or strokes.

In August, Novartis AG said it reached an agreement with the U.S. Centers for Medicare and Medicaid Services for its new \$475,000-per-patient childhood leukemia drug, Kymriah, so that the company will only be paid for the drug if patients respond to it by the end of the first month following the one-time treatment.

This approach, known as outcomes-based or value-based pricing, is gaining traction in Washington, where a draft executive order from the White House aimed at cutting drug spending would direct

Cost Headache

Total prescription-drug spending in the U.S. by year



Note: Figures aren't adjusted for inflation. Figures for 2016 and 2017 are estimate/projection.

Source: Centers for Medicare and Medicaid Services

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federal health programs to enter such contracts. The order hasn't been signed by President Donald Trump. But the biggest U.S. government health-insurance provider, the Centers for Medicare and Medicaid Services, said in August it is exploring outcomes-based deals as "a critical step towards fulfilling President Trump's promise to lower the cost of drugs."

Pharmaceutical companies hope such agreements, which typically are applied on top of volume-based reimbursements, will stave off tougher government actions on pricing. The industry group Pharmaceutical Research and Manufacturers of America sees such contracts as a way to lower out-of-pocket costs for patients, as long as insurers agree to structure deals so that the drugs in question are given preferred status in insurance formularies, which carry lower patient copayments than less-preferred drugs.

"I think our companies are willing to put their money where their mouth is," PhRMA CEO Steve Ubl says.

But there is one problem: Interviews with the drug companies and insurers suggest there is little evidence that outcomes-based contracts are bringing down drug prices. The companies won't share specific performance-test results because they're confidential. But some of the contracts offer limited rebates or set performance targets that the drugs seldom miss. Information provided by the companies shows little money changing hands as a result of the contracts.

Also, in some cases a drugmaker and an insurer have tried a value-based deal for a year, little or nothing was paid in rebates, and the two sides reverted to a traditional volume-based contract. They determined it wasn't worth the additional expense and effort involved in tracking patient compliance in taking drugs as prescribed, and the subsequent effects on health. Insurers track outcomes by reviewing claims for payments—such as hospitalizations for a heart attack—or by working with a third party like a lab-testing company to monitor changes in patients' blood-sugar levels.

"These outcomes-based contracts are being viewed as the solution to the drug-price problem, and they're not going to be, at least not in the short term," says Walid Gellad, an associate professor of medicine at the University of Pittsburgh School of Medicine who researches drug policy issues.

Dr. Gellad says the deals don't stop drug companies from charging high starting prices for new drugs or from steadily raising prices for older drugs. Any rebates or discounts in outcomes-based contracts are off "an already inflated number," he says. He favors other ways to curb drug costs, such as allowing Medicare to directly negotiate prices.

Even executives at some drug companies and insurers that have outcomes-based deals say they're unlikely to put a big dent in overall prescription-

drug spending, which the Department of Health and Human Services says has doubled in the U.S. since 2003 to a projected \$360 billion for 2017.

Any savings from outcomes-based deals likely won't be "very material" to overall drug spending, says Michael Sherman, chief medical officer of insurer Harvard Pilgrim Health Care Inc. "What we've done so far isn't going to solve the drug-price crisis."

Dr. Sherman says Harvard Pilgrim, a Wellesley, Mass., insurer with 2.7 million customers, enters such deals so patients likely to benefit from certain expensive new drugs can get them, but with protections against "breaking the bank" if the drugs don't work in other patients.

Harvard Pilgrim has entered into about a dozen outcomes-based contracts with drugmakers in the past two years. Some of the early deals didn't lead to significant changes in payments, but most don't yet have results that would determine whether payments should be adjusted, Dr. Sherman says, including the Amgen refund deal for its cholesterol drug Repatha.

Eli Lilly has signed at least seven outcomes-based contracts with insurers for the Type 2 diabetes drug Trulicity, including one with Harvard Pilgrim that requires Lilly to pay rebates if the drug doesn't lower blood-sugar levels as well as competing drugs do. The deal hasn't yet reached its first reckoning to determine whether rebates are required.

Another insurer, which Lilly declines to identify, switched back to a fixed-price contract for Trulicity after a year of an outcomes-based contract, says Mike Mason, vice president of Lilly's U.S. diabetes business. He declines to disclose the results of the deal or say why the insurer switched back.

Mr. Loftus is a special writer for The Wall Street Journal in Philadelphia. Email him at peter.loftus@wsj.com.

The Persistence of Myths

Researchers looked at the belief in side effects of vaccines

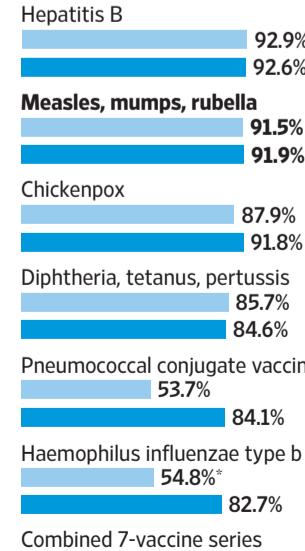
BY ALINA DIZIK

FOR PEOPLE who believe myths about vaccines, the facts aren't very convincing.

That's the result researchers got when they tested if people could be persuaded to change their incorrect beliefs that certain vaccines cause autism or have lesser but still harmful side effects on children. The test subjects stuck to their opinions even after being shown facts about the matter. In fact, their beliefs were stronger afterward, according to Ser-

Parental Caution?

While vaccination rates for childhood vaccines have risen overall, MMR, which is most closely associated with autism by some parents, has been almost flat. Vaccination coverage for selected diseases among children 19–35 months old:



*Figures are for 2009, the earliest available.

Source: National Center for Health Statistics, "Health, United States, 2016"

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gio Della Sala, a neuroscience professor at the University of Edinburgh and one of three researchers who conducted the study.

Why? When people see misinformation contrasted with truth—a common tactic in public-health campaigns—they may stick with the incorrect information because they are familiar with it, according to the research, published recently in the scientific journal PLOS One. "If we want to counter misconceptions by offerings stating 'this is true, this is false,' it's not going to do any good," says Dr. Della Sala.

Last year, the researchers surveyed 120 university students from Scotland and Italy about their beliefs on vaccine side effects. Then participants were exposed to one of three sets of information regarding vaccines: a work sheet that discussed myths versus facts; a chart comparing the actual effects of diseases with the actual side effects of vaccines and their prevalence; and photos of unvaccinated children with the diseases. (A fourth set of students, a control group, received medical fact sheets unrelated to vaccines.)

After that came another survey to see if the students' opinions had changed. With all three sets of information, participants were more likely to hold wrong beliefs about side effects than they had been before. The belief was especially prevalent among participants who had been presented with myths versus facts.

The reason: Many people can't recall the source or validity of information, but still remember parts of what they heard, says Dr. Della Sala. "It lingers in your system and becomes true."

He adds that previous research shows that simply hearing a concept over and over again can make people interpret familiarity as truth.

Ms. Dizik is a writer in Chicago. Email her at reports@wsj.com.

JOURNAL REPORT | INNOVATIONS IN HEALTH CARE

High-Tech Aid for Pregnant Women at Risk

In rural areas, where specialists are rare, obstetricians look to telemedicine

BY BETSY MCKAY

BRITNEY STEWART was nervous at first when her obstetrician told her she'd like her to see a specialist in high-risk pregnancies. "Once I know a doctor I like to stick with that doctor," says the 27-year-old, whose high blood pressure and weight issues put her and her unborn baby at risk.

Now she says those appointments—conducted by video link with the specialist, Anne Patterson in Atlanta, a two-hour drive away—saved her baby's life.

Ms. Stewart's obstetrician, Joy Baker, is one of many physicians seeking to improve care for pregnant women as childbirth in rural America has grown more dangerous. Pregnancy-related complications are rising across the U.S., meaning more women need specialized care, and rural areas have higher rates of obesity and other risk factors for complications.

Yet maternal-fetal medicine doctors and other specialists who can treat pregnant women at risk normally don't practice in small towns. And many rural hospitals have shut their maternity wards, because they're costly to run, or closed down altogether.

Telemedicine programs like the one Ms. Stewart used are helping to fill those gaps. Some of those programs are expanding, and experts hope that the development of professional guidelines and the shrinking costs of technology will encourage wider use of telemedicine for obstetrics.

Spotting trouble

Ms. Stewart, who lives in rural Milner, Ga., saw Dr. Patterson, a maternal-fetal medicine specialist who is chief executive officer of **Women's Telehealth**, a company in Atlanta. Dr. Baker began offering her patients appointments with Women's Telehealth from



UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

Curtis Lowery, a maternal-fetal medicine specialist in Little Rock, consults remotely on a sonogram. His early telemedicine efforts led to a statewide program called Angels for high-risk pregnancies.

her office earlier this year. Starting halfway through her pregnancy, Ms. Stewart had special ultrasounds administered regularly by a local technician trained by Women's Telehealth to perform them, followed by a consultation by video with Dr. Patterson.

In August, one of those ultrasounds showed that blood wasn't flowing properly through the umbilical cord—a sign the baby wasn't getting enough nutrients or oxygen, though his vital signs appeared fine. Worried, Dr. Patterson told Ms. Stewart to come back in a week for another test. The new test showed the baby wasn't taking in any blood through the umbilical cord. He had gone limp.

After seeing the ultrasound, Dr. Baker delivered baby Titus by an emergency caesarean section right away. "Had I not had an ultrasound that day, it would have been a different situation and he would not be here," Ms. Stewart says.

About 70% of Dr. Baker's

pregnant patients are high-risk, because they are obese, diabetic or have other risk factors for complications, the doctor says. Based in Thomasville, Ga., she is one of two full-time obstetrician-gynecologists serving eight counties.

Previously, Dr. Baker had to send high-risk patients to specialists an hour or more away—appointments many couldn't make because they couldn't find a ride, afford the gas, or get time off from work. Now they have those appointments from her office.

"We really needed it, because of our population that we are serving and our remote location," says Dr. Baker.

She paid more than \$15,000 for videoconferencing equipment, an upgrade to the office's internet service, and training in the advanced ultrasound techniques with a grant secured by her hospital, Upson Regional Medical Center, she says. Women's Telehealth gets paid for the consultation, while the hospital, which owns

the practice where Dr. Baker works, gets paid for the use of its facilities and the ultrasound technician's work.

Aiming for growth

Expanding the use of telemedicine for prenatal care as well as labor and delivery is a priority for the American Congress of Obstetricians and Gynecologists, says its president, Haywood Brown, a professor at Duke University School of Medicine. "It improves the quality of care and reduces health-care costs," he says.

A task force for the ob-gyn organization is developing best practices for the use of telemedicine, including what technologies to use and how to bill for visits. The goal is to connect rural physicians and hospitals that perform few deliveries with large medical centers that have expertise in treating complications and obstetric emergencies, he says.

There are hurdles to clear. Equipment can be expensive for some rural providers, and

they worry about how they'll get paid for consultations provided by others, says Curtis Lowery, chairman of the department of obstetrics and gynecology at the University of Arkansas for Medical Sciences.

But obstetrics is well suited for telemedicine, because ob-gyns normally refer women with complications to specialists or larger hospitals, he says. And in Arkansas, state law mandates payment for both providers in a telemedicine consultation—the one who hosts the patient as well as the one who provides the consultation, he says.

Dr. Lowery began providing consultations by videoconference more than 15 years ago to women with high-risk pregnancies in rural areas when he was one of two maternal-fetal medicine specialists in Arkansas. That effort grew into a program called Angels in 2003 with funding from Medicaid.

Angels is now a statewide telemedicine program for high-risk obstetrics. (Angels stands for Antenatal and Neonatal Guidelines, Education and Learning System.) Dr. Lowery is the director of the UAMS Center for Distance Health, which runs the program. Federal dollars for rural broadband service allowed the program to build a network of T1 internet-service lines connecting UAMS with more than 400 hospitals, clinics, health departments and other entities all over the state, he says.

Now, UAMS is adding wireless technology and lower-cost devices so the program can reach patients at home and providers who can't afford more-expensive equipment, he says. The program will also start having maternal-fetal medicine specialists consult on obstetric emergencies in rural hospitals and accompany doctors virtually on rounds.

Regional Obstetrical Consultants, a maternal-fetal medicine practice in Chattanooga, Tenn., also plans to expand its

telemedicine services to hospitals, says C. David Adair, chief executive of the practice. "We've got to be everywhere—not just outpatient, not just inpatient, but both," he says.

Dr. Adair launched the telemedicine program, Solutions to Obstetrics in Rural Counties, or Storc, in 2009. Two-thirds of Tennessee's counties have no private provider of prenatal care, he says. The program will have 15 sites by the middle of next year in Tennessee, Georgia, North Carolina and Alabama, and has cared for about 35,000 outpatients, with funding from the BlueCross BlueShield of Tennessee Health Foundation.

Physicians in Dr. Adair's practice consult patients with complications by video. Now, Storc plans to provide telemedicine equipment to hospitals so that its physicians can see inpatients and consult on their conditions, he says.

Avera eCare, a telemedicine network based in Sioux Falls, S.D., is planning to add obstetrics and gynecology services over the next several months. The network already provides other services by telemedicine to hospitals and clinics in rural areas in 14 states.

The goal is to provide immediate help for doctors whose patients need specialized or emergency care. "It's the idea that I can pick up a phone and call someone and have them say 'How can I help?'" says Kimberlee McKay, clinical vice president of obstetrics services for **Avera Health**. Avera eCare is a division of Avera Health and also provides services to hospitals in other health systems. "The traditional model is I have to call the hospital and find out who in obstetrics is on call, and if they'll take the patient."

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The Face of Change

Cory Gaines
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Government's Role in Fighting Loneliness

Medical experts say social isolation needs to be seen as a public-health issue

BY EMILY HOLLAND

LONELINESS IS hazardous to your health—and more psychologists and doctors are calling for a public-health campaign to fight it.

"This has been underappreciated in the past," says Julianne Holt-Lunstad, a professor of psychology and neuroscience at Brigham Young University, "but cumulative data over hundreds of studies with millions of participants provides robust evidence of the importance of social connections for physical health and risk for premature mortality."

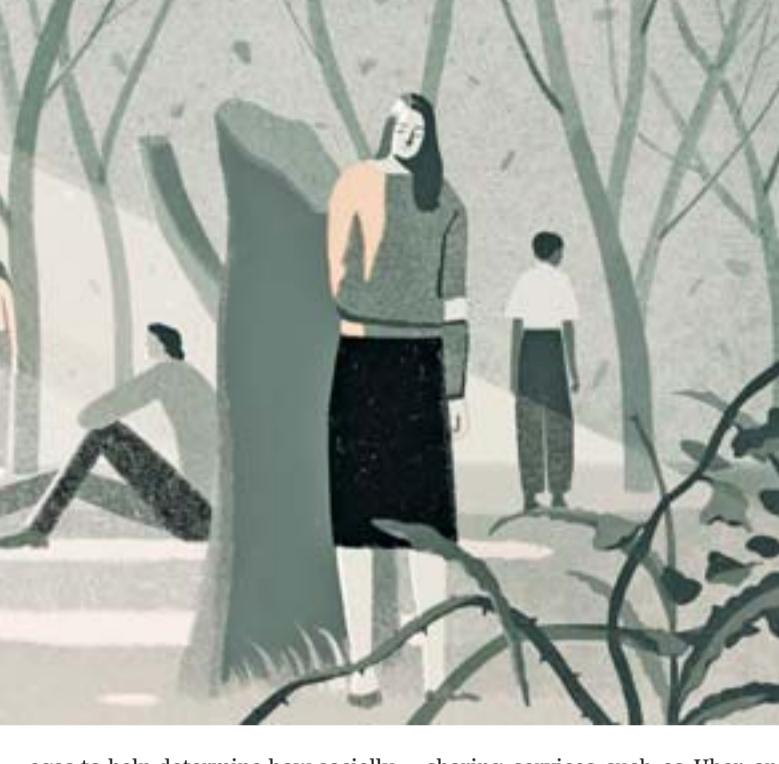
Social isolation, loneliness and living alone all have a significant effect on the risk of early death—and the risk is equal to or greater than major health problems such as obesity, according to one of two meta-analyses of data from multiple studies that Dr. Holt-Lunstad presented in August at an American Psychological Association convention. The other, which looked at data from 148 studies, found that having greater social connections is associated with a 50% reduced risk of premature death.

"Everybody has momentary pangs of loneliness, which are intended to motivate us to re-engage," says Emma Adam, a professor of human development and social policy and a faculty fellow at the Institute for Policy Research at Northwestern University. "It's really the kind of chronic loneliness where your body doesn't have a chance to recover from those momentary experiences where loneliness really becomes a health problem."

A growing problem?

About 44 million adults age 45 and older experience chronic loneliness, according to a 2010 survey by AARP, an advocacy group for older adults. In the survey, 35% of respondents said they were chronically lonely, up from 20% in a similar survey a decade ago.

Psychologists say an increase in single-person households, higher divorce rates and too much focus on social media over in-person communication may be contributing to that increase, although social media also can help fight loneliness when used



tion classes in schools, beefing up campus wellness offerings for college students who feel isolated and making loneliness part of the curriculum at medical schools, among other things, says Dr. Holt-Lunstad.

Even the simple but powerful step of providing medical coverage for hearing aids could help reduce social isolation, she says. (While some private insurers cover hearing aids, traditional Medicare doesn't.) "If you can't hear, you aren't part of the conversation," she says.

Mixing generations

Some senior-living communities have found success with intergenerational activities that encourage young and old people to socialize.

Providence Mount St. Vincent, a nursing home and assisted-living facility in Seattle, also houses a childcare program, which allows seniors to interact with children throughout the day. In Cleveland, a retirement community run by Judson Services Inc. launched an intergenerational housing program in which students from the Cleveland Institute of Music—and now other schools—are given free room and board within the community in exchange for musical performances.

Cohousing communities, which are more common in Europe, are starting to pop up in the U.S., as well. Designed to promote a community-oriented lifestyle, homes are located close together around a shared space. Peter Lazar, who is developing Emerson Commons, a cohousing facility near Charlottesville, Va., says the goal is to "create a functioning neighborhood where people know their neighbors and interact."

Part of the challenge in fighting loneliness is that it "is still regarded by most people as a personal deficit or weakness," says John Cacioppo, author of "Loneliness: Human Nature and the Need for Social Connection."

Laura Alcock-Ferguson, executive director of the U.K.'s Campaign to End Loneliness, agrees, saying: "The more we talk about loneliness, the more we explore it through the media and culture and communities, the more we normalize it."

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in certain ways.

Loneliness is highest in people age 80 and older, according to a 2016 study by Maike Luhmann, a professor at Ruhr University Bochum in Germany, and Louise Hawkley, a senior research scientist at the University of Chicago. Hearing loss, the deaths of spouses and friends, and immobility are among the issues that contribute to social isolation in the elderly.

But the researchers also found that loneliness rises at other times, including around 35 and 55, for reasons that are unclear. It could be that people are so busy building careers and raising families they don't have time to maintain high-quality relationships, Dr. Luhmann says.

While loneliness has yet to receive the same level of attention as obesity and smoking, efforts to identify and help those at risk are beginning to take shape.

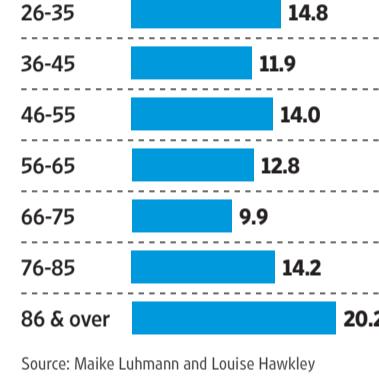
Last year, AARP launched a campaign called Connect2Affect to spread awareness of the connection between loneliness and health and to identify solutions to help combat it. The Connect2Affect website offers a self-assessment tool for people of all

ages to help determine how socially isolated they are. It also shares tips on how to become more connected.

Senior-living facilities across the country have programs to help the elderly socialize more, and at least one company has sprung up that allows seniors to connect with ride-

All by Myself

The percentage of people, by age, who say they are at least sometimes lonely



Source: Maike Luhmann and Louise Hawkley
THE WALL STREET JOURNAL.

sharing services such as Uber and Lyft by dialing an 800 number. The Institute on Aging offers a 24-hour toll-free Friendship Line (1-800-971-0016) for adults 60 and older to call when they're feeling lonely, depressed or suicidal.

But some health professionals believe a public campaign to combat social isolation is in order—and it should start with doctors screening patients for chronic loneliness in much the same way they screen for other health conditions.

"Early identification of patients in their practice and screening for loneliness or depression is a good first step," says Georges C. Benjamin, executive director of the American Public Health Association. Then it's about "identifying programs to refer their patients to and a strong follow-up with patients and family members to ensure that engagement is occurring."

Some experts say programs are needed at the national, regional and local levels to teach people about loneliness and health, and to destigmatize the problem, so that people will seek help. That could mean discussing loneliness in health-educa-

BORN to COLLABORATE

Being a physician means I need to understand the latest research, and I really enjoy that constant learning. It would be nice if the technology in our practice was current too. That's why it's important to connect physicians with other innovators to improve the tools we use every day. This not only keeps me on the cutting edge, it allows me to help create it.

Find out how the AMA helps physicians collaborate on new health care technology at ama-assn.org/ama-innovation



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