

U.S. NEWS

THE OUTLOOK | By Josh Zumbrun and Tripp Mickle

New iPhone Tests Economic Theory

Thorstein Veblen was a cranky economist of Norwegian descent who coined the phrase "conspicuous consumption" and theorized that certain products could defy the economic laws of gravity by stoking more demand with superhigh prices.

His 1899 book, "Theory of the Leisure Class," made him famous in his time. More than a century later his ideas are embodied in products such as Hermès handbags and Bugatti cars.

Now, Apple and Samsung are testing whether the social commentator's theory on what has come to be known as the "Veblen good" can work for one of the most common of all consumer products: the phone.

The gambit is striking because prices for technology goods tend to fall and products become obsolete fast. In this case, though, it just might work in its own way.

Typically, raising the price of a good lowers demand for it. If beef becomes too expensive, people will buy more chicken. Mr. Veblen's theory posits that some consumers want a product even more when the price rises because the expense broadcasts status, taste and wealth.

By unveiling the new iPhone X last week with a price of \$1,000, Apple Inc. is pushing the envelope even further than Samsung Elec-

tronics Co., which unveiled the \$950 Note 8 phone this year. Rather than trying to attract consumers with cheaper prices, the companies are fighting for customers with expensive price tags.

The starting price of the new flagship iPhone X is about 50% more than the \$650 starting price of last year's iPhone 7. The most expensive version of the iPhone X, with 256 gigabytes of storage, will cost 19% more than last year's most expensive device, the iPhone 7 Plus, with the same memory.

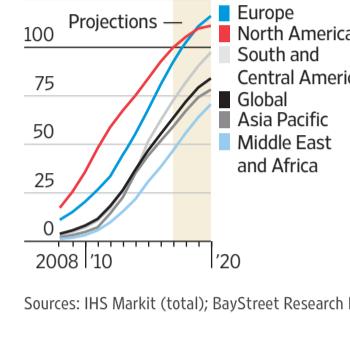
Apple and Samsung have found themselves here partly by necessity. Smartphone makers are running out of new customers. Data from IHS Markit estimates there are just under 100 smartphones per 100 people in the U.S. and about 92 smartphones per 100 people in Europe. (Many people own more than one phone.) By 2020, there will be about 84 smartphones per 100 people globally, IHS projects.

To boost revenue the smartphone makers increasingly need to push on price. "They can create a super-premium model and perception of superpremium that pushes those buyer types into the stratosphere," said Steven Haines, chief executive of Sequent Learning Networks, which advises companies on

Conspicuous Consumption

As cellphone penetration swells worldwide, Apple and Samsung are creating high-priced, high-end products that spur demand.

Number of smartphones per 100 people



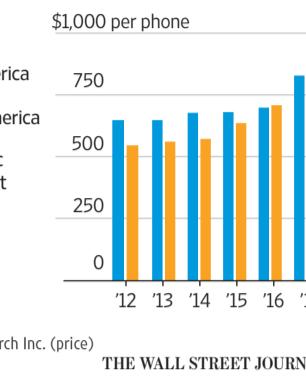
Sources: IHS Markit (total); BayStreet Research Inc. (price)

product management.

Such segmentation is normal in mature industries, said Mr. Haines, comparing smartphones to what happened with the auto industry, where luxury cars with high prices became a status symbol as car ownership became common.

Apple has made the case that the technology in its new phone justifies the price. Chief Executive Tim Cook said the iPhone X will feature "more powerful technologies than we've ever put in an iPhone before." That includes a host of new components and features, including a 5.8-inch organic light-emitting diode display, a new depth-sensing camera system for facial rec-

Average wholesale price



THE WALL STREET JOURNAL.

ognition, and gyroscopes and accelerometers for augmented reality—a platform that puts virtual images of items like an IKEA sofa onto the smartphone screen so users can see how it would look in a room.

The components cost Apple an estimated \$581, up from \$248 for iPhone 7 components, according to Susquehanna International Group. The gap suggests Apple's profit margins on the device are slimmer than on existing lines.

Still, conspicuous consumption appears to be a growing factor in the economics of smartphones. The market research group NPD finds jumps in sales volumes when new

phones are launched. The biggest spikes came for iPhones that were the most visibly distinct, such as 2014's iPhone 6, a model that also cost \$100 more.

"You talk to people, and you hear this lust for a product," said Horace Dediu, an industry analyst at Asymco and a former Nokia Corp. business development executive. "Technology has risen in our lives to become a reflection of us."

Still, Mr. Dediu said the iPhone X isn't a pure example of Veblen's theory because demand will be driven by functionality, not simply price.

Putting out an iPhone 8 and an iPhone X at the same time suggests Apple is trying to create a prestige factor, said Elizabeth Currid-Halkett, a professor at the University of Southern California who studies consumer culture.

"They're clearly trying to demarcate the iPhone X from the other versions, and surely there's a desire to make it a status good," she said, noting that the iPhone X doesn't appear to offer significantly greater utility than other iterations of the iPhone.

"Are you getting some extra utility out of this good?" said Ms. Currid-Halkett. "I think the answer is no. I don't think a new animated emoji is better functionality. But it's cool."

WEDNESDAY: The National Association of Realtors releases August data on **U.S. existing-home sales**, after July sales fell to their weakest level this year. The August figures will provide the latest snapshot of a housing market characterized by tight inventory and solid demand. Economists surveyed by The Wall Street Journal expect existing-home sales rose 0.4% to a seasonally adjusted annual rate of 5.46 million in August.

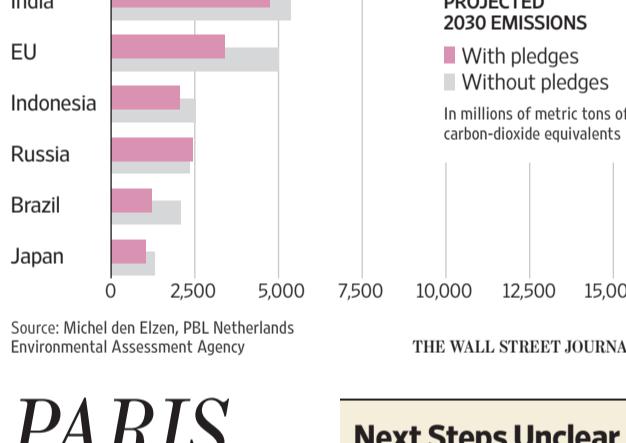
The **Federal Reserve** releases a policy statement at 2 p.m. EDT at the conclusion of a two-day meeting, followed by a news conference. The central bank has signaled that it plans to announce the launch of its balance-sheet runoff, and Fed communications will be scrutinized for any clues regarding another interest rate increase this year. The Fed also will release economic projections, including for 2020 for the first time.

THURSDAY: Some economists expect **U.S. jobless claims** to remain elevated when the Labor Department releases the latest weekly figures, with the impact of Hurricane Irma leaking through in the data. Economists surveyed by the Journal expect 295,000 new claims were filed in the week ended Sept. 16, compared with 284,000 a week earlier.

FRIDAY: IHS Markit releases its preliminary September **composite Purchasing Managers Index for the eurozone**, a measure of activity in the manufacturing and services sectors. It is forecast to rise slightly.

Air of Uncertainty

Under the Paris accord, participants would curb emissions aimed at keeping global temperatures from rising above a danger threshold.



Source: Michel den Elzen, PBL Netherlands Environmental Assessment Agency

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Wind turbines are a growing source of power as nations work to cut carbon emissions associated with global warming.

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Next Steps Unclear On Climate Deal

President Donald Trump said in June that the U.S. would withdraw from the pact but begin negotiations to reenter either the Paris accord or an...entirely new transaction, on terms that are fair to the United States."

But Mr. Trump has repeatedly boasted of withdrawing from what he has called a "job-killing" deal and hasn't emphasized revising the country's participation in the pact.

Asked Sunday by ABC News whether the U.S. could remain in the Paris pact, national security adviser H.R. McMaster said: "If there's an agreement that benefits the American people, certainly."

Secretary of State Rex Tillerson told CBS News: "The president is open to finding those conditions where we can remain engaged."

Remarks by the top U.S. national-security official and diplomat reflected the message offered by the U.S. delegation, led by White House senior adviser Everett Eissenstat, to representatives from 34 governments in Montreal Saturday, according to a person familiar with the discussions.

Mr. Trump's envoy, who is deputy director of the National Economic Council, the White House office led by Mr. Cohn, said the U.S. couldn't carry forward with targets set by the Obama administration. Mr. Eissenstat said the White House continued its review of those commitments, the person said.

In the meantime, the U.S. said it would participate in climate talks, remain active and be constructive, the person said.

Participants in Montreal said Mr. Eissenstat's remarks fueled optimism among proponents of the Paris deal. Since Mr. Trump's inauguration, officials from China, the EU and Canada have tried to convince his administration that fighting

climate change could also prove an economic boon.

Businesses mostly declined to discuss the administration's position, while indicating it wouldn't affect clean-energy investments.

"Until we know more about the administration's thoughts and plans, FirstEnergy doesn't have anything to add," a spokeswoman for the Ohio-based electricity company said.

Since the president's June announcement, companies have showed few signs of changing long-term strategies in the capital-intensive industries with decade-long planning horizons.

Many firms are shifting to less carbon-intensive fuels and

agreed to aim to reduce carbon-dioxide emissions by 26% to 28% below 2005 levels by the year 2025. Mr. Trump could ease that goal, which is voluntary, and make it less ambitious.

Renegotiation could be difficult.

Mr. Trump has said the U.S. could seek a new deal or try to reopen negotiations on the Paris agreement. But experts say such a process would be difficult, because nearly all nations agreed on the pact in 2015, and leading economies have said they would continue with the original deal if the U.S. leaves.

The administration has sent mixed signals.

Trump advisers told a group of climate officials in Montreal on Saturday the U.S. could remain engaged in the Paris accord. In June, Mr. Trump said the U.S. would seek to renegotiate on "terms that are fair." But Mr. Trump has boasted of withdrawing the U.S., making no mention of revising U.S. participation.

A future administration could rejoin the agreement.

Environmental groups say the Paris agreement was designed to be durable and withstand shifts in climate politics.

renewable energy to satisfy customer preferences, and because these fuels have become less expensive and more competitive. Most also operate in multiple countries, including in jurisdictions still pursuing ambitious climate regulations.

Reducing emissions cost effectively remains an important part of our strategy," said Neil Nissan, a spokesman for North Carolina power company Duke Energy, which plans to cut carbon emissions by 40% by 2030.

America's international partners will be looking for clarification during Mr. Cohn's briefing in New York, as world leaders arrive in the city for the United Nations General As-

sembly.

The Paris deal, brokered under a U.N. framework, is on the agenda as countries seek to meet their commitment to limit the global temperature increase to "well below" 2 degrees Celsius (3.6 degrees Fahrenheit) compared with preindustrial levels. The U.S. wants to use the annual U.N. gathering to present its "softer vision" on the sidelines, according to one official who participated in the Montreal event.

Mr. Cohn is planning to exchange views on the path ahead, a White House official said, underlining that the U.S. was focused on reducing emissions by pursuing clean energy and other technological improvements. Mr. Cohn would point to areas where the U.S. had made such strides without sacrificing economic growth or energy security, the official said.

The U.S. delegation joined the Montreal discussions on climate change and clean energy, which spurred optimism about American engagement, one participant said. At the meeting, Mr. Eissenstat appeared to juggle the Trump administration's policy priorities on the Paris agreement, according to participants in the Montreal meeting.

"I was in the meeting, and effectively, the negotiator didn't close the door to remaining in the agreement, and in addition ruled out looking for a new agreement," Chilean Environment Minister Marcelo Mena said late Saturday in a tweet from Montreal.

Rep. Kevin Cramer (R., N.D.), who has urged Mr. Trump to renegotiate U.S. commitments under the Paris accord, said Sunday that the White House told him the president's "position hasn't changed—he still plans to withdraw unless we find more suitable terms."

—Paul Vieira, Ben Leibsdorf, William Mauldin, Bradley Olson and Sarah Kent contributed to this article.

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AVIATION SAFETY

Panel Wants to Kill Dozens of FAA Rules

A federal advisory committee's sweeping deregulation proposals are roiling the world of airplane safety.

The panel of industry and labor representatives has delivered

Earlier in the day, hundreds of demonstrators stood in peaceful, silent protest for six minutes outside police headquarters in downtown St. Louis, many with one fist raised, to represent the six years since the killing of 24-year-old Anthony Lamar Smith.

The crowds emerged to protest the acquittal of Jason Stockley, a white, former St. Louis Police Department officer who shot and killed Mr. Smith after a police chase in December 2011. Mr. Stockley said he suspected Mr. Smith of being involved in a drug deal.

—Sara Randazzo

CORRECTIONS & AMPLIFICATIONS

Prices of U.K. government bonds, or gilts, fell Friday, pushing up yields. In some editions

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

Saturday, a promotional box in the Business & Finance section incorrectly said gilts rose.

The suspect, Kenneth Gleason, was being held on drug charges. Authorities didn't immediately have enough evidence to arrest him on charges related to the killings, but the investigation was ongoing, Baton Rouge Sgt. L'Jean McKneely said.

"The victims were...ambushed," Sgt. McKneely said.

—Associated Press

The slayings of two black men in Baton Rouge last week were likely racially motivated, police said Sunday, and a suspect—a 23-year-old white man—was in custody. In both shootings, the

U.S. NEWS

Housing Crunch Afflicts Texas

Tens of thousands of residents still can't return to homes damaged by floods

BY DAN FROSCH
AND LAURA KUSISTO

HOUSTON—Lillian Godfrey has been sleeping on an air mattress on the floor of her friend's closed night club, alongside her daughter and two pool tables, ever since floodwaters swept into her home here last month.

Ms. Godfrey, 74 years old, has a federal voucher for a hotel, but hasn't had any luck finding a room nearby. Her daughter's cars were lost in the flooding.

"It's heartbreaking," she said. "The Lord closes some doors and opens others. He's going to pull me through this sooner or later."

As the floodwaters retreat across Texas, federal and local officials are grappling with another vexing problem wrought by Hurricane Harvey: where to house one of the largest populations displaced by a natural disaster in recent years.

Tens of thousands of Texans are still unable to return to their flood-affected homes. Hotel occupancy in the Houston area has surged. And disaster-recovery officials are scrambling to figure out short-term and permanent housing for those left homeless by the storm—a daunting and costly mission that could take months.

"While the final scope and scale of the housing challenge is still being realized, it is already apparent that this will be one of the largest, most complex efforts ever undertaken," said Michael Byrne, who heads relief efforts in Texas for the Federal Emergency Management Agency.

As of Sunday, more than 66,000 people who fled the storm were staying in hotels paid for with FEMA vouchers, the agency said. Some 46,120 homeowners and renters who were forced to relocate have also received approved by FEMA for financial assistance to help with housing payments.

More than 4,700 people remained in Red Cross shelters across Texas as of Sunday, according to the relief group.

Others, uneasy with the prospect of living elsewhere, have remained in their water-logged homes. Still others were staying with friends,



A major effort is under way to figure out which homes are still livable after Harvey. Above, a destroyed house in Bayside, Texas.

Harvey Challenges Revamped FEMA

The effort to find both temporary and long-term housing for the tens of thousands of Texans displaced by Harvey is one of the largest missions the Federal Emergency Management Agency has undertaken.

It is also a major test for how the agency handles housing issues since being criticized for its sluggish response to Hurricane Katrina in 2005.

So far, FEMA has approved more than \$460 million in aid

to those affected by the storm, much of which includes money to pay for housing assistance or hotel rooms.

By comparison, Hurricane Katrina was more devastating, destroying an estimated 300,000 homes, resulting in the deaths of more than 1,800 people and displacing approximately 700,000 from New Orleans and nearby. Federal officials say subsequent overhauls and changes will help FEMA's response to Harvey.

Following Katrina, many people evacuated to Houston and ended up staying there—filling up apartments and pro-

viding a boost to the local real-estate market, but hurting New Orleans economically.

In Houston, local politicians, tenant advocates and displaced people all cite the thousands of trailers used to house people in the aftermath of Katrina as something to be avoided. But given the challenge of finding people hotel rooms and affordable apartments for the long term, experts said the use of trailers is likely inevitable.

FEMA ordered about 4,500 manufactured-housing units after Harvey, and it could order more for Irma victims in Florida,

according to Patti Boerger, spokeswoman for the Manufactured Housing Institute.

The agency didn't immediately respond to a request for comment on the number of trailers it has ordered.

At least some of the trailers are expected to be placed in rural areas. Houston, like most cities, doesn't readily lend itself to parking mobile homes in people's yards.

Trailers were criticized after Katrina when people complained they made them sick from elevated levels of formaldehyde.

—Dan Frosch

and Laura Kusisto

family or even strangers.

It is unclear how many people in Texas eventually will be able to move back.

According to data culled by the state from cities and counties, an estimated 14,952 homes were destroyed in the storm, 50,712 suffered major damage and 76,364 saw minor damage.

Local officials say at least 130,000 single-family homes in Harris County, which includes Houston, were estimated to have been affected by the flooding in some way. Between 2,000 and 3,000 large apartment buildings likely sustained damage, and up to 5,000

smaller apartment buildings may have been damaged as well, according to officials.

"In terms of the sheer destruction due to the flooding, this is unprecedented in modern times for Houston," said Tom McCasland, Houston's director of housing and community development.

Mr. McCasland said a broad effort is under way—involving city workers, volunteers and FEMA—to figure out which homes are still livable and repair them swiftly. The city is also working to locate any available apartment units that could house evacu-

ees. Similar efforts were underway in flood-ravaged communities throughout Texas.

Cities in particular face significant challenges after disasters such as hurricanes Harvey and Irma because housing costs in metropolitan areas are higher, there is little empty space for setting up temporary homes such as trailers, and hotel rooms can be scarce, experts said.

For the first full week of September, hotel occupancy in Houston stood at 80.5%, more than 44% higher than the rate during the same week a year earlier, according to STR Inc.,

a data company that tracks the hotel industry.

In Port Arthur, a coastal city of about 55,000, Mayor Derrick Freeman called the housing situation "dire" in the wake of heavy flood damage.

"There are folks here who are really in survival mode," said Mr. Freeman, whose own home was swamped with water and has been living with his wife and four children at his mother's home.

—Chris Kirkham

contributed to this article.

◆ Gasoline-price boost from storms benefits refiners..... B9



BRENDAN SMIALOWSKI/AGENCE FRANCE PRESSE/GETTY IMAGES

Structures in Naples, Fla., above, and elsewhere that followed revised building codes sustained less hurricane damage than older ones.

Newer Homes Hold Up After Irma

BY LAURA KUSISTO
AND ARIAN CAMPO-FLORES

As homeowners in Florida begin to take stock of the damage from Hurricane Irma, one pattern is beginning to emerge: Houses that were built to stricter building codes seem to have fared better.

"The feedback we're hearing is positive," said Rusty Payton, chief executive of the Florida Home Builders Association.

"We're all interested and there will be a deep dive. It appears that it did its job."

Bill Wheat, executive vice president and chief financial officer at home-building giant D.R. Horton Inc., said his company's early assessments "indicate that the more recent building standards post-Andrew over the last 20 years have held up relatively well."

The evidence so far is preliminary. Insurance companies, home builders, city and county officials and local resiliency experts say they are still conducting assessments of how homes and commercial buildings built to different standards held up during Irma. Homes in the Florida Keys, for

example, tend to be older and were in the most badly damaged areas from the storm, but until a few days ago the Keys were inaccessible to researchers.

Julie Rochman, chief executive of the Insurance Institute for Business and Home Safety, a research organization backed by insurers, said it is too early

to say definitively what role the building code played in minimizing destruction. But she said early feedback from a research team that put in place instrumentation throughout southern Florida during the storm is encouraging.

One of the team's meteorologists who toured some of the affected areas was "very pleasantly surprised," Ms. Rochman said. "It looks like the building codes have proved themselves,

that the new construction has done well."

Leslie Chapman-Henderson, president and chief executive of the Federal Alliance for Safe Homes, said she has noticed the roofs of older homes look like checkerboards with shingles missing. Flying shingles are a large concern because they can hit people and property and cause additional damage.

Research led by Kevin Simons, a professor at Austin College, looking at insured-loss data from 2001 to 2010 found that the new building code reduced windstorm losses by up to 72% and that there were \$6 in losses saved for every \$1 of additional construction costs.

The paper is set to be published shortly in the Land Economics journal.

Tom Lykos, a builder in the Naples, Fla., area, said his two-story house, which was finished in 2003 and meets the new, more stringent standards, came away with nary a scratch from Irma. Mr. Lykos, who is about 5 miles from the water, said at one point the wind was enough to topple a large oak tree outside his

door.

"I know stuff was bouncing off the house and my house suffered no damage whatsoever. The newer construction really stood up to the winds," he said.

Others were less lucky, he said. A client of Mr. Lykos whose home was built in the 1990s to less stringent standards sustained severe damage both from wind and flooding, though Mr. Lykos said the home is also closer to the ocean. He said many older homes took on several inches of water but newer homes, which are built higher above sea level, didn't.

Florida has one of the strongest building codes in the country. Passed statewide in 2002 after Miami-Dade County beefed up regulations in the wake of Hurricane Andrew in 1992, the new rules required newly built homes to have stronger fasteners that prevent their roofs from blowing off, nails instead of staples and, in certain areas, impact-resistant windows, which manufacturers sometimes check by firing pieces of plywood out of cannons at them.

Interior Urges Cuts To Nation's Preserves

BY JIM CARLTON

Interior Secretary Ryan Zinke has recommended cutbacks or other changes to nearly half the geographic national monuments he recently reviewed at the request of President Donald Trump, according to a report sent to the White House and reviewed by The Wall Street Journal.

The report recommends reducing the boundaries of the Bears Ears and Grand Staircase-Escalante preserves in Utah, and reopening hundreds of thousands of square miles of protected oceans in both the Pacific and Atlantic to commercial fishing.

Those are the findings in a report the secretary sent to Mr. Trump in August. The details of the report weren't released at the time.

Officials at the Interior Department referred requests for comment to the White House, which declined to comment.

"The Trump administration does not comment on leaked documents, especially internal drafts which are still under review by the president and relevant agencies," White House spokeswoman Kelly Love said Sunday.

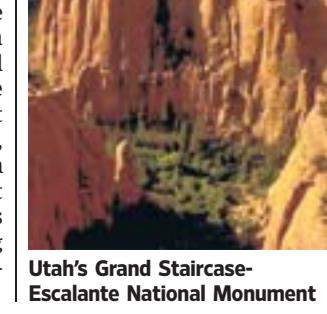
Besides Bears Ears and Grand Staircase-Escalante, the list of land monuments recommended for downsizing or otherwise made less restrictive—including by allowing traditional activities including ranching and logging—are Oregon's Cascade-Siskiyou; Nevada's Gold Butte; Maine's Katahdin; and New Mexico's Organ Mountains-Desert Peaks and Rio Grande Del Norte. The ocean preserves Mr. Zinke wants reopened to commercial fishing include Northeast Canyons and Seamounts off the Massachusetts coast and both Rose Atoll and the Pacific Remote Islands.

Mr. Zinke recommended no changes to 17 other national monuments the president included in the review, which he ordered after complaining some of his predecessors had locked up too much land and water in the preserves that can be created under the Antiquities Act of 1906. Most of the monuments that Mr. Zinke reviewed were created by two of Mr. Trump's Democratic predecessors, Barack Obama and Bill Clinton.

If the president acts on the recommendations, they could have enormous economic implications in areas around the monuments. Prior to a nearly 600,000-square-mile area being created as the Pacific Remote Islands Marine National Monument by the George W. Bush and Obama administrations, the region was a major fishery for Hawaii and Samoa, Mr. Zinke said in his report. Along with the two other marine monuments he singled out for change, he asked the president to take actions including through boundary reductions to allow most commercial fishing to resume.

Similarly, a reduction in the size of Utah's 1.9-million acre Grand Staircase-Escalante National Monument could open that area of canyons to coal and oil exploration. The report notes that the monument contains "an estimated several billion tons of oil and large oil deposits."

Mr. Zinke also said traditional activities such as ranching and logging would be better protected by also reducing acreages or making other changes at Oregon's Cascade-Siskiyou, Nevada's Gold Butte and New Mexico's Rio Grande Del Norte national monuments.



DOUGLAS C. PLAC/ASSOCIATED PRESS

Storm Poses Fresh Threat

BY JOSÉ DE CÓRDOBA

CRUZ BAY, U.S. Virgin Islands—Tropical storm Maria became Hurricane Maria on Sunday, casting a long shadow of fear and uncertainty over a swath of the Caribbean that was slammed by Hurricane Irma less than two weeks ago.

Hurricane Maria was about 140 miles east-northeast from Barbados by Sunday evening with sustained winds of 75 miles an hour, the U.S. National Hurricane Center said. The storm was expected to strengthen during the next two days, becoming a major hurricane by Monday night and threatening the British and U.S. Virgin Islands and Puerto Rico by midweek, the center said.

Maria killed at least 38 people across the Caribbean and caused catastrophic damage.

People in the two-island nation of Antigua and Barbuda, the first hit by Irma, were busy preparing Sunday for the possible impact of Maria.

Nearly all Barbuda's 1,800 residents had already been evacuated south to Antigua, staying in government shelters or with friends and relatives, Philmore Mullin, the director of emergency response, said.

The hurricane's projected path would take it just south of Antigua and Barbuda, putting it closer to St. Kitts and Nevis, Guadeloupe, Montserrat and Dominica, according to the National Hurricane Center.

—Anthony Harrup and Dudley Althaus contributed to this article.

U.S. NEWS

Trump Aides Face Growing Legal Costs

Some have liquidated savings for college, set up defense funds as probes continue

BY ARUNA VISWANATHA
AND DEL QUENTIN WILBER

Some White House and Trump campaign officials caught up in investigations of Russia's electoral meddling are struggling to pay their legal bills, prompting them to create legal-defense funds, liquidate personal accounts and explore other sources of financing.

Washington is one of the nation's costliest legal jurisdictions, with many lawyers charging upward of \$1,000 an hour, and several Trump associates have been contacted in connection with multiple ongoing investigations, from Congress to the special counsel's office.

Former Trump campaign aide Michael Caputo, who testified in July before a closed-door hearing of the House Intelligence Committee, said in an interview he has spent around \$30,000 on legal bills. He said he liquidated a college fund he had set up for his daughters, including one who is 15 years old.

"My retirement account is next," Mr. Caputo said, estimating that paying a Washington attorney to represent a witness at one congressional hearing costs around \$40,000. He said his costs were lower because he hired a lawyer in upstate New York, where he lives.

Paul Manafort, President Donald Trump's former campaign chairman and a focus of Special Counsel Robert Mueller's probe, owes substantial sums in unpaid legal bills to his former law firm, according to people familiar with the matter.



CHIPS CONGDON/WALLA/GETTY IMAGES

Former Trump aide Michael Caputo, center, facing about \$30,000 in legal bills, said he liquidated a college fund for his daughters.

Mr. Manafort's former law firm, WilmerHale, also declined to comment.

The sprawling investigations into Russian meddling in the 2016 election have touched many current and former White House and campaign officials. Some, like Mr. Manafort, played

major roles in the campaign.

The Office of Government Ethics recently revisited guidance on anonymous and other donations to legal-defense funds in light of the current interest.

The family of former national security adviser Mike Flynn has said it plans to set up a legal-defense fund, as has Roger Stone, a longtime informal adviser to Mr. Trump. He said on his website his legal expenses include defending himself against a private lawsuit

accusing him of helping Russian efforts to distribute information hacked from the Democratic National Committee.

A lawyer for Mr. Flynn said his client hadn't announced a legal-defense fund and declined to comment further. Mr. Stone didn't respond to an emailed request for comment.

These Trump aides' plight recalls that of staffers in the Bill Clinton era who also faced multiple investigations.

Former Clinton administration official Neel Lattimore, in

an interview, described the investigations into the Clinton White House as "emotionally draining and financially expensive."

Mr. Mueller's office is investigating Russian government efforts to influence the 2016 presidential election and "related matters," which includes wide-ranging investigations into the business dealings of Messrs. Manafort and Flynn.

At least three congressional committees are conducting related inquiries, and each one in-

volves detailed interviews with numerous witnesses.

Multiple current and former White House officials, including communications director Hope Hicks and former chief of staff Reince Priebus, have retained top lawyers in recent weeks, according to people familiar with the hires.

Russia denies any interference, while Mr. Trump has called the investigations into possible collusion between his campaign and Russia a "witch hunt."

In June, the Donald J. Trump For President Inc. campaign committee paid \$50,000 to the law offices of Alan S. Futerfas, who is representing Mr. Trump's eldest son, Donald Trump Jr., in the investigations, according to a Federal Election Commission filing.

A 1993 Office of Government Ethics opinion allowed anonymous donations to government employees' legal-defense funds, on the grounds that conflicts of interest wouldn't exist because the employees wouldn't know the identity of their donors.

The former head of the office, Walter Shaub, who resigned in July and has been a vocal critic of Mr. Trump, said he added a note to the opinion saying it was "not consistent with current OGE interpretation and practice."

But that note has since been removed, he said, and replaced with a note saying the 1993 policy "has not changed."

An OGE spokeswoman said the office still discourages such donations.

—Rebecca Ballhaus
and Byron Tau
contributed to this article.

White House Tightens Focus on Chinese Deals

President Donald Trump's rejection last week of a Beijing-backed fund's attempt to acquire a U.S. semiconductor company was for many in Washington an easy call because it involved a sensitive sector and funding from the Chinese government.

By Julie Steinberg
in Hong Kong
and Kate O'Keeffe
in Washington

The decision did little, however, to settle a growing debate in Congress over how the U.S. should approach foreign acquisitions that the government perceives to be less clear-cut.

At issue is how to balance the need to protect national security with the desire to stay open to foreign investment, especially when the money is coming from China, a military and economic rival.

In rejecting Canyon Bridge Capital Partners Inc.'s attempt to buy Lattice Semiconductor Corp., which is based in Portland, Ore., Mr. Trump declined to overrule a recommendation by the Committee on Foreign Investment in the U.S. to block the transaction. CFIUS is a multiagency panel that reviews deals for national-security concerns.

For U.S. policy makers, the reasons were straightforward:

give the U.S. government control over Lattice's intellectual property and technology if the tie-up were approved.

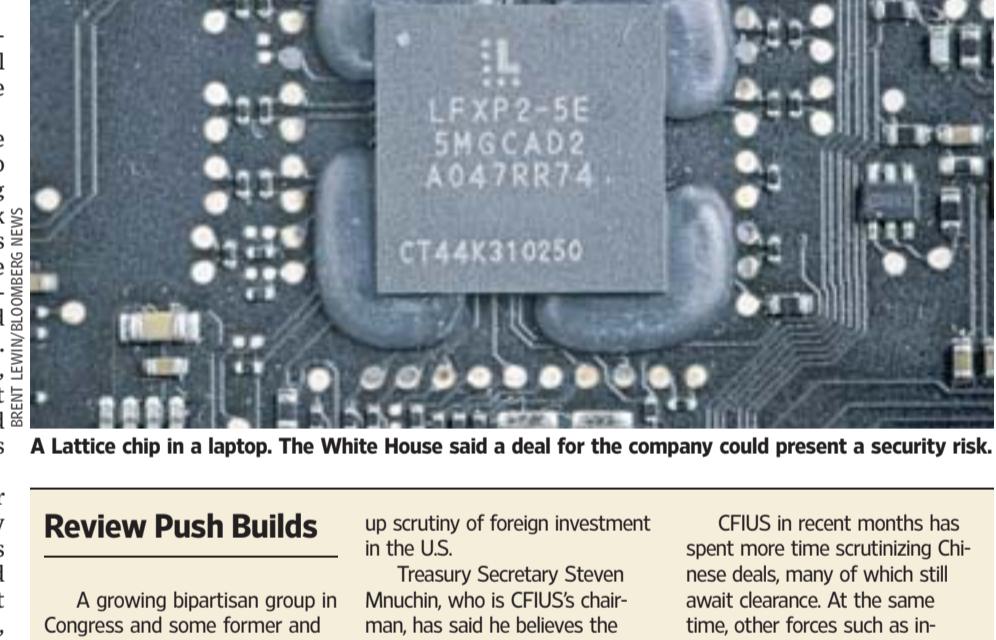
Senate Banking Committee Chairman Mike Crapo, an Idaho Republican, said at a hearing about CFIUS's role that took place the day after Mr. Trump's decision that the Lattice case "sounds like it should be considered textbook CFIUS" and that the move was reassuring.

At the same time, Mr. Crapo, whose committee has oversight authority over CFIUS, indicated that the debate over CFIUS's powers is far from settled.

"We should discuss whether CFIUS is even the right agency to reform in order to address various complaints associated today with China's investment strategies," Mr. Crapo said, praising what he referred to as the U.S.'s "world renowned" open-investment policy.

His comments echo sentiments that have been expressed by some free-market congressional Republicans and private business people who remain wary of shutting out too much foreign investment.

Former White House chief strategist Steve Bannon said in a recent interview with The Wall Street Journal in Hong Kong before Mr. Trump's decision was announced that CFIUS should become larger and review more deals, with the goal



A Lattice chip in a laptop. The White House said a deal for the company could present a security risk.

Review Push Builds

A growing bipartisan group in Congress and some former and current administration officials argue that strengthening the review process of the Committee on Foreign Investment in the U.S. is paramount to protect national security.

Senate Majority Whip John Cornyn of Texas and Rep. Robert Pittenger (R., N.C.) both said they soon plan to introduce CFIUS overhaul bills that would ratchet

up scrutiny of foreign investment in the U.S.

Treasury Secretary Steven Mnuchin, who is CFIUS's chairman, has said he believes the CFIUS process needs to be strengthened.

However, after President Donald Trump's decision to forbid the acquisition of Portland, Ore.-based Lattice Semiconductor Corp. by the Beijing-backed fund Canyon Bridge Capital Partners Inc., Mr. Mnuchin highlighted what he called the U.S.'s continuing openness to foreign investment.

CFIUS in recent months has spent more time scrutinizing Chinese deals, many of which still await clearance. At the same time, other forces such as increased Chinese capital controls also appear to be weighing on deal making. The value of announced cross-border acquisitions and investments by Chinese firms in U.S. companies is down by nearly 70% so far this year from the same period in 2016, according to Dealogic.

—Kate O'Keeffe
and Julie Steinberg

of reducing foreign direct investment into sensitive sectors.

In the interview, Mr. Bannon, who left the White House last month, said his philosophy

helped guide CFIUS while he was in the administration and that officials in the Treasury and Commerce departments, both part of CFIUS, continue to

carry out the agenda he helped create on foreign-deal reviews.

—Eva Dou, Natasha Khan
and Steven Russolillo
contributed to this article.

Alabama Senate Race Puts President's Influence to the Test

BY JANET HOOK

Donald Trump's decision to appear at a campaign rally for Sen. Luther Strange raises the stakes for the president in an Alabama special election that is splitting the Republican Party.

By supporting Mr. Strange in the Sept. 26 runoff election, Mr. Trump has put himself at odds with former adviser Steve Bannon, Sarah Palin and other Republicans who have called Mr. Strange the puppet of a discredited GOP establishment in Washington. Mr. Trump has joined forces with Senate Majority Leader Mitch McConnell, who has strongly backed Mr. Strange.

Mr. Strange this year was appointed temporarily to fill the seat held by Jeff Sessions, who became U.S. attorney general. He will face Roy Moore, a former state Supreme Court judge and evangelical favorite. Mr. Moore outpolled Mr.



Luther Strange
was appointed
temporarily to fill
the Senate seat.

he didn't believe the Trump rally would make much difference because the president's endorsement of Mr. Strange

has been well-advertised around the state.

Mr. Strange has argued that Mr. Moore—who is best known for having lost his seat on the state supreme court for refusing to remove a Ten Commandments monument from a state building—would be an unreliable ally for the president on issues like immigration. Mr. Moore has attacked Mr. Strange for his ties to Mr. McConnell.

The stakes in the race are also high for Mr. McConnell and other GOP incumbents: A Moore victory could inspire a wave of primary challenges to other Republican senators in 2018. Some Republican senators—Jeff Flake of Arizona, Dean Heller of Nevada and Bob Corker of Tennessee—are already facing possible or actual challenges.

Mr. Sessions was unopposed in his most recent Senate race, in 2014. Alabama is a heavily

Republican state, and the winner of the GOP run-off will emerge the strong front-runner for the special election, to be held Dec. 12. The Democratic Party in August nominated lawyer Doug Jones as its candidate in the race.

Although the president endorsed Mr. Strange before the first round of voting in August, Mr. Trump's announcement Saturday via Twitter that he would appear with Mr. Strange next Saturday helped assuage anxiety among Mr. Strange's supporters that the president wouldn't actively campaign for the candidate.

"I will be in Huntsville, Alabama, on Saturday night to support Luther Strange for Senate," Mr. Trump said on Twitter. "Big Luther" is a great guy who gets things done!"

Supporters of Mr. Strange have argued that Mr. Trump had already invested political

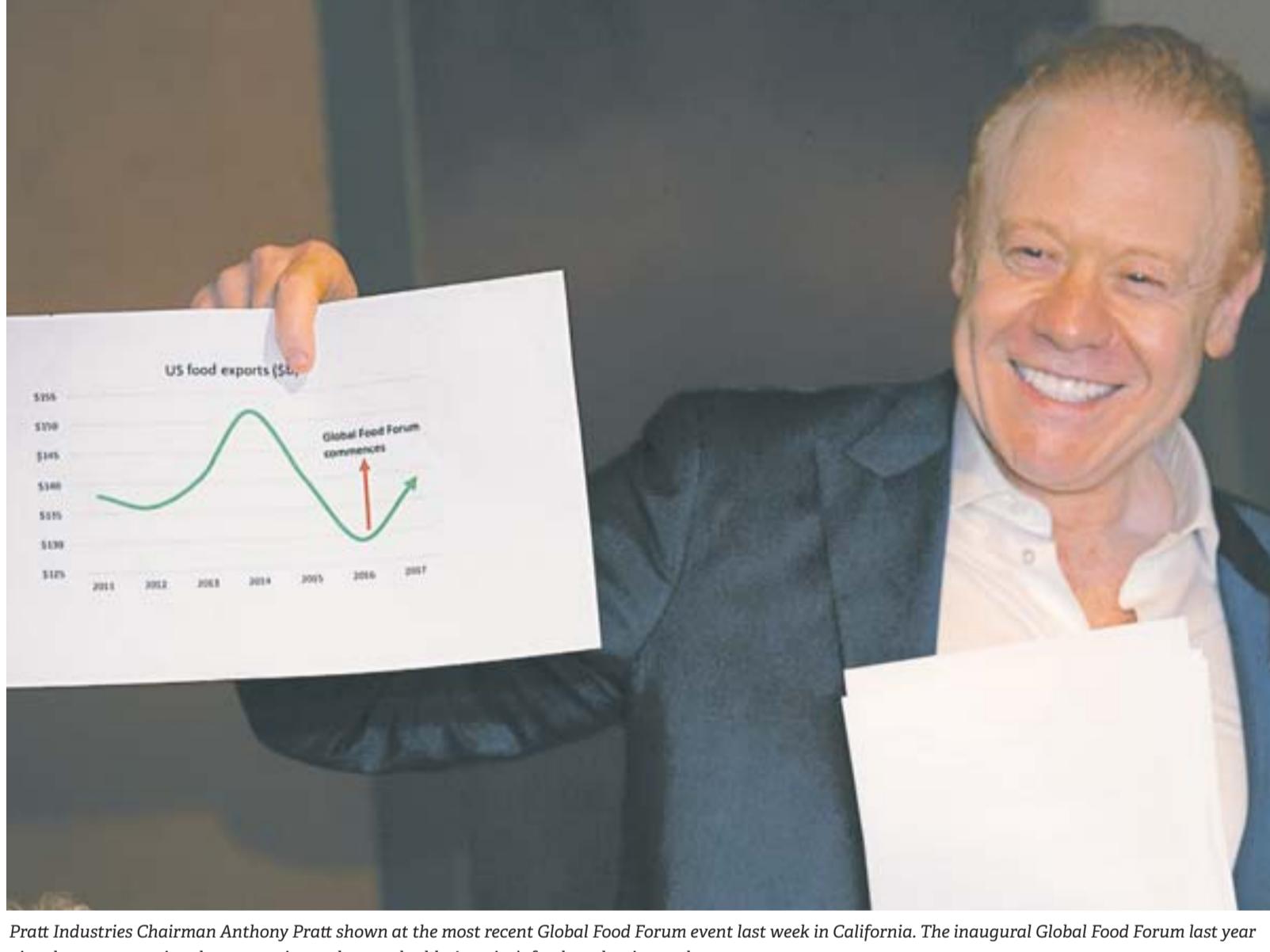
capital in the race and, in the final stages, had much to gain and little to lose by investing more.

But the race risks damaging Mr. Trump's relationship with many of the party's most conservative figures, which have rallied behind Mr. Moore.

"I think the president should ask himself why virtually everyone else of significance in his base is supporting Judge Roy Moore and not Luther Strange," said Steve Deace, an Iowa conservative activist and radio host.

In addition to winning the support of Mr. Bannon after he left the White House, Mr. Moore has been backed by conservative leaders including Ms. Palin, Gary Bauer, James Dobson and Rep. Jim Jordan. Over the weekend, he picked up the endorsement of an erstwhile rival—Rep. Mo Brooks, who was knocked out of the running in the first vote.

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WORLD NEWS

Foster Home Searched in London Probe

Investigators search in suburb after arrest of two in subway attack; terror status lowered

By GEORGI KANTCHEV
AND JASON DOUGLAS

SUNBURY-ON-THAMES, England—Investigators probing a bomb blast that injured more than two dozen people in London's subway last week combed through a house in this suburban town owned by elderly foster parents, who neighbors said had recently been caring for two people the neighbors described as refugees.

Armed police descended on the neighborhood on Saturday after the arrest of an 18-year-old man in connection with the Friday attack, in which an improvised explosive device aboard a train erupted in flames, burning some passengers and sending others fleeing in panic.

Police also arrested a second man, age 21, late Saturday in a different suburb west of the capital. Both were being questioned on Sunday, police said.

In the wake of the bombing, the latest in a series of terrorist assaults in Britain this year, the government raised the national terror-alert status to critical, its highest level, before lowering it on Sunday afternoon, a sign authorities no longer fear another attack is imminent.

U.K. Home Secretary Amber Rudd said the move indicates "good progress has been made" in tracking down the culprits behind Friday's blast.

Mrs. Rudd also said investigators haven't found evidence of involvement by Islamic State, which said a detachment of its fighters was responsible



A police forensics team searched a house in a London suburb on Sunday, two days after a blast on the subway injured dozens in the capital.

for the attack. The extremist group has been losing its grip on territory in the Middle East under military pressure from the U.S. and others.

Metropolitan Police Assistant Commissioner Mark Rowley, the U.K.'s top counterterrorism officer, said the search in Sunbury and another in Stanwell, near London, had given law-enforcement agencies a "greater understanding of the preparation of the device" used in Friday's attack.

Police said the search in Sunbury is related to the arrest of the 18-year-old man and the search in Stanwell is related to the 21-year-old's arrest.

On Sunday, police were still working in the Sunbury home. Yellow tents had been set up outside and the street was blocked off with a gray fence. Property records indicate the house is owned by Ronald and Penelope Jones. The couple couldn't be reached to comment.

Neighbors said the Joneses were veteran foster parents who most recently were caring for two males that neighbors described as refugees. One of the men was an 18-year-old Iraqi, a member of the district's governing council said.

Dave Solway, 44, who lives across the street, said he saw

Mr. Jones arguing with one of the men in the middle of the road about two weeks ago. The man said "he didn't want to go to London," Mr. Solway said.

When armed police showed up on Saturday, Mr. Solway said, they banged on the Jones's door. "When Penny opened, they quickly pulled her and Ron out. They shouted at me, 'Get away from the window.' It was quite mad."

Another neighbor, Jim Adaway, said the Joneses "have done so much good," for foster children over the years. "I couldn't think of a nicer couple."

In 2009, Mr. and Mrs. Jones

were named members of the Order of the British Empire, an honor bestowed by the queen, in recognition of their services to children and families.

In an April interview with Elmbridge CAN, which describes itself as a community group helping refugees, Mrs. Jones said she and her husband have fostered 268 children over the years.

Police haven't identified the arrested men, or described them apart from giving their ages. The 18-year-old was arrested in the port area of Dover on the English Channel. Dover is a major hub for ferry transport between the U.K. and Europe.

U.K. Offers EU Security Treaty

LONDON—The U.K. government proposed that London and Brussels sign a new treaty to ensure cooperation on security and law enforcement after Britain leaves the European Union.

The proposal, laid out in a paper to be published on Monday, highlights the close ties between the U.K. and other EU member states in matters of criminal justice that officials are eager to preserve in the final withdrawal agreement.

It comes a day after the British capital was struck by the latest in a string of terrorist attacks in Europe this year, when 29 people were injured by a homemade bomb left on a packed subway train.

A new treaty would provide a legal basis for continued collaboration on security, law enforcement and criminal justice following the U.K.'s exit from the EU, said a statement from the U.K.'s Department for Exiting the European Union.

The U.K. said a treaty would establish formal channels for agencies to cooperate after the 2016 divorce and include a method for settling disputes. "Effective international cooperation is absolutely crucial for both the U.K. and the EU if we are to keep our citizens safe and bring criminals to justice," U.K. Brexit Secretary David Davis said.

The U.K. said it would call for a comprehensive agreement on security collaboration with the EU.

—Jason Douglas

Palestinians Settle On Rules for Reconciliation

Militant group Hamas said it agreed to conditions demanded by Palestinian Authority President Mahmoud Abbas for reconciliation with his Fatah party, a move aimed at mending a decadelong rift between the two dominant Palestinian factions.

By Abu Bakr Bashir in Gaza City and Rory Jones in Tel Aviv

Hamas, which governs the impoverished Gaza Strip, said Sunday it would endorse national elections in the West Bank and Gaza, and allow the Palestinian Authority to administer the strip. Mr. Abbas, whose government helps fund Gaza's economy, has for months financially pressured the group to cede control.

Reconciliation would mark a significant step forward for the Palestinian national move-

ment, which has been at a stalemate since 2007, when Hamas took control of Gaza after an armed conflict. But such a rapprochement is likely to face significant obstacles.

Mr. Abbas and Hamas's leadership have repeatedly spoken about a national government in the Palestinian territories comprising both factions but have failed to implement such an agreement. Hamas made no mention in its statement of handing over security of the strip to the Authority, a key demand by Mr. Abbas's government in mending the rift.

Hamas's new leadership in recent weeks has said it is eager to work with Iran, which vows Israel's destruction, and restore ties with Palestinian politician Mohammed Dahlan, a former ally-turned-enemy of Mr. Abbas who is backed by the United Arab Emirates and

lives in Abu Dhabi. Mr. Abbas is unlikely to want to work with either of those parties.

Azzam al-Ahmed, a member of Fatah's central committee, nonetheless welcomed Hamas's announcement and hailed its call for a national unity government as a positive step forward, said a Sunday statement on the Palestinian Authority's official media channel.

Egypt has in recent weeks tried to broker a deal between the two sides, and Fatah and Hamas officials have made frequent visits to Cairo.

After meeting with Hamas officials in Cairo, Mr. al-Ahmed said Palestinians "will witness tangible practical steps" toward reconciliation, starting with an Authority presence in Gaza, the Authority's statement said.

United Nations Special Coordinator for the Middle East



Hamas agreed to conditions demanded by Palestinian Authority President Mahmoud Abbas, center.

Peace Process Nickolay Mladenov also called on all sides to "seize this opportunity to restore unity and open a new page for the Palestinian people."

U.S. President Donald Trump has identified Israeli-Palestinian peace as a key foreign policy goal, but won't negotiate directly with Hamas

over the fate of Gaza.

The group is considered a terrorist organization by the U.S. and Israel.

The Fatah-led Authority until April directed roughly a third of its annual budget to Gaza. But Mr. Abbas has in recent months increased the financial pressure on Hamas to cede control of the strip, cut-

ting salaries of teachers and doctors in Gaza, and refusing to pay for a large portion of the electricity Israel supplies to the strip.

Israel and Egypt largely control movement of goods and people into the strip, a dynamic that has helped weaken Hamas's economic and political standing at home.

Pakistan Criticizes U.S. Afghan Policy

BY SAEED SHAH

ISLAMABAD—Pakistan's top diplomat said he plans to reprimand the U.S. for its new Afghanistan policy at the United Nations General Assembly this week, saying the Trump administration is following a militaristic approach that has already failed.

Foreign Minister Khawaja Muhammad Asif told The Wall Street Journal that he couldn't understand how the American military could succeed now in Afghanistan when it hadn't during the "surge" under the Obama administration with a force eight times as large as the one now planned.

He instead called for peace talks with the Taliban, which could be arranged if Washington worked with countries in the region that have influence over the militant group, he said. "They are pursuing a folly, a strategy that has already failed," Mr. Asif said.

"Force will not solve any problem, it has not solved problems in the past."

Pakistan's cooperation is vital to the effort to stabilize

neighboring Afghanistan and extricate the U.S. from its longest war. The U.S. and Pakistan are ostensible allies, but have long suffered strained relations. Relations turned more confrontational after President Donald Trump accused Pakistan in August of providing a haven for terrorists and then threatening to withhold aid if there wasn't better cooperation.

Mr. Trump had said that a political settlement with elements of the Taliban was "perhaps" possible, but only after an effective U.S. military campaign.

Mr. Asif subsequently canceled a trip to the U.S. for talks with Secretary of State Rex Tillerson and Islamabad also rejected a planned visit to Pakistan by the senior U.S. official for the Pakistan-Afghanistan region, Alice Wells.

Instead, Mr. Asif toured the region, visiting China, Iran and Turkey, saying afterward they agreed that a political solution was needed. Mr. Asif said he would meet at the U.N. with his Russian counterpart to get Moscow on board with this plan.

Sharif's Party Narrowly Wins Vote

BY SAEED SHAH

ISLAMABAD—The party of ousted Prime Minister Nawaz Sharif won a crucial election for the parliamentary seat he was forced to vacate, but the opposition party led by Imran Khan gained more votes than analysts expected.

Mr. Khan cut the winning margin of Mr. Sharif's party by half, compared with the 2013 election, according to an election analyst. The swing is large enough to potentially make him a contender for power if repeated at the national election due next year.

The former prime minister's party had asked the electorate to come out to register their rejection of July's Supreme Court ruling that dismissed Mr. Sharif from office, saying the court had "stolen" their vote. The case stemmed from corruption allegations over luxury property owned by the Sharif family in London.

Mr. Sharif, who, along with his family, has denied any wrongdoing, hasn't been convicted of any crime.

The candidate of Mr. Sharif's Pakistan Muslim League-N party was his wife, Kulsoom, currently receiving treatment for cancer in Lon-

don. The campaign was led by his daughter and political heir, 43-year-old Maryam.

"Today, we have the ruling on that ruling," Maryam Sharif told cheering supporters in Lahore, referring to the Supreme Court verdict that removed her father from office. "By voting, you've negated all the conspiracies against Nawaz Sharif."

Though publicly Mr. Sharif's party doesn't spell out that conspiracy, privately aides allege the country's coup-prone military was behind the ouster. The military denies the accusation.

In third place, with more

than 4,000 votes in the election, was the candidate supported by the newly launched political wing of Jamaat-ud-Dawa, a group blamed internationally for the 2008 attack on the Indian city of Mumbai that killed 166 people and is listed by the United Nations as terrorists.

The leader of the group, Hafiz Saeed, carries a \$10 million U.S. bounty on his head, and his image was on the campaign posters of the candidate, Yacoob Sheikh, who was designated a terrorist by the U.S. in 2012.

Mr. Sharif's party was always expected to win the par-

liamentary district in his hometown of Lahore, which has elected him in his three decades in politics. But the margin of victory for the seat, compared with that in the last general election in 2013, was closely watched as a barometer for national elections, due by September next year.

Lahore is the provincial capital of the Punjab region, which decides the outcome of national elections as it contains more than half the seats in parliament.

It is also the base of Mr. Sharif's political dynasty. To stand a chance of forming the next government, Mr. Khan's Pakistan Tehreek-e-Insaf party must take around half the seats in Punjab in 2018, election experts say. That would require the sort of swing seen in Sunday's by-election, pollsters say.

"After such a dramatic fall in their vote, they should be grieving," said Shafqat Mahmood, a lawmaker from Mr. Khan's party, referring to the ruling party.

Both sides alleged irregularities in Sunday's vote.

Mr. Sharif and daughter Maryam still face a trial, in a lower court, over the corruption charges, set to begin within weeks.



Supporters of Nawaz Sharif and his wife, Kulsoom, celebrated.

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WORLD NEWS

ISIS

Continued from Page One
definitely becoming a problem in Libya," a European security official said. The terror group can raise revenue in Libya by tapping lucrative rackets and taking advantage of weapon stockpiles in a country that is both vast and politically unstable, he said.

Members of Libya's Presidential Council, which presides over the Tripoli government, didn't respond to requests for comment about Islamic State's activities in the country.

Islamic State said two years ago it planned to infiltrate migrant groups and carry out attacks in Europe. Salman Abedi, a British citizen of Libyan descent, blew himself up outside a concert in Manchester in May, killing 22 people. Abedi had recently returned from a trip to Libya, and European security officials say the type of bomb he used indicates he may have been trained by Islamic State fighters there.

Since the death of Col. Moammar Gadhafi in 2011, warring factions have carved Libya into fiefs and fought over its oil fields, leaving the economy in tatters. "Daesh is exploiting the security vacuum," said an intelligence officer from the city of Misrata who works with forces loyal to Tripoli, using the Arabic acronym for Islamic State.

An estimate by the U.S. Africa Command, which oversees American military operations on the continent, indicates there are only about 500 Islamic State members active in Libya now. That is down from a peak of about 3,000 fighters when the group held Sirte in 2016.

But other officials said it is difficult to know how many Islamic State fighters are currently in Libya. They say the group's ability to operate relatively unhindered around the country raises concerns.

Since driving Islamic State out of Sirte, the U.S. has seen "a marked decrease" in the number of foreign fighters traveling to or from the conflict in Libya, according to a U.S. State Department official.



Forces allied with the U.N.-backed government in Libya fired a rocket at Islamic State fighters in the coastal city of Sirte last year.

• Some of the cities and towns where Islamic State has significant presence



THE WALL STREET JOURNAL.

Libyan officials said. Meanwhile, Libyan forces in the south are monitoring a group of Islamic State recruits who made their way to Sudan from Syria and are trying to cross into Libya, according to a security official from the area with forces loyal to Tripoli.

Libyans were among those who trained at Islamic State's weapons lab in Raqqa, according to another Islamic State defector. Some of the devices built there were intended both for battlefield use and for carrying out attacks in Europe, said the defector, who said that he was involved in their design and that he left the group in 2016.

In Libya, a rival government operates in the east where a group allied with Islamic State was ousted earlier this year from the city of Benghazi. In late May, two members of the allied group were dispatched by Islamic State from Benghazi to Istanbul, according to a third person who said he had de-

fected from Islamic State and who said he remains in contact with the group in Raqqa.

The two fighters were directed to make their way from Istanbul to Athens and to wait for orders about carrying out an attack in Europe, the defector said. A European security official said last month the movements of the men were being monitored.

Islamic State fighters who escaped Sirte fled to other parts of Libya such as Bani Walid, west of Sirte. The fighters remained hidden in the surrounding valleys for months but now have started to "set up checkpoints at times and hijack trucks," said the intelligence officer from Misrata.

Other fighters escaped to the southwestern town of Ghat, near the Algerian border. The group has since expanded its presence in that part of the country to the desert oasis of Ubari, with fighters holding regular meetings in the town and moving freely in the vicinity.

ity of Libya's largest oil field, according to the security official from southern Libya.

In May, Islamic State seized three fuel trucks en route to Jufra, a district between Sirte and Ubari, according to an Aug. 22 report from the U.N. Security Council. Islamic State has forged business ties in the area with a local Islamist warlord who specializes in fuel smuggling, according to a European security official.

Islamic State also has a presence in other Libyan cities and towns, and groups that can range from 5 to 50 fighters roam outside urban areas, the intelligence officer from Misrata said.

In January, the U.S. launched airstrikes on Islamic State training camps southwest of Sirte and other targets in Libya, killing dozens of militants, the Pentagon said.

—Ben Kesling, Nicholas Bariyo, Nour Malas, Nour Alakraa and Jenny Gross contributed to this article.

Russia Strikes Near U.S. Coalition In Syria

Russian military forces on Saturday attacked a location in Syria where they knew troops from the U.S.-led coalition and allied Syrian rebels were operating, the U.S. military said.

By Ben Kesling in Baghdad and Nathan Hodge in Latakia, Syria

The strike injured several Syrian Democratic Forces troops but didn't wound any members of the U.S.-led coalition, according to the statement from the Combined Joint Task Force-Operation Inherent Resolve, after the Russian forces hit a target east of the Euphrates River near Deir Ezzor.

Maj. Gen. Igor Konashenkov, a spokesman for the Russian Defense Ministry, said such an incident wasn't possible but didn't elaborate.

American and Russian forces have an open communications line to discuss operations that could overlap, especially air operations, to prevent midair collisions or the targeting of troops incorrectly. The communications line apparently wasn't used in this instance.

"Coalition officials are available and the deconfliction line with Russia is open 24 hours per day," said the top-ranking American officer in the coalition, Lt. Gen. Paul Funk, on Saturday.

The coalition didn't respond to requests to clarify whether the attack was an airstrike and provided no further details on the matter. The statement didn't say whether coalition troops threatened to fire at the Russian forces, but reiterated that "coalition forces and partners always retain the right of self-defense."

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WORLD NEWS

Myanmar Bucks Critics of Its Crackdown

BY JAMES HOOKWAY

Myanmar's top military commander has urged the country to unite in the face of growing international criticism of its treatment of the ethnic-Rohingya minority, some 400,000 of whom have sought refuge across the border in Bangladesh in the past three weeks.

Bangladesh and other nations have said they would raise the plight of the Muslim Rohingya at the United Nations General Assembly this week. U.N. officials are among those labeling the crisis as a clear instance of ethnic cleansing. Bangladesh medical officials on Sunday said they are trying to restrict the refugees from moving further into the country and have begun immunizing tens of thousands of children against disease, the Associated Press reported.

In comments posted to his official Facebook page on Saturday, Senior General Min Aung Hlaing reflected the widespread view in Myanmar that the stateless Rohingya are illegal immigrants from Bangladesh, and should be known as Bengalis.

"They have demanded recognition as Rohingya, which has never been an ethnic group in Myanmar," Gen. Min Aung Hlaing said. "The Bengali issue is a national cause, and



Some of the roughly 400,000 Rohingya refugees balanced on bamboo as they crossed a monsoon-flooded stream in Bangladesh on Sunday.

Rohingya State. Fellow Nobel laureates have called on her to speak out with the moral authority earned with her own Nobel Prize, awarded in 1991 for resisting military rule.

"How many Rohingya have to die; how many Rohingya women will be raped; how many communities will be razed before you raise your voice in defense of those who have no voice?" one group of laureates wrote.

It is difficult for Ms. Suu Kyi to constrain Myanmar's army, however. The junta that ruled Myanmar for nearly five decades was dissolved in 2011, but left behind a constitution that secures a role for the military in running the country and prevents Ms. Suu Kyi from becoming president after she won national elections in 2015, on the grounds that her children are foreign nationals. She instead holds the specially created post of state counselor.

The army can also veto government directives, and changing the constitution is impossible without action from the 25% of seats it is allocated in the country's parliament.

In her only public comments on the latest Rohingya crisis, Ms. Suu Kyi so far has chosen not to confront Gen. Min Aung Hlaing, but to commend the military's response to the Aug. 25 attacks.

we need to be united in establishing the truth."

Myanmar's armed forces began sweeping through the northern reaches of Rakhine State, which borders Bangladesh, after militant Rohingya

attacked government outposts on Aug. 25, killing 12 security officials. The area has long been steeped in tension, with many Rohingya saying their roots in the area go back centuries. Myanmar regards the attacks as

the militants' first significant attempt to carve out their own territory in the area, and its response has been ferocious. Refugees have reported soldiers shooting villagers and torching homes. In some instances, local

Buddhist vigilantes joined the violence, while others fled.

Myanmar's civilian leader, Nobel Peace Prize winner Aung San Suu Kyi, is under pressure to contain the military as it continues its operations in Ra-

Trump Officials Warn North Korea on Nuclear Arms

BY GORDON LUBOLD
AND BEN LEUBSDORF

WASHINGTON—The White House reiterated its position that North Korean leader Kim Jong Un must give up his nuclear weapons, days after President Donald Trump hinted again at a military strike on the North.

White House National Security Adviser H.R. McMaster said on Sunday that the U.S. policy remains that North Korea must denuclearize. Pyongyang shows no signs of halting

the country's nuclear and ballistic-missile programs, launching several missiles and testing a nuclear device as recently as this month.

"He's going to have to give up his nuclear weapons, because the president has said that he is not going to tolerate this regime threatening the United States and our citizens with a nuclear weapon," Mr. McMaster, an Army three-star general, said on ABC.

Asked if Mr. Trump would strike North Korea if Mr. Kim doesn't give up his weapons,

Mr. McMaster said: "He's been very clear about that, that all options are on the table."

U.S. Ambassador to the United Nations Nikki Haley warned North Korea would be "destroyed" if it "keeps on with this reckless behavior."

"We have economically strangled North Korea at this point," Ms. Haley said.

Secretary of State Rex Tillerson and Defense Secretary Jim Mattis have suggested talks with North Korea could take place if the regime halts weapons and missile tests.

Critics of the administration position and many Asia policy analysts dismiss the likelihood that Mr. Kim will easily give up his nascent nuclear-weapons program.

"I think that North Korea is not going to give up its program with nothing on the table," Sen. Dianne Feinstein (D., Calif.) said on CNN's "State of the Union" on Sunday. "I think that what could happen is that we could have reliable verification of a freeze of both the nuclear program and the missile arsenal, and that we could con-

ceivably talk China into supporting that kind of freeze."

Mr. Trump's advisers have been working to pressure China to coerce North Korea into halting its nuclear and missile programs.

Those efforts thus far have fallen short.

Last week, Mr. Kim launched a missile that traveled more than 2,000 miles over Japan and landed in the Pacific Ocean. The North claimed Sept. 3 that it had conducted a nuclear test, its sixth.

Mr. Tillerson said he has

seen no indication that the North is responding to sanctions by halting its testing of nuclear weapons or missiles.

"I'm waiting for the regime in North Korea to give us some indication that they are prepared to have constructive, productive talks," Mr. Tillerson said Sunday on CBS.

Mr. Trump on Saturday spoke with South Korean President Moon Jae-in, tweeting later about the meeting in which he asked Mr. Moon about "Rocket Man," referring to the North Korean leader.

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WORLD WATCH

CUBA
U.S. Mulls Closing Embassy in Havana

Secretary of State Rex Tillerson said the U.S. is considering closing its embassy in Cuba in response to what he has described as "health attacks" on American diplomats there that have caused hearing loss, concussions and other symptoms.

The health problems began in December and recurred as recently as August, the State Department has said. The department has confirmed that at least 21 Americans have been affected.

Officials haven't determined a cause of the episodes, but have speculated they came from sonic waves from covert listening devices, though such devices haven't been found.

The State Department hasn't blamed Cuba for the incidents. Cuba is cooperating with an investigation and has denied involvement. U.S. and Cuban officials discussed the incidents in Washington on Friday.

—Felicia Schwartz

EUROPEAN UNION

Views on Tech Taxes Converge in Estonia

European Union finance ministers on Saturday expressed cautious support to pursue new tax rules for technology giants such as Alphabet Inc.'s Google and Facebook Inc., though they stressed it would be necessary

to find a permanent, global solution that includes the U.S.

At a meeting in Tallinn, Estonia, EU finance chiefs agreed to move forward on finding better ways to tax digital services, though some ministers differed on how to proceed.

"Despite some diverging opinions, we eventually came to several common conclusions," said Toomas Tõniste, the finance minister of Estonia. "Everyone agreed that the problem exists," he said, referring to inadequate taxation of tech companies.

The push is part of the EU's latest attempt to crack down on what officials see as tax avoidance in Europe and to assure citizens that large companies are paying their fair share.

The EU is seeking to modernize corporate tax rules, which traditionally have been designed on the basis of physical assets and where a company operates. Officials would like to account for virtual operations, such as a search engine selling targeted advertising from data collected in a country where it has no permanent establishment.

—Natalia Drozdiak

IRAQ

ISIS Militants Driven From Border Area

Iraqi forces expelled Islamic State militants from an area in the western desert near the borders with Syria and Jordan on Saturday, making further inroads into the group's last remaining territory in the country.

The recapture of the area, Akashat, helps secure a newly reopened border crossing with Jordan and will facilitate future operations to clear Islamic State from the rest of the western province of Anbar, Iraqi military officials said.

Iraqi commanders said security forces and allied paramilitaries had faced little resistance from the militants in Akashat, attributing that to the extremist group's low morale after two major defeats in recent months including the loss of its stronghold Mosul.

The Iraqi air force dropped leaflets over Akashat before the assault was launched early in the morning, informing civilians of their imminent "salvation," and issuing an ultimatum to the militants: surrender or be killed.

"Liberating Akashat means securing the international road with Jordan and increasing the pressure on terrorists in western Anbar," Brigadier General Yahya Rasoul, the spokesman for Iraq's joint operations command, told state television.

Western Anbar is one of the last major pockets of territory controlled by Islamic State in Iraq, besides Hawija in the north of the country, which Iraq's army has said it plans to attack soon.

—Ghassan Adnan and Isabel Coles

MALAYSIA

Seven Youths Held After a Deadly Fire

Police have detained seven youths in connection with a pre-dawn fire at an Islamic boarding school, saying that a verbal dispute between them and students at the school led to an arson attack that killed at least 23 people on Thursday.

Kuala Lumpur Police Chief Amar Singh said Saturday that the suspects, who were between the ages of 11 and 18, would remain in custody while the case was investigated under the penal codes for "mischief by fire" and murder. Mr. Singh said two of the suspects had criminal records. None has been charged.

Twenty-one of the dead were students and two were teachers, trapped in a dormitory with a locked door and window grilles.

—Yantoulra Ngui

RESISTANCE: Ultra-Orthodox Jews protest against recruitment from among their number into the Israel Defense Forces.

ABIR SULTAN/EPA/SHUTTERSTOCK

IN DEPTH

HACK

Continued from Page One
to access an Equifax-operated employee portal in Argentina by using the easily guessed username and password combination "admin/admin."

The Equifax hack has stunned many consumers, who are suddenly aware of their own vulnerability to what was long considered a necessary but largely opaque part of the country's financial plumbing.

More than 11.5 million people have signed up for credit-monitoring offered by Equifax in response to the cyberattack. Other people have frozen their credit reports with Equifax and rivals TransUnion and Experian PLC.

Equifax Chairman and Chief Executive Richard Smith has called the crisis the "most humbling moment in our 118-year history." Some lawmakers have called for his ouster, and investors have shrunk Equifax's stock-market value by about \$6 billion, or more than a third, in the past 10 days.

Although investigators are still grappling with who might be behind the Equifax break-in, the scale of the breach, sophistication of the hack and nature of the stolen data all point toward a state-sponsored actor, says a person familiar with the investigation.

Similar to Yahoo

The breach bears similarities to the attack disclosed last year by Yahoo Inc.

In March, the Justice Department charged two officers with Russia's Federal Security Service, alleging the hack was part of an information-collection operation. A Russian official said the charges were part of an attempt to raise the theme of "Russian hackers" in the domestic political squabbles in the U.S."

"Credit bureaus are the tracks that the [credit] trains run on, and we should make sure those roads and tracks are sound if we're going to run a whole economy over them," said Louis Hyman, a consumer-credit historian at Cornell University.

On Sept. 7, Equifax said it had discovered the data breach July 29. There are signs that the problem took root long before then.

Cisco security researchers reported March 8 that hackers had found a flaw in Apache Struts, a widely used piece of open-source software used to build interactive websites. The

Consumer Facing

Equifax operating revenue from the sales of credit monitoring and identity theft protection to consumers

\$200 million

150

100

50

0

2010 11 12 13 14 15 16 17

Note: Data is for the first half of each year. Revenue also includes sales of credit information to consumers; revenue from 2015 includes consumer sales in the U.K. Source: The company

THE WALL STREET JOURNAL.



Equifax Chief Executive Richard Smith, shown in 2007, has said the crisis is the 'most humbling moment in our 118-year history.'

software is ideal for powering websites where customers need to complete online forms. At Equifax, Apache Struts powers part of the website where consumers can dispute errors in credit reports.

The vulnerability reported by Cisco would allow hackers to break into a company by sending data to a server that was specially crafted to take advantage of the flaw. It was the digital equivalent of popping open a side window to sneak into a building.

Apache, a project administered by a nonprofit foundation, issued a patch for the problem the same day. Two days later, the U.S. Computer Emergency Readiness Team, part of the Department of Homeland Security, sent out a notice about the vulnerability.

Cisco said its investigation found "a high number" of examples where the hack had been used. In an update Friday, Equifax said its security organization was "aware of this vulnerability at that time, and took efforts to identify and to patch any vulnerable systems in the company's IT infrastructure."

Apache Struts is used by many financial firms. One of those firms asked companies it sends data to and receives data from if they had shored up their vulnerability with the new patch, people familiar with the matter say. Equifax was one of the companies asked about the patch—and at the time it said it didn't have an issue, these people say.

Soon, though, other companies started to see suspicious activity. One large firm that links credit-card networks, merchants and lenders saw a spike in fraudulent activity from late May to early June, according to people familiar with the matter.

The firm was getting phone calls from people who said they had an account there and provided all four pieces of personal information typically needed for identity verification: name, address, date of birth and Social Security number. Equifax has said the same

Credit Firms' Data Tempts Hackers

Credit-reporting companies such as Equifax are vast repositories of financial information that they receive when someone applies for credit, gets a loan or makes payments. The data builds up credit history and feeds credit scores that are compiled by separate companies.

Equifax began as a local Atlanta firm that gathered and published information about the paying habits of retail store customers. It grew by buying rivals and became a nationwide company. When Richard Smith, a General Electric Co. veteran, became CEO in 2005, Equifax was a staid company centered on the collection of credit data, according to comments he made last month at a University of Georgia

event.

Callers then asked the large firm to change the bank-deposit number for what they claimed was their business, people familiar with the matter say. The callers said the change was needed because they had changed banks.

Fraudulent calls

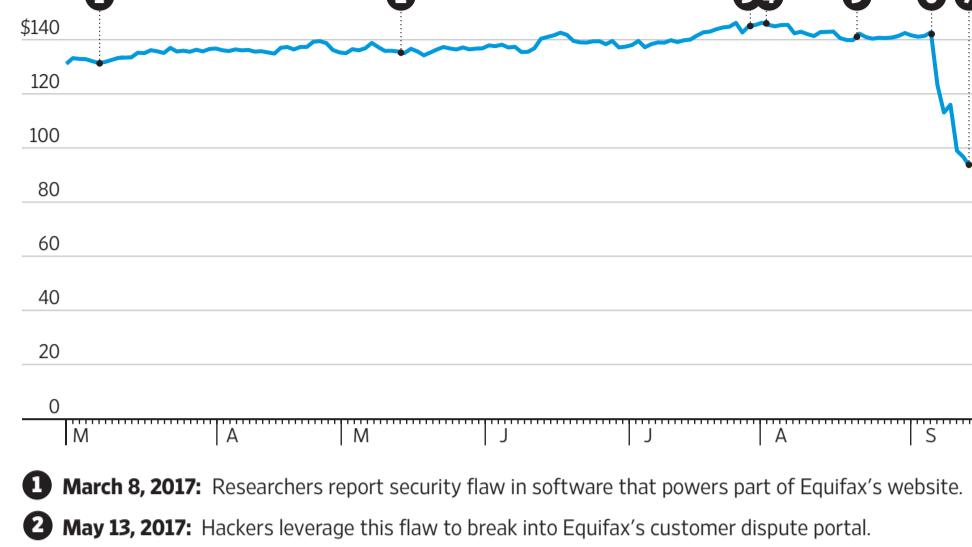
The firm usually gets about a dozen such calls a year, but it was suddenly getting a dozen a week, these people say. The firm determined that the people weren't who they claimed to be but had no idea what was behind the leap in fraudulent calls.

After Equifax disclosed its data breach, the other firm realized that the two sets of events were likely linked, say people familiar with the firm. Call volume at the firm has declined to normal levels.

Other companies have moved to systems that spread out consumers' personal data in different places. If there is a security breach, the chances of

Hacked and Beleaguered

Equifax's stock price has fallen 30% since its announcement of a massive data breach.



1 March 8, 2017: Researchers report security flaw in software that powers part of Equifax's website.

2 May 13, 2017: Hackers leverage this flaw to break into Equifax's customer dispute portal.

3 July 29, 2017: Equifax notices 'suspicious network traffic' and blocks it.

4 Aug. 2, 2017: Company brings in outside cyber investigators.

5 Aug. 22, 2017: Company registers the new domain name equifaxsecurity2017.com.

6 Sept. 7, 2017: Equifax announces breach potentially impacting about 143 million U.S. consumers.

7 Sept. 15, 2017: Company says security intrusion ran from May 13 to July 30.

Sources: FactSet; staff reporting

THE WALL STREET JOURNAL.

Sources: FactSet; staff reporting

gia event. Mr. Smith changed that. Equifax branched out to become a data provider, purchasing companies with information about consumers' bill-paying habits and salary information about employees at large companies.

Equifax is now a "world-class, state-of-the-art" technology and data-analysis company, he said at the event last month. Every day, Equifax manages 1,200 times as much data as is in the Library of Congress, he added. "It's been a fun journey, a journey that we're all very, very proud of."

That data makes credit-reporting companies a tempting target for hackers. In 2015, Experian found that an unauthorized party had accessed T-Mobile data on its server, as well as records containing names, addresses, Social Security numbers, dates of birth and identification numbers.

type of information was exposed.

Callers then asked the large firm to change the bank-deposit number for what they claimed was their business, people familiar with the matter say. The callers said the change was needed because they had changed banks.

Jeff Dodge, an Equifax investor-relations official, said at a conference last November that "data security, and how we go about ensuring that, is something we spend a lot of time and effort on."

On July 29, the company's security team observed "suspicious network traffic associated with its U.S. online dispute portal web application," according to an Equifax press release. The team blocked the suspicious traffic, and an internal review continued.

Equifax then discovered the attack involved the Apache Struts vulnerability. The company hasn't explained why its earlier efforts to address the bug failed. Equifax said its security team patched the software before bringing the web application back online.

The bug exploited by hackers was "known and could have been fixed and patched," says Ted Schlein, general partner at venture-capital firm Kleiner Perkins Caufield & Byers, a major technology investor. Mr. Schlein also is a former executive at cybersecurity firm Symantec Corp.

"If you are the purveyor and keeper of that much sensitive information, it's just terrible that you wouldn't have the highest security standards," he adds.

In an update Friday, Equifax said that while it "fully understands the intense focus on patching efforts, the company's review of the facts is still ongoing."

On Aug. 2, Equifax brought in Mandiant, the well-known cyber-investigations division of FireEye Inc., which investigated Yahoo's data breach. As Mandiant began combing through the digital wreckage, Equifax executives decided to hold off on making an announcement until they had more clarity on the number of people affected and the types of information that were compromised, according to a person familiar with the matter.

Three Equifax officials, including the company's finance chief, sold a total of about \$1.8 million in stock Aug. 1 and 2, according to securities filings. Equifax has said they didn't know about the breach at the time of the stock sales.

Business as usual

In public, Equifax took a business-as-usual attitude. Investor-relations officials met with shareholders in Newport, R.I., New York, Boston and three other cities. In materials provided to investors, Equifax said it aimed to be "a trusted steward and advocate for our customers and consumers."

In the weeks after being called in, Mandiant told Equifax that the damage from the attack could be widespread, possibly affecting about 50 million accounts, said a person familiar with the matter.

On Aug. 17, Mr. Smith spoke at the University of Georgia

event in Atlanta. After his prepared remarks, someone in the audience asked: What about data fraud?

No. 1 worry

"It's my No. 1 worry, obviously," Mr. Smith said, according to a video of the event. "There's an old saying that there's those companies that have been breached and know it, and those companies that have been breached and don't know it."

A few weeks after its initial assessment, Mandiant told Equifax the hit was far larger than Mandiant first thought, a person familiar with the matter says.

Behind the scenes, Equifax was preparing for when to go public about the breach. On Aug. 22, Equifax registered a new internet domain name, equifaxsecurity2017.com, which became the company's website for consumers to learn more about the breach.

Hackers claiming to have credit-card data from Equifax attempted to sell their database in August in online forums, says Andrew Komarov, an independent security researcher. No sale has been made, though, he says.

Equifax said as part of the breach announcement that credit-card numbers for around 209,000 U.S. consumers were stolen, too. Those cards likely belong to people who previously bought credit-monitoring services from Equifax in hope of securing an additional layer of protection from fraud, according to people familiar with the matter.

Equifax decided to make its announcement about the cyberattack after the end of regular stock trading Sept. 7. Just before the company issued its press release, one top Equifax executive called an industry executive.

"I want you to hear this from me before you hear it from someone else," the Equifax executive said, according to a person familiar with the conversation. "We've been breached."

about security and reliability of voting online.

Ms. Dennis says conservative parents who collect the mail at home might try to hide the ballot papers from their voting-age children. "My dad deals with the mail," she says.

Others say ballots may be lost under piles of store catalogs and utility bills. "No one really checks the mail at our share house," says Ben Grano, age 29, who works in digital communications in Sydney. "It winds up piled up somewhere in the house. It's an object of curiosity."

To find a mailbox, Mr. Grano says, he would try a Google search.

Albert Patajo, age 23, of the northern city of Darwin, says he last mailed a letter in 2013, when he applied for a visa to study in the U.S. "I just find it very inefficient," he says.

Mr. Patajo, who is researching cryptocurrencies and blockchain technologies in his study of law and science, says he prefers communicating over WhatsApp and other instant-messaging platforms.

He doesn't text much, he says, "unless it's for my parents."

—Rachel Pannett contributed to this article.

MAIL

Continued from Page One
billion fewer letters last year than a decade ago. Business and government mail account for 95% of all letters.

Postal service appears to have joined the list of habits abandoned by millennials, including paying by check and answering the doorbell, a device that a majority in a recent Twitter poll agreed was "scary weird."

Sending a letter is like recalling the times table from grade-school arithmetic, says Yan Zhuang, a 21-year-old politics major at the University of Melbourne. "You sort of remember," she says, "but not really."

Australia Post says it doesn't know how many young people send mail. A 2015 study for the Royal Mail in the U.K. found a third of them believe "writing letters is a thing of the past." Half said they wrote friends on social media every day; most said they mailed about one letter a year.

Millennials have found correspondence a two-way street. Nida Javed, 28, a Sydney-based IT specialist, says for once she

would like to receive a letter that doesn't begin: "To whom it may concern."

Approving same-sex marriage in Australia doesn't require a national referendum. Prime Minister Malcolm Turnbull, weakened by elections last year that left his conservative coalition with a one-seat majority, decided to toss the question to voters, then, depending on results, address the issue in Parliament.

Some 400,000 Australians from the ages of 18 to 25 have never voted, but around 90,000 mostly young people have registered since the same-sex vote was announced in August, according to the Australian Electoral Commission. They are poised to support same-sex marriage in large numbers, says Ariadne Vromen, a social researcher at the University of Sydney.

That is, if they can figure out how. Ballots went out last week, with postage paid, and results will be announced Nov. 15.

Much work remains for both sides.

Lyle Shelton, head of the Australian Christian Lobby and leading the "No" camp, says his group will launch a "find your mailbox" initiative.

Andrew Leigh, who supports same-sex marriage, produced a video that shows how to identify mailboxes. In the video, Mr. Leigh, a lawmaker for Australia's main opposition Labor party, says:

"There's a whole younger demographic who don't know what those big red boxes on the street are," he says. "It's just what we're up against."

Some colleges are offering to act as mail couriers for students. "For some young people the barrier of physically having to post something might

be all a bit too much," says Robyn Lewis, an adviser at Australian National University. The campus post office was demolished during a recent modernization.

Some on both sides of the same-sex marriage issue say the vote would be more accurate if it were conducted electronically, via computers and mobile phones. Others worry

about security and reliability of voting online.

Ms. Dennis says conservative parents who collect the mail at home might try to hide the ballot papers from their voting-age children. "My dad deals with the mail," she says.

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—Rachel Pannett contributed to this article.

GREATER NEW YORK

Connecticut Market Sags

Housing sector hurt by dim labor picture as several big firms move out of the state

By JOSEPH DE AVILA

As Connecticut's economy continues to trail its neighbors, the state's housing market is now falling behind.

The contrast between Connecticut and Massachusetts is stark. Home construction permits in Connecticut fell 26% through July 2017 from the same period last year, according to federal data. Massachusetts permits rose 26% during that time.

Median home sales prices in Connecticut edged up 1% through July 2017 from a year earlier, according to the Warren Group, a real-estate infor-

mation firm. Massachusetts sales prices rose 6%.

The travails in Connecticut's housing market highlight the state's difficulty digging itself out of the losses from the recession. Connecticut has regained 78% of the 119,100 jobs it lost during the recession.

Every other New England state has recovered all positions it lost and then some. Massachusetts has added more than three times the numbers of jobs it lost during the downturn.

Connecticut's economy has been buffeted by a parade of corporate departures. General Electric Co. left for Boston last year, and Aetna Inc. said this year that it would move its headquarters to New York. Alexion Pharmaceuticals Inc. said last week that it, too, would depart for Boston.

Don Klepper-Smith, chief

economist for consulting firm DataCore Partners LLC, said the differences between the housing markets in Connecticut and Massachusetts come down to jobs. "You can't have meaningful traction in the local housing market without traction in the labor market," he said.

Some single-family home builders are sitting on the sideline as a result. Kevin Santini, co-owner of Santini Homes, said his company owns land in Ellington, Conn., in the northeast section of the state and is waiting for demand to pick up before starting construction on more single-family homes.

"We've chosen not to break ground on it because we want to make sure the market is sound," Mr. Santini said.

The company has built about 20 single-family homes during the past decade and in-

stead has focused on the stronger rental market, he said. The company has built about 500 rental units over the past 10 years, he said.

The departures of GE, Aetna and now Alexion have hurt the state's reputation, Mr. Santini said. "I hate to say it, but we are a laughingstock," he added.

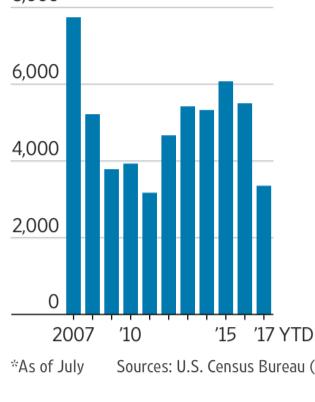
There are some bright spots for Connecticut's housing market. More than 19,200 homes were sold through July, an 8% increase over the same time frame in 2016.

The high-end market in Greenwich, Conn., also has bounced back from 2016. There have been 41 homes priced at \$5 million or more that sold through Sept. 13, a 41% increase over the same time frame last year, according to David Haffenreffer, branch manager for Houlihan Lawrence's Greenwich office.

Sluggish State

Connecticut's housing market is struggling, with some home builders taking a wait-and-see approach.

Number of new housing units authorized by building permits



*As of July Sources: U.S. Census Bureau (units); The Warren Group (price)

Median single-family home sales prices



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on the market in Greenwich and that means buyers can take their time and be choosy on what they bid on, he said. "We are encouraging our sellers to strategically price their home right," he added.

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U.N. General Assembly Meeting Brings New Buzz to the City



GETTING READY: Supporters of Egyptian President Abdel Fattah Al Sisi, left, were some of the people who gathered Sunday ahead of Tuesday's opening of general debate at the United Nations General Assembly meeting. Police barricades were put in place for the event.

Trump's Shadow Cast on Mayor's Challenger

By MARA GAY

The Republican candidate for New York City mayor, Assemblywoman Nicole Malliotakis, is talking about homelessness and transit, traffic and schools.

One thing she isn't spending much time discussing: Her support for President Donald Trump, a Republican, for whom she voted last year and who has been widely rejected by New York City voters.

"It's a difficult time to be a Republican in New York City," Ms. Malliotakis said in an interview recently. "This election is not about Donald

Trump. It's about traffic, trash, all the quality-of-life issues that have deteriorated."

Since she announced her candidacy earlier this year, Ms. Malliotakis, a 36-year-old state lawmaker from Staten Island, has sought to maintain a laser-focus on local issues.

She has promised to reduce fines on small businesses, and expand support for charter schools. She said she would take a more active role in making subway upgrades through the Metropolitan Transportation Authority, which is state-controlled.

Yet, her Democratic opponent, Mayor Bill de Blasio, has

tried to tie her to Mr. Trump, rarely missing a chance to remind voters of the connection while he sends multiple tweets a day promising to defend immigrant New Yorkers from deportations and fight other parts of Mr. Trump's agenda.

"The best reason to come

out and vote this Nov. 7 is because of what happened last Nov. 8," he said at a Bronx church on Sunday.

The shadow of Mr. Trump has sometimes seemed to stalk Ms. Malliotakis on the campaign trail, forcing her to weigh in on the tensions emanating from Washington.

During one news conference last month, Ms. Malliotakis was asked for her views on Mr. Trump's handling of a white supremacist rally in Charlottesville, Va., that turned violent. The assemblywoman described support for the Ku Klux Klan and other

Please see RACE page A11B

Nicole Malliotakis has sought to maintain a laser-focus on local issues in her campaign.

nicole.malliotakis@assembly.state.ny.us

Photo: AP

acceptable," she wrote.

In her letter, Ms. Mason also said that faculty had received threats, and students felt unsafe.

"New York City won't stand for the vile, antipolice rhetoric of Michael Isaacson and neither should John Jay College," New York City Mayor Bill de Blasio said on Twitter on Friday.

The city's police unions, in condemning the comments, said they were dangerous to law enforcement.

Mr. Isaacson's tweet drew condemnation from across the political spectrum.

Patrick Lynch, the president of the Patrolmen's Benevolent Association, the city's largest police union, called on CUNY to fire Mr. Isaacson.

Roy Richter, president of the Captains Endowment Association, called Mr. Isaacson's remarks, "an abdication of the professor's responsibility as a civilized human being." He added that they were "disgusting coming from a representative of the teaching profession."

Mr. Isaacson said he wasn't inherently antipolice. "My critique is with police as an institution," he said.

"It was a shit post," he said. "This is what people do on social media, they say tongue-in-cheek things."

The best reason to come

Please see RACE page A11B

Photo: AP

nicole.malliotakis@assembly.state.ny.us

GREATER NEW YORK

Aged Steaks Push Limits of Taste

BY CHARLES PASSY

The hottest menu item at New York restaurants may be a plate of rotting beef.

Dining spots around town are offering steaks that have been aged anywhere from 90 to 180 days, pushing the limits well beyond the typical aging period of 21 to 45 days. Restaurateurs and chefs say the added time allows for greater tenderness and depth of flavor than the norm.

"I've been describing it like the taste of roasted hazelnuts and dehydrated mushrooms," says Billy Oliva, executive chef of Delmonico's. The lower Manhattan restaurant is marking its 180th anniversary by offering a 180-day dry-aged bone-in rib eye, served on a keepsake plate, for \$380. The special is offered through Oct. 14.

The reason for the high cost? Beef that has been aged loses a considerable amount of its weight over time, Mr. Oliva explains, so diners are essentially paying for that shrinkage.

Delmonico's has plenty of company in embracing what some have dubbed extreme aging, with a few variations on the theme. Cote, a Korean steakhouse that opened recently in Manhattan's Flatiron District, offers steaks aged up to 150 days, priced as high as \$130, that are intended to be shared by a group.

And the Beatrice Inn in

Greenwich Village has a tomahawk rib eye that is aged for as much as 165 days and sold at market price. The tweak is that the steak also gets a boost of flavor from being wrapped in whiskey-saturated cloth during the process.

While beef that sits in a meat locker for months on end may sound like a dicey dietary proposition, food-safety experts say it is generally fine for consumption because of how the steak is prepared. Before cooking, chefs trim the exterior of the meat

where any bacteria might grow, reducing the safety risk. And the cooking process itself adds another layer of protection.

There also is the care that chefs take to make sure the beef, which generally sits in a temperature- and humidity-controlled environment, doesn't develop too much "green fuzz," as Mr. Oliva calls such unchecked growth.

Ultimately, dry-aging is "a controlled rot," he says.

Which isn't to say the flavor of the steak is one that every

carnivore appreciates. Many chefs say the strong taste is a turnoff for most diners, especially when the beef has been aged for an extra-long time.

"It's like blue cheese on a bone," says Michael Lomonaco, chef and owner of Porter House Bar and Grill, a steakhouse in Midtown Manhattan's Time Warner Center.

Mr. Lomonaco says he usually ages his steaks about 30 days. "It has the tender quality you expect from aged beef without any funky flavor."



Steaks in the dry-aging cooler at Delmonico's. The restaurant is offering a 180-day rib eye for \$380.

RACE

Continued from page A1A

racist groups on display at the rally as "disgusting," but shied from criticizing Mr. Trump's handling of the event, and said she didn't regret voting for him.

"Look, I'm gonna agree with him on some things. I'm gonna disagree with other things," she said at the time.

As a Republican challenger, Ms. Malliotakis already is at a disadvantage in New York City, where Democrats outnumber

Republicans by more than 6 to 1, and it has long been difficult to unseat a sitting mayor.

Ms. Malliotakis has countered that anti-de Blasio sentiment is broader than the polls suggest. She says her platform would serve all New Yorkers, and she has pointed out that New York City voters repeatedly have chosen a Republican to serve as mayor in other elections during the past few decades.

Yet, Ms. Malliotakis's support for Mr. Trump has made an uphill battle that much steeper.

Nearly 80% of New Yorkers

voted for Hillary Clinton, while just over 18% voted for Mr. Trump, according to city election data.

At the African American Day Parade on Sunday in Harlem, Ms. Malliotakis spent hours listening to black New Yorkers talk about their concerns regarding affordable housing and jobs.

Black voters are a critical voting bloc in the majority-minority city.

Many said they were disappointed with Mr. de Blasio, and found Ms. Malliotakis's platform interesting. But many of those interviewed said vot-

ing for someone who supported Mr. Trump was a step they couldn't take.

"I don't care if you're a Democrat or a Republican, if you voted for Donald Trump, you have to be held accountable for it," said Jonathan Hawes, a 54-year-old Democrat from Harlem.

Others felt differently.

"It has nothing to do with Trump," said Alice Robinson, 61, of Harlem. She said that while she was a Democrat, she would vote for the candidate she thought could deliver better jobs and more affordable housing.



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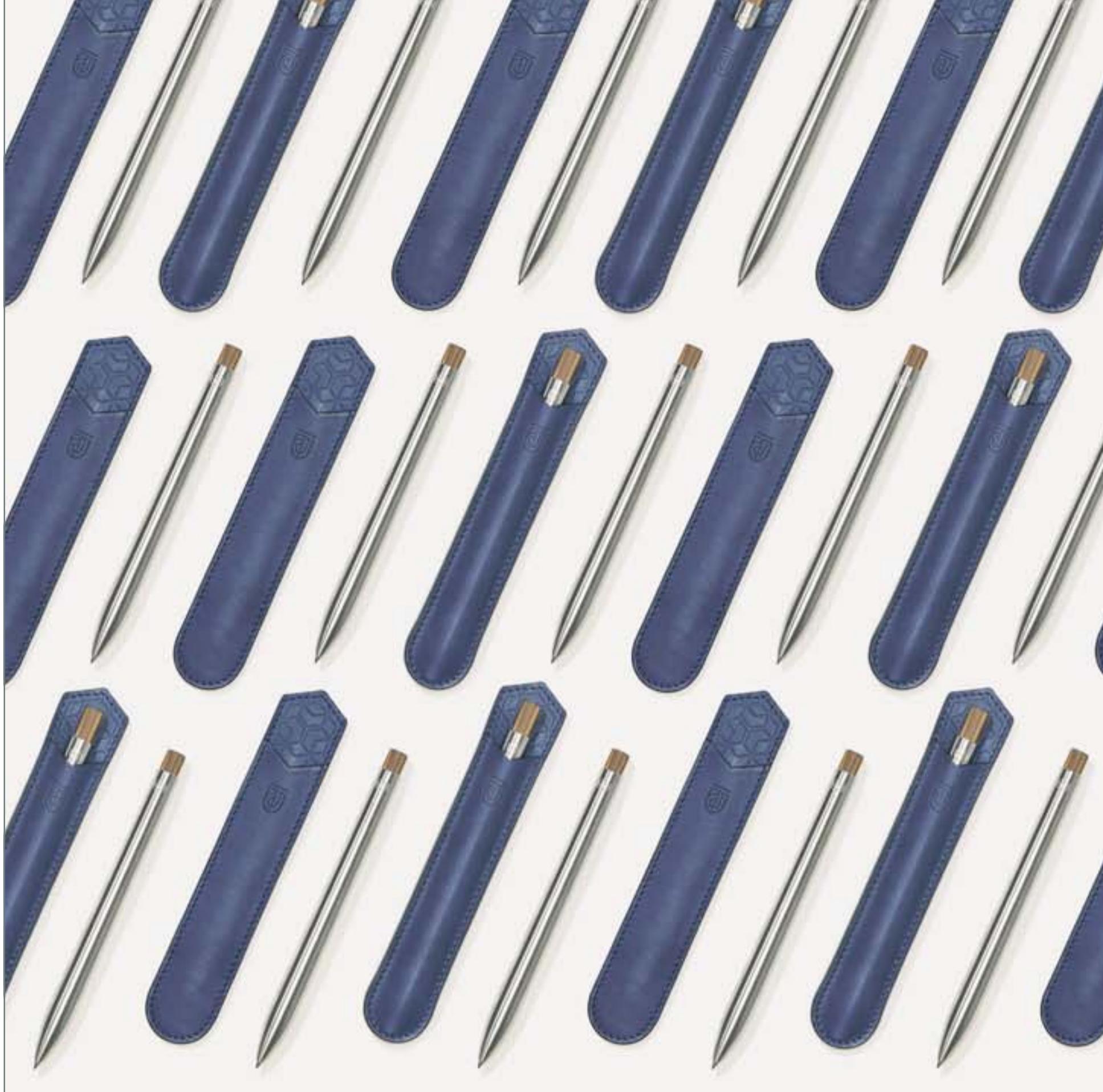


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LIFE & ARTS

AWARDS

'Handmaid's Tale' Delivers for Hulu

At the Emmy awards, the streaming service's dystopian series claims a host of honors; political barbs fly at Sunday's ceremony



BY JOHN JURGENSEN

HULU PLANTED a flag in the world of prestige television by winning the Emmy award for Outstanding Drama Series in the first year that the streaming service was nominated in the category. At the 69th Emmy Awards Sunday night, Hulu's "The Handmaid's Tale" beat out nominees from established Emmy contenders AMC, HBO, NBC and Netflix.

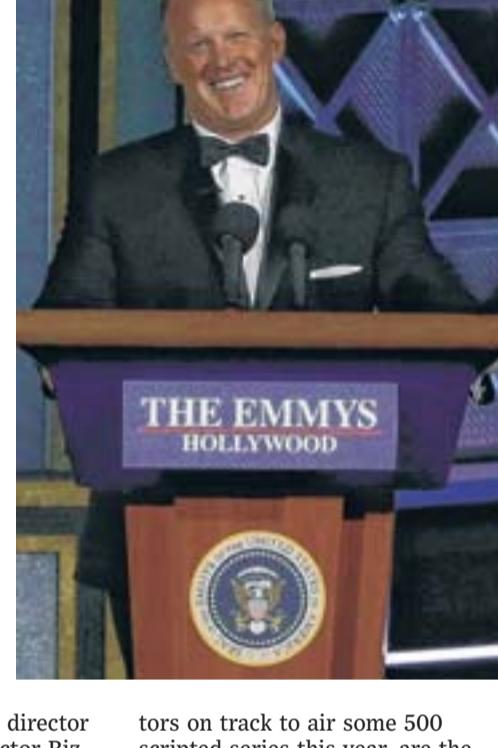
The dystopian drama, adapted from a novel by Margaret Atwood, also prevailed in other categories, earning awards for lead actress Elisabeth Moss, supporting actress Ann Dowd, director Reed Morano and writer Bruce Miller.

With those wins, Hulu bested streaming rival Netflix, which had three shows nominated in the category—"The Crown," "House of Cards" and "Stranger Things"—and hasn't yet won that marquee award, despite competing in it for the last four years.

NBC failed to break the 11-year dry spell since a broadcast network last won the top drama race. But its warm and often weepy family series "This Is Us" claimed a victory when cast member Sterling K. Brown won a lead actor award for playing a man reconciling life with his adoptive family and biological father.

In contrast to the disruption on the drama side, continuity reigned in the comedy race. HBO's "Veep" won Outstanding Comedy Series for the third year in a row.

"Veep" star Julia Louis-Dreyfus set a record for the most Emmys won by a performer for the same role and series. For playing Selina Meyer, a crass and self-obsessed politician, she took home comedy's lead actress award for the sixth consecutive year. It was her eighth



Actress Elisabeth Moss, author Margaret Atwood, in red, and others celebrated victories for 'The Handmaid's Tale' at Sunday night's Emmy Awards. Former White House press secretary Sean Spicer, right, made a cameo and Julia Louis-Dreyfus, top right, and Donald Glover, above, were among the winners.

total win as a performer, a tally that ties her with actress Cloris Leachman.

Donald Glover burst into the top ranks of comedy winners, receiving awards for lead actor and director for his first-year series "Atlanta," on FX.

At times during the Emmy telecast on CBS, political barbs threatened to upstage the honorees. After an ironic opening number that celebrated TV as a sanctuary of escapism, host Stephen Colbert made digs at President Donald Trump's TV-watching habits and lack of Emmy wins for "The Celebrity Apprentice." The theater audience erupted in surprise when former press secretary Sean Spicer took the stage to deliver superlatives about the size of the Emmy audience—a riff on how he characterized the attendance at the pres-

ident's inauguration.

Satire of the presidential election and its aftermath powered "Saturday Night Live" ratings to a 22-year high, and the late-night show continued to reap the rewards Sunday night. "SNL" won for Outstanding Variety Sketch Series. Kate McKinnon, the show's go-to Hillary Clinton impersonator, thanked the former candidate while accepting the award for supporting actress in a comedy series. Alec Baldwin, whose turn as the president won him the award for supporting actor in a comedy, joked that Mr. Trump had finally won an Emmy.

HBO dominated the limited-series categories. Its seven-episode "Big Little Lies" beat out competitors such as "Feud" and "Fargo" from FX, and earned trophies for lead actress Nicole Kidman, sup-

porting actress Laura Dern, supporting actor Alexander Skarsgård and director Jean-Marc Vallée. Lead actor Riz Ahmed won for "The Night Of," a crime story produced by the late "Sopranos" star James Gandolfini.

Netflix wasn't left empty-handed. An installment of its sci-fi anthology series "Black Mirror" won best TV movie. Supporting actor John Lithgow scored for his portrayal of Winston Churchill in period drama "The Crown." And "Master of None" star Aziz Ansari shared an award with Lena Waithe, who became the first African American woman to win the award for writing in a comedy series. Netflix won 20 awards this year, second only to HBO's 29 wins.

With viewers fashioning their own à la carte menus and distribu-

tors on track to air some 500 scripted series this year, are the Emmys more—or less—important than ever? TV producers bet big on the former, launching a barrage of Emmy campaigning in recent months.

Netflix and Amazon opened up dedicated venues in Los Angeles, where industry members could check out screenings, panel discussions and props from shows—all while helping themselves to food and drinks. Hulu made a social-media ripple for "The Handmaid's Tale" by deploying a few dozen women on the streets of L.A., all dressed in costumes from the show: red cloaks and white cowls that the story's fertile young women wear in a futuristic society gone barren.

WHAT'S YOUR WORKOUT? | By Jen Murphy

THE ONE SPORT WITH FOUR RACKETS

WHEN A COACH told Jeremy Easterbrook he'd never be good enough to play badminton in the Olympics, the 28-year-old Canadian didn't give up the game. He just took up three more.

"I figured if I couldn't be the best at one, I could at least be good at them all," he says.

Mr. Easterbrook competes in racketlon, a sport that combines table tennis, badminton, squash and tennis in a single match against the same opponent. One match can last more than 90 minutes and a tournament can consist of three to four matches. "You need to be really physically fit but also mentally tough," he says. "You're switching from racket to racket in under three minutes and have to find the zone in the hardest moments."



CEO of Index, a Montreal-based digital marketing agency, started playing badminton competitively at age 15 and in his 20s became one of Canada's top-ranked players. In 2008, he went to China for three months to train with a former Chinese badminton world champion. "I was in the best shape of my life, training six hours a day, and my coach told me if I trained with him for four more years maybe I'd get through the first round of the Olympics," he says. "I went home and embraced racketlon."

Mr. Easterbrook was introduced to the decathlon of racket sports the previous year. He had learned to play tennis as a child from his grandfather, a tennis pro, and had dabbled in squash. Table tennis was new so he joined a table tennis club.

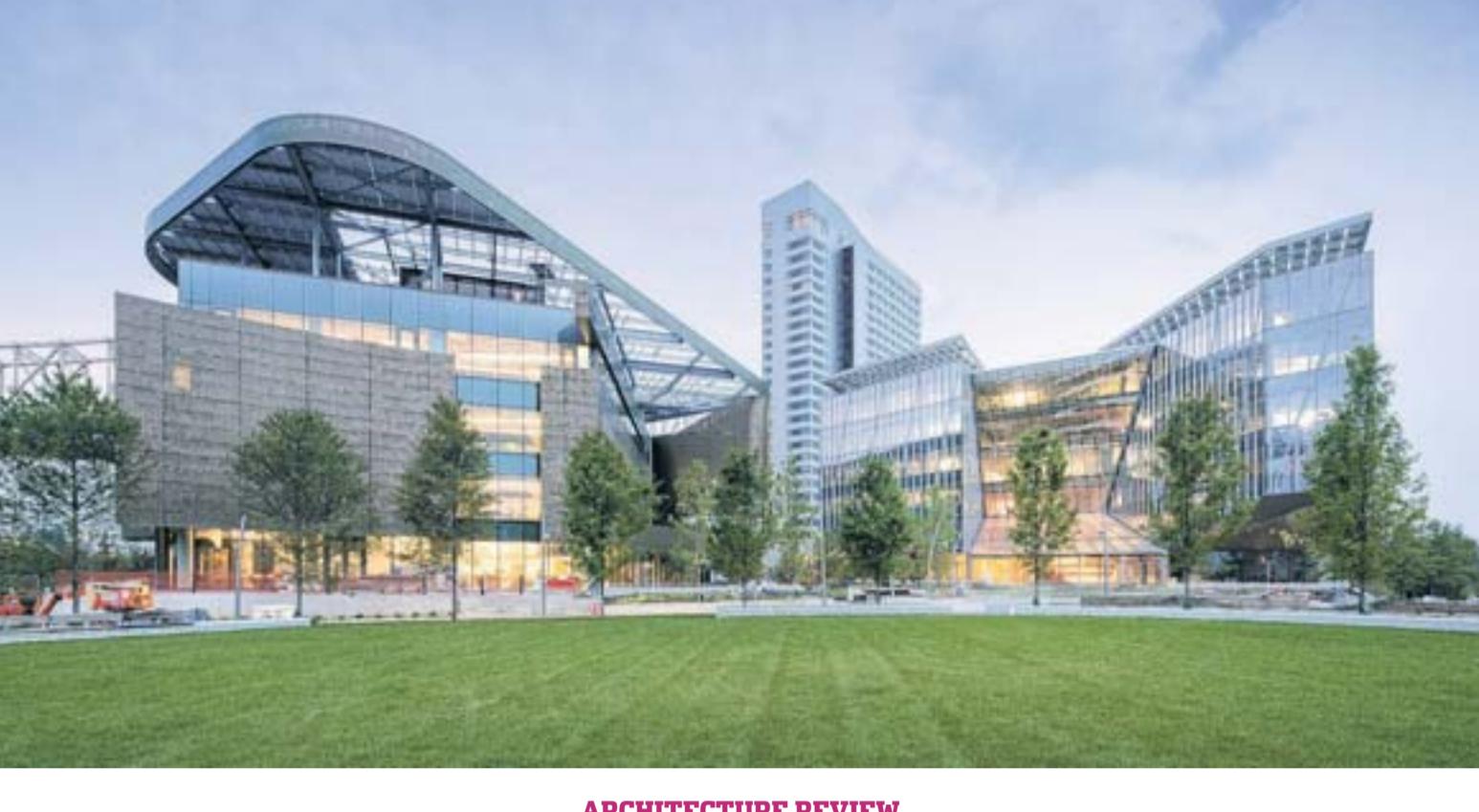
Please see WORKOUT page A14



Jeremy Easterbrook, left, switched from playing competitive badminton to racketlon. The sport combines table tennis, badminton, squash and tennis in a single match against the same opponent.

LIFE & ARTS

CLOCKWISE FROM TOP LEFT: IWAN BAAN; MATTHEW CARBONE FOR MORPHOSIS (2)



The Cornell Tech campus, left; the outside, below, and inside, above, of the Bloomberg Center, designed by Thom Mayne of Morphosis

the high-performance materials are still very energy efficient, but somehow all that glass looks old school.

The building's bulbous bow tie shape makes for plenty of corner offices, a real consideration considering the high-profile corporate partners the school wants to coax into collaborating on R&D with students. The double-height lobby streaming with sunlight is like an indoor vineyard: A wide stair rises alongside wood-paneled terraces with bench-seating and chairs for more of that informal hobnobbing. The six floors—many wood planked like a ship's deck—are chockablock with well-upholstered conference rooms and pullout spaces. On the roof, photovoltaic panels produce enough solar energy to share with the Bloomberg Center so it can achieve its net-zero status.

Rising above the Ed Koch Queensboro Bridge on the south, the 26-story dorm building with 500 beds for students and 16 apartments for faculty is the most visible of the three new buildings, and the dullest to look at with its file-cabinet gray sheen. Still, it is a significant landmark, the tallest structure built according to the strict international code known as passive house standards with its emphasis on energy savings through extreme insulation. With an airtight facade wrapped in prefabricated metal panels, the so-called House has condensers on every floor for circulating fresh and removing stale air. It consumes 60% to 70% less energy than similar-sized structures, a commendable and important achievement even if students living there will care only about the spectacular views from the rooftop lounge.

Roosevelt Island has for too long been an outlier in the East River with its rickety aerial tramway and skinny subway platform. When the campus is completed by 2043, there will be 2,000 students and 10 buildings. Cornell Tech puts the island at the heart of where ideas in business and architecture are headed.

Ms. Iovine reviews architecture for the Journal.

ARCHITECTURE REVIEW

Campus of the Future

Situated on Roosevelt Island, the first phase of Cornell Tech looks to the horizon of business, architecture and environmentalism

BY JULIE V. IOVINE

New York

THROUGHOUT its checkered history, Roosevelt Island has reflected prevailing notions about social and economic fixes. The 148-acre isle—on the East River between Manhattan and Queens—has been home to a prison, a smallpox hospital, an asylum, an almshouse and a 1970s experiment in affordable middle-class housing. The latest project is also of its time with its focus on entrepreneurial innovation and constant social mingling.

Conceived by the Bloomberg administration, Cornell Tech was envisioned as a \$2 billion, 12-acre campus devoted to the marriage of academia and business in the hopes of engendering a new class of tech-savvy biz kids. Phase One was officially completed on Sept. 13, with the first three buildings (costing \$700 million) up and running for some 300 students and (to date) three corporate giants—Citigroup, Two Sigma Investments and Ferrero, an Italian chocolate company.

The new campus buildings and their land-sculpted surrounds set a new bar for architecture. Priorities have been upended. While expensive new campus structures usually



make bold visual statements, at Cornell Tech sustainability and landscape, not ambitious form making, lead the way. On approach, the curvaceous prow of the Emma and Georgina Bloomberg Center (named for the daughters of the former mayor, who kicked in \$100 million) bulges energetically, barely contained by a lid of 1,465 photovoltaic panels floating above as a roof-top canopy. At four stories and 160,000 square feet, the Bloomberg Center—designed by Thom Mayne of Morphosis—is wrapped in an animating metal screen scalloped in soup-lid-size scales that turn a golden or lagoon-ish green hue de-

pending on how they catch the light. It helps to cool and minimize waste at a building that aims to achieve the new holy grail of energy usage: net-zero.

Beneath the prow are a cluster of built-in outdoor seats and tables. A path sweeps past the other two buildings—a dorm and office-cum-incubator—into an open plaza and lawn with a seemingly endless array of seating arrangements and table options. The buzz potential is palpable.

Beneath the lawn and plaza, there's a rain-harvesting tank and 80 geothermal wells. Gardens perform bio-filtration services;

pavers absorb overflow.

In fact, the grounds designed by James Corner Field Operations feel more developed than the interiors of the Bloomberg Center. That's intentional. The interior spaces are all loosely organized with minimal finishes made out of tough no-frills materials—concrete, sheetrock—and an emphasis on flow. This is in accordance with the new mantra that accidental encounters trigger the most creative ideas. There's a ground-floor café, open to the public, with a lovely terrace overlooking the East River. Tech labs and open-plan offices have few partitions, and there are conference rooms of every size and transparency, down to what looks like an actual cone of silence to enable private phone calls. A conference room is decorated with one of three WPA murals rescued from the demolished Goldwater Hospital. Glass, a notorious excess heat magnet, is used only where it counts (ground floor, main circulating stair) and sensors monitor every space to predict and control artificial light usage.

The other two buildings are less visually remarkable. Designed by Weiss Manfredi, the 235,000-square-foot Bridge building is more polished, clad in shiny glass. The architects are at pains to describe how

WORKOUT

Continued from page A13
nis club, hired a coach and started entering local racketlon tournaments. He was a natural.

He is ranked second in Canada and 47th in the world.

The Workout

Mr. Easterbrook says one of the biggest challenges of racketlon is finding work-life balance amid an intense training schedule. Each sport works different muscles and requires different swing techniques and even footwork. He trains after work from 7 to 10 p.m. and from 9 a.m. to noon on weekends. Mondays and Saturdays he plays squash and badminton; on Tuesdays and Thursdays he plays table tennis, usually at Club Atwater, a prestigious racquet sports club in Montreal. He trains at Ping Création, a Montreal ping-pong club owned by his coach and former tennis table star, Alain Bourbonnais. Wednesdays, Fridays and Sundays are dedicated to fitness and tennis, which he plays at the Carrefour Multisports center in Laval. His girlfriend occasionally plays him in squash and badminton. "She's not a racketlon athlete, but she is encouraging and also very understanding of my training commitments."

In 2012 Mr. Easterbrook suffered a torn right Achilles tendon while playing squash. "I was overtraining and not taking care of my core and back," he says. "That led me to compensate with other muscles," he says. The injury required surgery, three months on crutches and another three in a boot. Mr. Easterbrook estimates that it took a year to fully recover and regain his fitness. He's since become a stickler for cardio and strength.

On fitness days he does one hour of cardio, usually the stationary bike, followed by one hour of strength exercises such as bench press, dumbbell squats, plank pose



Inset, Jeremy Easterbrook. Center, Mr. Easterbrook has an extensive collection of equipment. Racketlon combines squash, badminton, tennis and table tennis.



and medicine ball twists, which work the obliques. He ends with 15 minutes of yoga-inspired stretches. "Cobra pose is a favorite to stretch out my back," he says.

He practices visualization before every match.

The Diet

Mr. Easterbrook gained more than 45 pounds when he was injured in

2012. "I realized my diet wasn't really helping me," he says. "I ate a lot of pizza." He dropped 20 pounds on a low carb diet to get to his "happy competition weight" of 185 pounds. He has a protein shake in the morning followed by grilled chicken and vegetables, and a protein shake around 3 p.m. He tries to avoid restaurant meals and instead cooks at home.

"I cook a lot on the barbecue and love making chicken tagine with a big salad," he says. He has another protein shake before bed. During a tournament, he has a big breakfast of cereal, fruit and coffee and then tries to eat some type of protein every hour when he is not playing. His guilty pleasure is beer.

The Gear & Cost

Mr. Easterbrook paid \$100 for his Black Knight Reactor court shoes, which he uses for Racketlon. He also has a pair of Adidas Barricade (\$100) tennis shoes for table tennis. He plays table tennis with a DONIC Waldner Senso Carbon blade (\$60) covered in Andro Rasant rubber



Racketlon, the racket-sport cousin of the decathlon, is a fairly new concept. It started in Scandinavia in the mid-1980s, when it was known as racket sports; the International Racketlon Federation in Vienna was formed in 2002. Its four sets must be played in the order from the smallest to the biggest racket, starting with table tennis and continuing with badminton, squash and ending with tennis. Every rally results in a point to the winner, and the winner of each set is the player who reaches 21 points. The winner of a racketlon match is the player who scores the most points in total so it's possible to lose three of the four sets and win the match.

(\$35). He has two Black Knight HEX-Force 360 badminton rackets, which cost \$240 each, three QuickSilver LT squash rackets at \$160 each, and two Babolat Pure Aero tennis rackets, at \$200 a piece. He prefers Schildkrot 3 star balls for table tennis, Black Knight True-Bounce squash balls and Wilson US Open tennis balls. He wears Black Knight Stiletto eye protection (\$30).

LIFE & ARTS

ART REVIEW

Mirror of a Kaleidoscopic Culture

With 80 exhibitions at 70 venues, 'Pacific Standard Time: LA/LA' hopes to reshape art history from a Latino perspective

BY PETER PLAGENS

Los Angeles

THE U.S. is the second-largest Spanish-speaking country in the world. Latinos are a plurality in California, with about 45% of the population in the state's eight southernmost counties and just a tick under half the population of Los Angeles County. Glenn Phillips, curator at the alternative space LAXART, says, "We are more similar to Latin America than we are to Europe." Small wonder then that the deputy director of the rich and influential Getty Foundation, Joan Weinstein, admits that the purpose of "**Pacific Standard Time: LA/LA**," the Getty-sponsored panoply of cultural events, aims to flip "the history of modern and contemporary art, beginning with the Latino perspective."

Will it work? one is tempted to ask. Sure. But that answer could get torn to shreds in the thickets of identity consciousness (what's "good" to an older Anglo critic might be irredeemably bad to, say, a younger Latino artist), and cultural politics (down the road, huge sums of money and public support are at stake). Suffice it to say that enough of PST LA/LA (those initials cutely standing for "Latin America" and "Los Angeles") is worth looking at to overcome the fact that this third iteration (the first tackled the New York establishment's neglect of West Coast modern art; the second concerned architecture) teeters on the edge of dysfunctional gigantism.

Just how Brobdingnagian is this PST? It consists of 80 exhibitions rolling out during September at 70 venues in a 120-mile radius from downtown L.A., and will result in 60 catalogs. The chronological span reaches from pre-Columbian treasures to performance art from, well, right now. The ethnic spread includes Chinese artists living in the Hispanic Caribbean and racially Japanese artists residing in Lima. Exhibition topics include the U.S.-Mexican border ("Bridges, not walls" might as well be offered as a free tattoo at every show), whether craft can be fine art, and queerness among Chicanos. (A language note: "Chicanos" seems to have made a comeback as a designation for Americans of Mexican descent, but the wannabe trend to de-gender the likes of "Latina" and "Latino" with "Latinx"—pronounced "Latinex"—gains little footing in PST.)

LA/LA will also stage a plethora of musical and theatrical performances at the Disney Concert Hall, the Hollywood Bowl, and CalArts' Redcat theater downtown. A roster of events not included is probably shorter, and given the godawful traffic in Southern California, anybody planning to see all the PST shows should think of leasing an apartment.

For instance, it took me about three hours total to travel from the small first part of "**How to Read El Pato Pascual: Disney's**



Carlos Almaraz's 'Crash in Phthal Green' (1984), above, Daniel Joseph Martinez's full-scale reprise of the Unabomber's cabin, 'The House that America Built' (2004-17), below, and Sergio Allevato's 'California Flora,' bottom



FROM TOP: MUSEUM ASSOCIATES/LACMA (2); SERGIO ALLEVATO; THE ESTATE OF MARTIN RAMIREZ/COURTESY RICCO/MARESCA GALLERY

ment with a certain postmodern glamour to it is told in other PST shows, but—if you have the patience to stand and look at that many photographs on walls—the Getty's show tells it most fully.

"Radical Women: Latin American Art, 1960-1985" (through Dec. 31), at UCLA's Hammer Museum, has generated the most early buzz. This is probably because it gives women in the audience reason to cheer (for recognizing many female artists previously unknown in the U.S., and for documenting their severe social and political struggles). And because it gives the sort of men who'll pay serious attention to such a big and demanding show (120 artists and lots of film, video and installation, with an emphasis on didactics over aesthetics) cause to reconsider practically everything in their lives.

The Los Angeles County Museum of Art's "**Home—So Different, So Appealing**" (an early opener up only through Oct. 15) attempts something of the same sociopolitical critique, but its few wow moments—such as veteran provocateur Daniel Joseph Martinez's most recent full-scale reprise of the Unabomber's cabin (titled, in scolding obviousness, "The House America Built," and painted in Martha Stewart colors)—don't entirely mitigate the exhibition's somewhat chaotic morphological variety. Still, "Home" is essential on anybody's PST tour.

And what of pure pleasure—once thought to be a default component of exhibited art? The Getty's \$16 million in grants to participating institutions plus more from big commercial partners and the venues' own budgets ought to provide a little. For my money, the exhibition that most fills that bill is the Institute of



Contemporary Art, Los Angeles's breathtakingly uncomplicated installation, in its new East L.A. converted-warehouse space, of "**Martin Ramirez: His Life in Pictures, Another Interpretation**" (through Dec. 31).

Ramirez (1895-1963) came to the U.S. as a young man to find work on the railroads. Unemployed in the Great Depression, he was picked up as a vagrant and thrown into a typically cruel mental hospital. In the 1940s, the art he made from melted crayons and burnt matches on formats patched together from paper cups and package wrapping was discovered and saved from trashing by a psychiatrist. Ramirez's stunning (there's no other word) drawings, which combine ingenious "outsider" figuration with passionately dizzy patterns, are both heartbreaking and inspiring.

Closely following ICA LA's show in the beauty category is LACMA's self-explanatorily titled "**Found in Translation: Design in California and Mexico, 1915-1985**" (through April 1). As I said to someone

with the museum, if there were one exhibition to which I'd like to back up a lift-gate truck at midnight, it's this one.

Of the 14 shows I managed to view (see "traffic," above), the foregoing six get a thumbs up. A couple of others—LACMA's retrospective of the Chicano expressionist painter Carlos Almaraz (1941-1989) and the Museum of Contemporary Art's look back at the sculpture and conceptual art of the Brazilian-born (1942) Anna Maria Maiolino—are less than stellar because the work doesn't merit quite the vast space it's given. (The LACMA show runs through Dec. 3, MOCA's through Dec. 31.) To anybody but a publicist, that's a pretty good bat-

ting average. And the overall cultural upside to PST LA/LA probably includes increased attention to and attendance at such smaller showing spaces as the Angels Gate Cultural Center down in San Pedro, and the Torrance Art Museum in the South Bay Area.

That said, PST's extreme diversity (each exhibitor was given curatorial near-carte-blanche) approaches incoherence; other than the Spanish language, it's hard to find a unifying factor. The Getty's president, James Cuno, said at the opening press conference that PST LA/LA represents a "moment when art history changed." Not quite. PST LA/LA is a huge Baroque cathedral, not a whole Renaissance.

Pacific Standard Time: LA/LA
Various dates and locations; for program information visit pacificstandardtime.org

Mr. Plagens is an artist and writer in New York.



Martin Ramirez's 'Untitled (Horse and Rider With Frieze)'

OPINION

The Cyber Age Has Hardly Begun

By Mark P. Mills

Apparently American companies can be organized now into two camps: smoking-hot tech firms and old economy roadkill. Economists cite soaring tech stock valuations as evidence of a two-speed economy. Yet Silicon Valley magic hasn't benefited most companies or created jobs for most Americans. What's going on?

Amazon's market value is twice that of Wal-Mart and 500-fold that of evaporating Sears. Apple's valuation is twice Exxon's, and Facebook and Google are each valued at 20-fold CBS. Next come 200 "unicorns," private software-dominated startups each valued at over \$1 billion. Uber has a valuation greater than all car rental companies combined, and 8-year-old Airbnb is worth as much as 80-year-old Marriott.

Despite such lofty valuations, the information sector accounts for less than 10% of gross domestic product, according to the Bureau of Economic Analysis. Everyone from infants to seniors is told to learn how to code, but there aren't that many tech jobs. Bureau of Labor Statistics data show the entire information sector accounts for under 5% of employment, with a flat trend line. The productivity and jobs benefits software could produce for the rest of the economy have yet to arrive.

Look around. Most everything critical to daily life—

food, energy, buildings, transportation—is physical, not virtual. The fabric of civilization involves digging up, processing, fabricating, moving and operating gigatons of material composed of atoms, not bits. As amazing as artificial intelligence and the cloud seem today, the world is still in the early days of truly useful, ubiquitous software that can be infused into the physical world's hardware.

The information sector accounts for less than 10% of GDP and 5% of jobs.

The billions of dollars in economic value from information technology has been associated with improvements mainly in information-related activities: mail, news, entertainment, advertising, finance and travel services. That's no accident, as those domains are relatively easy to digitize. Very little of the hardware world is digitized so far. The "smart" objects industry is dominated by monitoring and analysis. That's valuable but doesn't fundamentally alter how objects are created or operate.

Contrary to breathless prose about robots taking manufacturing jobs, the data show underinvestment in automation and information technology in factories. U.S. companies need more robots

and software to boost their competitiveness, profits and employee rolls. While spending on information technology remains high in media, banking, education and insurance, it lags far behind in chemical and food processing, energy and transportation.

Infusing software into hardware so that it becomes invisible and reliable is hard. The physical world involves factors like inertia, friction and gravity, all of which present serious safety implications. Cyberphysical systems have to work with near perfection. The real, rather than virtual, world cannot tolerate the equivalent of frozen screens, reboots, video jitter, or iterative upgrades of sloppy software rushed to market.

One iconic cyberphysical system, the self-driving car, has seen many impressive demonstrations, but engineers know much more work remains to be done. Several researchers recently demonstrated how easily self-driving cars are confused by simple graffiti on street signs. Automotive AI systems have yet to achieve the situational awareness of an inebriated college freshman.

Apple appears to be scaling back its self-driving-car initiative. There is little evidence that Apple will soon produce cars—or that Google will build power plants, Facebook will develop pharmaceuticals, or Uber will build aircraft. When more tech companies use their gargantuan cash hoards to acquire

traditional enterprises—like Amazon's acquisition of Whole Foods—we'll know the fusion between atoms and bits has really begun.

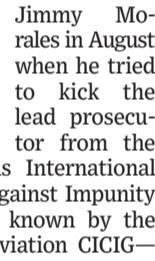
The dominant players of the cyberphysical age have yet to emerge. The early automobile age provides a relevant analogy. By 1920, several decades after the first cars were introduced, hundreds of U.S. auto makers had sprung up, although less than 10% of the population had a car, according to the Transportation Department.

Conquering the complexities of producing reliable, affordable cars and developing all the associated industries and infrastructures took time. By 1937 about a quarter of the population had cars. That had risen to nearly 40% by 1957 and around 85% today. America's economy was transformed, stimulating employment across the landscape. Detroit was the Silicon Valley of its day, but the entire nation was boosted by ubiquitous personal transportation.

The U.S. now stands at the equivalent of 1920 for ubiquitous cyberphysical systems. Today's two-speed economy is not permanent. It's a sign that America is about to shift to the next level, driven by cyberphysical software. Economic growth and jobs will follow.

Mr. Mills is a senior fellow at the Manhattan Institute and a faculty fellow at Northwestern University's McCormick School of Engineering.

The Growing Trouble in Guatemala



A barrage of condemnation from Washington descended on Guatemalan President Jimmy Morales in August when he tried to kick the lead prosecutor from the

United Nations International Commission Against Impunity in Guatemala, known by the Spanish abbreviation CICIG—the only U.N. system of outsourced justice in the world—out of his country. Mr. Morales declared Iván Velásquez persona non grata two days after the prosecutor, who is Colombian, requested that Mr. Morales's immunity from prosecution be lifted so he could be investigated for allegations that his 2015 campaign accepted illegal contributions.

Republican and Democratic leaders on the U.S. House Foreign Affairs Committee said Mr. Morales was wrong, as did the State Department. It's unusual that all three parties—classifying President Trump as neither GOP nor Democrat—agree on anything. What's even more striking is that a majority of Guatemalans seem to be in agreement with the American political class that Mr. Morales was out of line.

It is rare that U.S. policy and Guatemalan opinion coincide. But hold the applause. CICIG is an effort at nation building, and on that score

Guatemalans view it as a failed experiment. Their country is no closer to a rule of law than it was a decade ago when then-President Oscar Berger invited CICIG to set up shop in the largest nation of Central America's notoriously crime-ridden Northern Triangle.

Mr. Morales is a former comedian who ran for the highest office in Guatemala on a pledge to clean up its politics. He says he is innocent of CICIG's charges and that if there were illegal contributions, he did not know about them.

That's entirely possible. But his attempt to boot the prosecutor hasn't advanced his defense with the public. It didn't work either. The constitutional court overrode his decree. Mr. Velásquez remains.

On Wednesday Guatemala's Congress brought more shame on the political class when it passed a reform that would retroactively eliminate leadership responsibility for breaking campaign finance laws and apply criminal penalties only to the person who recorded the transaction. This would not only clear Mr. Morales but nullify CICIG charges against the leadership of two other political parties. A corresponding bill in the reform lowered prison sentences drastically for a wide array of crimes. With many congressman from the largest political parties under criminal investigation, the move was clear.

All four major newspapers cried foul on Thursday. Civil society—from the business

community to academia—and even the Guatemalan inspector general demanded that Mr. Morales use his veto power to kill the bill. Late Thursday the constitutional court suspended the new laws and late Friday, under public pressure, Congress withdrew them.

CICIG has had mixed reviews since its formation in 2006. The first two lead prosecutors—one Spanish, one

Outsourcing the job of the justice department won't build a rule of law.

Costa Rican—came and went without much success in uncovering political rot. They even came under popular suspicion that they allowed their own politics to interfere with their mandate.

Under Mr. Velásquez's leadership, working with Attorney General Thelma Aldana, CICIG collected enough evidence in 2015 to indict then-Vice President Roxana Baldetti and then-President Otto Pérez Molina on charges of bribery and graft. That opened the door for the election of Mr. Morales, and generated public respect for Mr. Velásquez.

Mr. Morales's woes are not a left-right issue. But he has spawned a political crisis that will fuel efforts by radical elements to destabilize the country, with the eventual goal of

bringing down the government. Militants know that Hugo Chávez was able to demolish Venezuelan institutions by exploiting national frustration with corruption at a time when oil prices were low due to a strong dollar and the economy was wobbling.

Only serious reform can cure what ails Guatemala. CICIG may be meeting its specific mandate to hunt crooked politicians, but it is not a long-term solution. First, because the U.N. has its own corruption problems and it also leans left. To imagine that its work in Guatemala will not be politicized is to ignore history. Second, because the country needs to shape its own institutions and shore up the rule of law.

Last year a package of constitutional reforms was put on the table in the Guatemalan Congress with the goal of increasing the independence and professionalism of the judiciary and reducing its administrative burdens. But it died without adequate debate, most likely because special interests that benefit from a weak justice system saw it as a threat to the status quo.

So the country remains in legal limbo. Property invasions and violence to block hydroelectric projects violate the rule of law. Criminal gangs spur large migrations. Investors flee. The nation may be grateful to CICIG in this moment, but it is no substitute for the functioning justice system that honest Guatemalans deserve.

Write to O'Grady@wsj.com.

By Matthew R. Bailey

Dog owners may soon be able to add years to their pets' lives, thanks to an experimental antiaging pill. In tests on mice the medication, rapamycin, has been shown to lengthen lifespans up to 60%. Now scientists at the University of Washington's Dog Aging Project are studying whether it works in canines.

Initial reports indicate the drug improves heart health. Researchers speculate that if larger trials are successful, rapamycin could extend a dog's life by five years. Animal lovers the world over must be jumping up and down in excitement, right?

Wrong. In fact, many animal-rights groups strongly oppose the studies—as they do almost any studies involving animals. Christine Lattin, a Yale researcher, puts wild sparrows into medical scanners to measure how they respond to the stress of captivity

or of exposure to crude oil. This summer People for the Ethical Treatment of Animals began a campaign accusing Ms. Lattin of "torturing birds" in "wasteful experiments." Soon she was getting emails telling her to kill herself.

Endangered species as well as pets benefit from humane testing.

If these groups truly advocate for animals, their logic is backward. Nearly 70% of American households have pets. Those animals' food and vaccines all have been developed through humane research and testing with lab animals.

Consider feline immunodeficiency virus, which attacks cats' immune systems and has a survival rate of 80% four to six years postinfection. In 2002, scientists at the University of California and the

University of Florida developed an FIV vaccine, based on tests they conducted on laboratory cats.

Livestock also benefit from studies conducted on lab animals. Antimicrobials such as Rumensin—developed in 1975—are commonly used to treat various infections in cows and were developed through research on mice. Fowl pox threatens the world's 19 billion chickens. The virus produces painful lesions on a bird's skin, throat and respiratory tract. Thanks to studies conducted in mice, scientists in 2006 created a live-virus vaccine for chicks.

Endangered species benefit from this kind of research, too. Take Asian elephants, which number only about 40,000 in the wild. One of the biggest threats they face is a strain of herpes that kills up to 90% of the elephants it infects, according to the International Elephant Foundation. The virus has killed roughly 25% of the

population in North American captivity in the past 40 years. But researchers are working on a vaccine that could save the species from extinction.

Ebola has killed 25% of the wild chimpanzee population in an Ivory Coast rain forest, according to the Journal of Infectious Diseases, and the disease wiped out nearly a third of the gorilla population world-wide by 2007, according to University of Cambridge research. Researchers working with chimpanzees in the U.S. developed an Ebola vaccine in 2014 that could save thousands of apes.

Animals are living longer, healthier lives because of these scientists. Discouraging studies condemn animals to unnecessary suffering and death from preventable illnesses. Real animal lovers should be proud to support animal research.

Mr. Bailey is president of the Foundation for Biomedical Research.

BOOKSHELF | By Robert W. Merry

The Devil Of a Job

The Impossible Presidency

By Jeremi Suri
(Basic, 343 pages, \$32)

In the midst of doing research, Jeremi Suri noticed something interesting in the appointment calendars of Franklin Roosevelt and John Kennedy. FDR's daily schedule included few pre-arranged meetings and ceremonial events, leaving ample opportunity for flexibility and improvisation. Roosevelt, writes Mr. Suri in "The Impossible Presidency," had "time to acquire new information, discuss it with numerous people, and then carefully decide on his chosen course of action." Harry Truman and Dwight Eisenhower maintained similar appointment logs.

But Kennedy embraced a more frenetic pace, and he participated in far more meetings, many convened to address urgent political and policy matters. The "vast multiplication of issues," Mr. Suri writes, "... meant that [Kennedy] could not cover all the topics knowledgeably and efficiently." The result was too much time "spent managing messes, not leading where he wanted to go." Later presidents suffered from the same malady.

Mr. Suri concludes from this shift in scheduling habits—and from other changing elements of the job—that the presidency is broken. By the start of this century, he asserts, "the inhuman demands of the office made it impossible to succeed."

A professor of history at the University of Texas, Mr. Suri explores the presidency by analyzing some of the country's most consequential chief executives. What emerges from his account is a narrative of evolution, from George Washington's "fatherly mode of executive leadership" to FDR's expansive "super-power presidency" and beyond to our most recent leaders.

Washington, as portrayed by Mr. Suri, aimed for stability. Though he fostered many institutions that would help govern America, he didn't try to control them. "His role ... was to point a direction, set a strategy, and bring people together." He sought to nurture a carefully calibrated power balance among the government's branches, an effort that called for presidential restraint.

No such restraint characterized Andrew Jackson. In the 1830s, the Tennessean elevated the presidency to a special status based on what he perceived as a direct relationship with the American people. The office, for him, was a "guardian of the national interest against manipulation by privileged elites." Jackson's projection of executive power was breathtaking at the time, but, writes Mr. Suri, "Jacksonian leadership became modern American leadership."

It certainly undergirded the leadership of Abraham Lincoln. Though his hero was Jackson's bitter rival, Henry Clay, Lincoln adopted the Jacksonian view of presidential power as something derived from the people, and he embraced Jackson's activism. Mr. Suri adds that Lincoln

An office that was once manageable is now beset by too many problems, too many demands and too many meetings.

"gave the president a strong and clear voice to cut through the ugly debates all around him." He used presidential power to emancipate slaves, redefine the essence of American democracy in the Gettysburg Address, and turn "a terrible ... war into a narrative of national redemption." Adds Mr. Suri: "Lincoln's tall shadow hangs over all of his successors."

Next in Mr. Suri's pantheon is Theodore Roosevelt, who "combined Jackson's populism with Washington's paternalism"—and, he might have added, Lincoln's power aggrandizement. Indeed, TR believed that "a benevolent czar" would be a good leadership model for America. Some contemporaries considered TR "vain, fanatical, even demagogic." Mark Twain called him "insane." In any case, he enlarged presidential prerogative with the aim of making "the national executive the dominant actor in all parts of American life," as Mr. Suri puts it. He did this on behalf of Progressivism—anti-trust actions, new regulatory protection—as well as an expansive foreign policy. "Theodore Roosevelt's progressive presidency," writes Mr. Suri, "made Franklin Roosevelt's New Deal presidency possible."

FDR, Mr. Suri says, "reached deeper into American society than ever imagined by Washington, Jackson, Lincoln, or even 'Uncle Ted.'" But his expansion of executive power—first to combat the Great Depression, then to wage war against Japan and Germany—followed the pattern established by those predecessors. "He amplified the expectations, reach, and tone of the American presidency," Mr. Suri writes. Even so, FDR was "the last great president because the office was still small enough for him to control it, just barely."

In Mr. Suri's view, Kennedy lost focus because of both the job's increased burdens and his own helter-skelter management style; Ronald Reagan, for his part, soared in dealing with the Soviet Union but failed in just about everything else; and Bill Clinton and Barack Obama raised expectations that could never be met—and hence faltered.

It's an intriguing thesis—and a debatable one. True, a crisis of governance has chewed up some recent presidents, but is the problem the presidency or the presidents? Perhaps we simply haven't found a chief executive, yet, who can handle the modern requirements of the office. Mr. Suri's case is further marred by historically questionable pronouncements. He denigrates Reagan's domestic-policy record beyond what a careful reading of history would justify. He calls Theodore Roosevelt "the first commander-in-chief to think globally"; in fact, it was TR's predecessor, William McKinley, who took America into the world. He writes that Jackson and Lincoln "claimed to 'derive all [their] authority from the people,' not the Constitution." But it was a meticulous reading of the Constitution that informed Lincoln's position on slavery, and Jackson saved the Constitution from South Carolina's "nullification" assault.

Yes, the country is only just muddling through these days, and maybe Mr. Suri's thesis about a broken presidency explains much of the problem. History tells us, though, that America will surmount its current crisis through bold and imaginative leadership—or it won't surmount it at all.

Mr. Merry is the author of "Where They Stand: The American Presidents in the Eyes of Voters and Historians."

OPINION

REVIEW & OUTLOOK

The Second Circuit's Insider-Trading Feud

Prosecutors and regulators like to define insider trading broadly—they claim to know it when they see it. A Second Circuit Court of Appeals panel in 2014 sought to establish a limiting principle, which last month was vitiated in unprecedented fashion by another panel on the same court. This intracircuit squabble is begging for adjudication.

* * *

Many liberals want to criminalize any trading that exploits a disparity of information regardless of how it was obtained. But such an expansive interpretation of insider trading could ensnare many people who unwittingly receive or disclose nonpublic information—such as stock analysts or anyone with acquaintances who work at public companies.

As the Supreme Court ruled in 1980, there is no “general duty between all participants in market transactions to forgo actions based on material, nonpublic information.” The High Court sought to establish a limitation on prosecutions in its landmark 1983 *Dirks* decision, which requires proof that a fiduciary duty was breached in return for a “personal benefit.” The Court defined such a benefit as a “pecuniary gain or a reputational benefit that will translate into future earnings” or a “gift of confidential information to a trading relative or friend.”

Yet prosecutors have since stretched *Dirks* to make its limits meaningless. In *Newman*, former U.S. Attorney Preet Bharara charged two hedge-fund managers with trading on information they received from friends of friends of friends who worked at Dell and Nvidia. Mr. Bharara argued the “friendship” between the tippers and tippees—a fellow church member and former co-worker—satisfied *Dirks* personal-benefit test. He could thus charge the traders at many stages of remove from the tippers even if he couldn’t prove the information was disclosed improperly.

Mr. Bharara’s prosecution prompted a unanimous rebuke by a Second Circuit three-judge panel that sought to define a “trading relative or friend” and “personal benefit” under *Dirks*. An inference of insider trading is impermissible, the court held, “in the absence of proof of a meaningfully close personal relationship that generates an exchange that is objective, consequential, and represents at least a potential gain of a pecuniary or similarly valuable nature.”

The Second Circuit refused to reconsider *Newman* en banc, but two of its liberal jurists recently used an appeal of *U.S. v. Martoma* to undermine the precedent. In February 2014—10 months prior to the *Newman* ruling—a jury convicted former SAC Capital trader Mathew Martoma of insider trading for exploiting non-

public information that he obtained from a doctor overseeing a drug trial.

Martoma argued that the jury had been improperly instructed and that his conviction should be tossed in light of *Newman*. Two of the panel judges disagreed, and Martoma probably deserved conviction under even a narrow definition of insider trading given his close relationship with the research doctor.

But the two judges went much further and used the case to declare that *Newman* was “no longer good law” and was contradicted by the Supreme Court’s unanimous *Salman* decision last December. Alas, the two judges misconstrued *Salman*.

In *Salman* the Supreme Court upheld the conviction of a trader who had received a tip from his brother-in-law. The High Court held that a “gift of confidential information to a trading relative or friend” constituted a personal benefit under *Dirks*. Therefore, the tipper need not receive something of a “pecuniary or similarly valuable nature” in return.

The *Martoma* majority says *Salman* overturns *Newman*, and they’re right insofar as the High Court ruled that a trading “gift” from a family member need not be a *quid pro quo*. But as judge Rosemary Pooler notes in her Second Circuit dissent, *Salman* affirmed *Newman*’s conclusion that the “inference of a personal benefit from a gift is impermissible in the absence of proof of a meaningfully close personal relationship.”

In other words, a trading gift only confers a personal benefit between close friends and family—not distant relatives or acquaintances. If there is no meaningfully close relationship, the government must prove a *quid pro quo*. Both *Newman* and *Salman* repudiated the government’s argument that a gift of confidential information to anyone is enough to prove insider trading.

* * *

As Judge Pooler explains, limitations are needed to prevent prosecutors from charging individuals based on little more than circumstantial evidence: “There is great wisdom in the Supreme Court’s limitations on broad rules, particularly when those rules might otherwise allow punishment of the absentminded in addition to persons with corrupt intentions.”

Congress could help if it wrote a clear definition of insider trading, but that’s also high risk in a season when Wall Street is a populist target. Meantime, the Second Circuit should rehear *Martoma* en banc to vindicate the Supreme Court’s *Dirks* standard and its own *Newman* precedent—lest political prosecutors like Mr. Bharara punish the innocent.

Reining in Mr. Sessions

Attorney General Jeff Sessions recently provoked bipartisan opposition when he revived a civil asset-forfeiture program that had been restricted by his predecessor, Eric Holder. Last week a bipartisan coalition brushed Mr. Sessions back with amendments to the annual appropriations package working its way through the House.

The program allows local and federal law enforcement to take property from people who haven’t been convicted of any crime—and then share in the spoils. In theory, civil asset forfeiture ensures that crime doesn’t pay by allowing law enforcement to seize homes, cars and cash thought to be paid for or generated by illegal activity. That’s why Mr. Sessions calls it a “key tool” against organized crime.

In practice, it means property can be taken from people without due process or criminal culpability. A March report from Justice’s Inspector General noted that the department doesn’t even have a way to measure if these seizures are advancing criminal investigations. In short, it invites abuse.

A victory in Congress against the revived civil asset-forfeiture program.

Last week House members passed, by voice vote, five forfeiture amendments that showed their displeasure. An amendment by Darrell Issa (R., Calif.) redirects \$10 million in funding for Justice’s asset forfeiture to a program designed to help local governments reduce the backlog of unprocessed rape kits. A Peter Roskam (R., Ill.) amendment

bars bonuses for certain Justice employees until they decide on a backlog of 255 asset forfeiture cases referred by the IRS.

Three other amendments target the “adoptive forfeiture” aspect of the program, which allows local law enforcement to make end runs around state prohibitions by working with the feds. Three separate amendments—from Jamie Raskin (D., Md.), Tim Walberg (R., Mich.) and Justin Amash (R., Mich.)—limit the funding Mr. Sessions can use to implement his program.

Though Congress will have to pass a separate law to make these restrictions permanent, these are a victory for property rights and due process. Who says Washington is so polarized that Republicans and Democrats can’t agree on anything?

California Democrats Target Tesla

California Democrats have finally found a cause that’s worth suspending their environmental passions. The United Automobile Workers are struggling for a presence in Tesla’s Fremont plant, and organized labor has called in a political favor.

Since 2010 California has offered a \$2,500 rebate to encourage consumers to buy electric vehicles. But last week, at unions’ behest, Democrats introduced an amendment to cap-and-trade spending legislation that would require participating manufacturers to get a sign-off from the state labor secretary verifying that they are “fair and responsible in their treatment of workers.”

The legislation, which passed Friday, is a direct shot at Tesla. The Clean Vehicle Rebate Project has amounted to a \$82.5 million subsidy for the company, giving extra incentive to 32,842 Tesla buyers in seven years.

Tesla’s sales have been built with taxpayer support. When Hong Kong cut back its electric-vehicle tax credits earlier this year, Tesla sales dropped to zero in April from nearly 3,000 the month earlier. And when Denmark scaled back incentives last year, electric-car

sales plummeted by 70%.

The labor secretary in California is handpicked by unions and their Democratic allies, and last month the UAW and a few auto workers filed a complaint against Tesla with the National Labor Relations Board, alleging unfair labor practices.

But the plant’s employees are doubtless aware of the union’s abysmal record in Fremont, which stretches back decades. In the early 1980s, the union’s control was so complete that General Motors couldn’t fire even workers who drank, used drugs and had sex at the Fremont plant. Roughly one in five workers failed to show up on any given day. The plant closed in 1982—no surprise. Auto workers got a second shot with a GM-Toyota joint venture, but that was shuttered in 2010.

A record of closures and corruption contributed to the UAW’s defeat last month at a Mississippi Nissan plant, where workers voted nearly two-to-one against the union. Organized labor needs political coercion because it can’t win over workers on its own. As for electric cars and green subsidies, what progressive politicians give away with one hand they want to redistribute with another.

In the Sunshine State, the left loves unions even more than electric cars.

Letters intended for publication should be addressed to: The Editor, 1211 Avenue of the Americas, New York, NY 10036, or emailed to wsj.ltrs@wsj.com. Please include your city and state. All letters are subject to editing, and unpublished letters can be neither acknowledged nor returned.

OPINION

LETTERS TO THE EDITOR

Radical Left a Greater Threat Than the Right

Alan Dershowitz explains how “The Hard Right and Hard Left Pose Different Dangers” to America (op-ed, Sept. 11). The hard-right agenda of a fascist utopia appeals only to a sliver of extremists, while the hard-left agenda of a state-regulated economy producing fair outcomes for all resonates on the left, particularly among university faculty and students. Many reasonable people in the center left are amenable to using censorship and intimidation to stifle opposition in the interest of bringing justice to oppressed groups.

Philip Terzian’s same-day op-ed “I Guess We’re All McCarthyites Now” provides an excellent example of liberal tolerance for hard-left tactics that were anathema to the center left not so long ago. A center left that is sympathetic to Rep. Luis Gutiérrez and his hard-left ilk because they are on the righteous side of history cracks open the door to a future hard-left utopia that appeals to academics, students and less-peaceful demonstrators on college campuses and the streets. Using hateful language to demonize others as haters is legal and permissible, as Alan Dershowitz would passionately argue, but should be abhorrent to reasonable people who are not on the fringe of the left or right.

JEFF ADAMS
Atlanta

I disagree that the hard right and hard left pose qualitatively different dangers or that the hard left’s ultimate goals are more commendable than those of the hard right. There is no difference between a Hitler, Stalin, Mao or Castro. A statist, totalitarian regime, by any name, reduces and de-

stroys liberty. Whether you look at the hard right or the hard left, they both wish to substitute the will of the privileged governing class for the free choices of the governed. As C.S. Lewis cautioned in his essay “The Humanitarian Theory of Punishment”: “My contention is that good men (not bad men) consistently acting upon that position would act as cruelly and unjustly as the greatest tyrants. They might in some respects act even worse. Of all tyrannies, a tyranny sincerely exercised for the good of its victims may be the most oppressive.”

TOM BRENNAN
Sanford, N.C.

The extreme right is a pathetic relic of a hateful past, while the extreme left is conquering our campuses, media and popular culture by feeding on the overblown and distorted fears of Nazi boogymen, and by violently enforcing the truisms of an invigorated alt-left out to exact vengeance on everything that we as a people used to be.

RONALD D. WEISS
Melville, N.Y.

Can we simply condemn any ideology that promotes and/or uses violence, intolerance and suppression of free speech? A hard-left or hard-right dystopia would be abhorrent to the overwhelming majority of the American people.

JOHN A. CHRISTIANSEN
Kansas City, Mo.

The true political dichotomy isn’t left versus right, but individual liberty versus state control.

PAUL C. ROSS
Rydal, Pa.

teacher, but I finally found it. For the past three years, I have been happily teaching at an international school in Malaysia. Until the school culture in the U.S. changes, I will not return to teach there, and I will never recommend to anyone that they enter the profession, no matter how “easy” the requirements.

KELLY BURLESON
Penang, Malaysia

Teaching is by no means an easy career, but the shortage is really more a marketing problem than anything. To facilitate raises in salaries and benefits, the profession puts out a continual “woe is we” message, one that is often at odds with reality.

The unions also require pay structures that deliberately underpay starting teachers, so those funds can be used to pay senior teachers more.

And, of course, heaven forbid we allow teachers in more in-demand subjects (math and science) to be paid more than those in easier-to-find areas, or modify tenure rules.

What if instead of a “poor, neglected, underpaid teachers” message, we put out one that said “work with kids, get paid decently, tremendous benefits, retire at 55 and get months of time off!”

TODD MADDISON
Oceanside, Calif.

Risk? Investors Should Focus on the Long Term

Regarding “What’s Your Tolerance for Investment Risk? Probably Not What You Think” (Journal Report, Sept. 11): Investors (and their advisers) would be better off skipping the questions and act based on three overarching truths about investment risk and return.

Equifax Should Have the Burden of Informing Victims

Equifax has encouraged consumers to check its website to find out whether they were affected by the security breach and to sign up for free credit-monitoring (“Equifax Reveals Huge Breach,” page one, Sept. 8). However, if consumers can check the Equifax website to find out whether they were affected by the breach, that means Equifax already knows who is affected. Free credit-monitoring should automatically be provided for all those impacted, thus eliminating the need for any consumer action. Why switch this burden to the consumer who is totally innocent?

This is a hurricane in another form that Congress should address because the liabilities attendant with lax security among the purveyors of consumer credit reporting is potentially nuclear in devastation.

GINNY KUDLINSKI
Overland Park, Kan.

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Pepper ... And Salt

THE WALL STREET JOURNAL



“Isn’t it getting a little late for a life coach?”

OPINION

Climate Change Hype Doesn't Help

By Ryan Maue

As soon as Hurricanes Harvey and Irma made landfall in the U.S., scientists, politicians and journalists began to discuss the role of climate change in natural disasters. Although a clear scientific consensus has emerged over the past decade that climate change influences hurricanes in the long run, its effect upon any individual storm is unclear. Anyone trying to score political points after a natural disaster should take a deep breath and review the science first.

The bigger issue than global warming is that more people are choosing to live in coastal areas.

As a meteorologist with access to the best weather-forecast model data available, I watched each hurricane's landfall with particular interest. Harvey and Irma broke the record 12-year major hurricane landfall drought on the U.S. coastline. Since Wilma in October 2005, 31 major hurricanes had swirled in the North Atlantic but all failed to reach the U.S. with a Category 3 or higher intensity.

Even as we worked to divine exactly where the hurricanes would land, a media narrative began to form linking the devastating storms to climate change. Some found it ironic that states represented by "climate deniers" were being pummeled by hurricanes. Alarmists reveled in the irony that Houston, home to petrochemical plants, was flooded by Harvey, while others gleefully reported that President Trump's Mar-a-Lago might be inundated by Irma.

How to put these two hurricanes into proper context? An informative website from the Geophysical Fluid Dynamics Laboratory, part of the National Oceanic and Atmospheric Administration, synthesizes reams of research literature on the links between hurricanes and global warming. Over the next century, climate models generally indicate fewer but stronger storms—between 2% and 11% greater average storm intensity—with substantially increased rain rates. Against the background of slow sea-level rise, explosive coastal population growth will overwhelmingly exacerbate any hurricane's damages. In the aggregate, the global-warming signal may just now be emerging out of our noisy observational records, and we may not know certainly for several decades. These conclusions are hardly controversial in the climate-science community.



NOAA/NASA GOES PROJECT/GETTY IMAGES

A satellite image of Hurricane Irma over Florida, Sept. 10.

My own research, cited in a recent Intergovernmental Panel on Climate Change report, found that during the past half-century tropical storms and hurricanes have not shown an upward trend in frequency or accumulated energy. Instead they remain naturally variable from year-to-year. The global prevalence of the most intense storms (Category 4 and 5) has not shown a significant upward trend either. Historical observations of extreme cyclones in the 1980s, especially in the Southern Hemisphere, are in sore need of reanalysis.

By focusing on whether climate change caused a hurricane, journalists fail to appreciate the complexity

of extreme weather events. While most details are still hazy with the best climate modeling tools, the bigger issue than global warming is that more people are choosing to live in coastal areas, where hurricanes certainly will be most destructive.

The nascent field of "attribution science" attempts to explain how climate change may affect characteristics of a given hurricane using models in "what if" mode. Such research requires a faithful reproduction of events and predictions of the future constrained by subjective choices within computer models. This research also takes time—which means other scientists must examine the

evidence with patience and judiciousness not usually seen on Twitter or cable news.

Still, the scientific community already knows plenty about hurricanes and climate change—knowledge it has accumulated over two decades through peer-reviewed research, academic conferences and voluminous national and international assessments. Yet climate scientists all too often speculate during interviews rather than refer to IPCC reports or their cousins from the U.S. National Climate Assessment. Some climate scientists have peddled tenuous theories with no contemporaneous research evidence. Advocacy groups package these talking points for easy consumption by journalists, who eagerly repeat them.

The historical record books contain dozens of devastating hurricane landfalls over the past century, any of which, if repeated, would be catastrophic regardless of additional climate-change effects. To prepare for the next hurricane, the U.S. needs the best weather forecasts, evacuation plans and leadership. These plans should be built on sound science, not speculation, overselling or exaggeration. Hurricane science in this political climate already has enough spin.

Mr. Maue, a research meteorologist, is an adjunct scholar at the Cato Institute.

To Deal With Antifa, Designate It a Street Gang

By David Pyrooz
And James Densley

The University of California estimates it cost \$600,000 to keep order last week when a conservative commentator made an appearance on its flagship Berkeley campus. In recent months, self-styled antifascists, or "Antifa," have entered public consciousness by holding disruptive, sometimes violent protests in cities across the nation. After Antifa members disrupted a pro-Trump rally in Berkeley last month, Mayor Jesse Arreguin labeled the loose-knit group a "gang."

As criminologists who have studied gangs, in the U.S. and abroad, for a decade, we argue Antifa does meet the defining characteristics of a gang, with one important caveat. The gang label opens up a range of possibilities for countering Antifa—and, for that matter, gangs of the extreme right such as the ones they clashed with in Charlottesville, Va.

Few social designations are as controversial and consequential as

the word "gang." The label is loaded with social stigma. Most gang members don't mind, and many even flaunt the designation. But "keeping it real" can have real legal consequences. In California an aggravated assault can earn an additional 10 years in prison if it's connected to gang activity. For this reason, the gang label is not one we toss around lightly.

Definitions of "gang" have long been controversial. A state may have 2,000 gang members or 16,000 depending on its choice of definition. Only in the past decade has the social-science community settled on a consensus definition. Lawmakers have not done so: Statutes in 44 states and the District of Columbia employ a wide range of definitions.

Yet under any scientific or official definition, Antifa makes the grade. Gangs are groups. They have a collective identity, which includes signs, symbols and other features that distinguish the in-group from the out-group. Bloods wear red; Crips wear blue; Antifa wear black.

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Higher inflation does not create greater economic growth. To the contrary, it is greater economic growth that can lead to higher inflation. Therefore, the Fed ought to be focused on reviving the economy and adding jobs—period. One reason business investment has been very weak for eight years is the lack of confidence in Washington's monetary and fiscal policies.

The only legitimate reason to increase inflation artificially is to avoid deflation, which can indeed be dangerous. If consumers become convinced that prices will drop over time, they begin to postpone purchases, thereby slowing economic growth.

But to find out if this is happening, the metric to look at isn't inflation. It is the savings rate. If consumers have

It's obvious when Antifa members join protests, even for the untrained eye. And don't be fooled by Antifa's diffuse structure. Conventional street gangs are pretty disorganized too.

Gangs are durable across time. Six months of continuity is the typical cut-off. The point is to separate gangs from, say, a band of criminals who

Some have suggested calling it a 'domestic terrorist' group. But there's no such category.

join forces to rob marijuana dispensaries. Antifa has roots in the politics of 1930s Europe and the 1980s skinhead and punk scenes. Its continued presence at rallies suggests it is more than a fleeting association. Gangs also tend to be composed of people in their teens and 20s, not unlike the age demographics of Antifa members arrested lately.

By definition gangs must engage

in illegal activity. That's what sets them apart from basketball teams and chess clubs. What moves Antifa into the gang category is the propensity for violence that we have witnessed at political events. Such criminal activity is partly what contributes to group identity.

The street orientation of gangs is the final defining characteristic. Gangs spend time in public places, often to the chagrin of the public. Likewise, Antifa members enjoy making a statement, both in person and online, where they have mobilized a progressive army. Some performances, like the ones in Berkeley, do more than put on a display; they try to change the social order.

Which brings us to the caveat: Most gangs are apolitical. The line between domestic extremist groups and gangs is blurry at times. Antifa's agenda sets it apart to the extent that some are calling for a different designation: "domestic terrorists." The problem is the label is empty: No such term exists in criminal law.

If Antifa did earn the gang designation, law enforcement could use

tools beyond crowd control. After years of failed suppression tactics, we now have a sense of what works in gang intervention. Social-network analysis can identify the most violent gang members. Focused deterrence strategies target the small number of chronic offenders who are most vulnerable to sanctions and communicate to them clear incentives for nonviolence. Civil injunctions can restrict gang behavior. An injunction in Birmingham, England, banned two rival gangs from a whole city.

Protesting fascism is not a bad thing. But when protest turns violent, and when there are repeated incidents of violence, it doesn't matter if it's the Crips and the Bloods or Antifa and neo-Nazis. They all fall under our common definition and understanding of gangs.

Mr. Pyrooz is an assistant professor of sociology at the University of Colorado, Boulder. Mr. Densley is an associate professor of criminal justice at Metropolitan State University, Minnesota.

The Fed Should Stop Worrying and Learn to Love Low Inflation

By William M. Isaac
And Richard M. Kovacevich

There's no excuse for the Federal Reserve's dawdling—not even its obsessive concern that inflation is too low. At 1.4% year on year as of July, core inflation is below the Fed's target of 2%, but that goal is arbitrary and unrealistic for today's economy. When the Federal Open Market Committee meets this week it should put aside this inflation fixation and raise interest rates, which have been dangerously low for much too long.

The current economic recovery has been the slowest in recent times, despite the lowest interest rates in history for the longest time. Easy money has benefited mainly the wealthy, while average consumers have been getting close to zero interest on their savings accounts. This is particularly tough for retirees who do not participate in the stock market.

Low inflation, on the other hand, has been good for the U.S. economy, workers and the middle class, including retirees living on fixed incomes. Over the past five years, hourly earnings in the private workforce are up 2.2% a year on average, which is only

about half of what might be expected in a normal economic recovery. But thanks to low inflation, workers have gained some real income.

If the Fed had been successful in achieving its 2% inflation target, it would have offset nearly all these wage gains. That in turn would have severely weakened the annual growth of consumer spending, which, at over 3%, is a bright spot in the economy.

Higher inflation does not create greater economic growth. To the contrary, it is greater economic growth that can lead to higher inflation. Therefore, the Fed ought to be focused on reviving the economy and adding jobs—period. One reason business investment has been very weak for eight years is the lack of confidence in Washington's monetary and fiscal policies.

The only legitimate reason to increase inflation artificially is to avoid deflation, which can indeed be dangerous. If consumers become convinced that prices will drop over time, they begin to postpone purchases, thereby slowing economic growth.

But to find out if this is happening, the metric to look at isn't inflation. It is the savings rate. If consumers have

money and don't spend it, then obviously the savings rate must go up. There is no evidence that it has done so to any significant degree worldwide. In the U.S., the opposite is occurring: The savings rate slid to 3.5% as of July, down from 5.1% a year earlier.

As long as the economy and employment continue to improve, the Fed should stop fretting about low inflation and move to normalize monetary policy. Ideally it could reach interest rates of at least 2% by the middle of next year, up from 1.25% today. That would be a good middle ground. If economic growth then slowed, the Fed would have room to maneuver by ticking rates down. But if inflation increased, it could quickly raise rates to the equilibrium level.

The Fed should also start, at the

FOMC meeting this week, reducing its outsize balance sheet, so as to let the markets begin to function properly. Before the recession of 2008-09, the Federal Reserve's balance sheet

America's central bankers ought to be focused on reviving the economy and adding jobs—period.

had never reached \$1 trillion. Today it stands at \$4.5 trillion, or 25% of Washington's entire public debt. The Fed's eight-year intervention in the markets has helped push asset prices—including the stock market, long-term bonds, and at least some commercial real estate—so high as to

raise concerns of a bubble. Should it burst, the effects could be catastrophic, shattering confidence in the economy. The Fed would feel pressure once again to bail out the wealthy with monetary policies that artificially support risky assets.

The incomes of many Americans are flat or declining, and thousands who want work still cannot find a decent job. What built this country's prosperity was the unparalleled success of America's free-market system. If the Fed wants to help, it should forget its inflation worries, get out of the way, and let the markets operate.

Mr. Isaac, a consultant to financial institutions, is a former chairman of the Federal Deposit Insurance Corp. Mr. Kovacevich is a retired chairman and CEO of Wells Fargo & Co.

Kafka Goes to the DMV

By Stephen Miller

The word Kafkaesque is used loosely these days, but here's a true story that deserves the adjective. It's about a 40-year-old woman—my daughter—who applied for a New York driver's license. The process began in June. Three months later, she still has no license, owing to conflicting bureaucratic regulations.

Fifteen years ago my daughter lived in New York and had a license there. She kept it when she went to Indiana for law school. But when she moved to Los Angeles after graduation, she got a California license. Last year she moved back to New York, but she had lost her California license, so she submitted documentation showing her driving record was unblemished. "I'm sorry," an employee at the New York Department of Motor Vehicles told her,

"but we cannot issue you a New York driver's license."

Why? She was told her New York license had been suspended a decade ago because she hadn't paid an Indiana speeding ticket. She thought she had paid the fine. "Why would

California issue me a driver's license if my New York license was suspended?" she asked.

"Some states talk to each other about driver's licenses, some don't," the employee replied.

She called the Indiana court. It turned out she'd sent a check for the fine, but the court accepted payments only by credit card. The court returned the check, but it never reached her, probably because it was sent to an old address.

Now that the problem was diagnosed, it could easily be resolved, right? She paid the fine. The Indiana court reported this to the Indiana Bureau of Motor Vehicles, which sent a letter to the New York DMV saying that her case had cleared. Two weeks later she called the New York DMV to inquire about her application.

"I'm sorry but your case has not cleared," she was told. "We received the letter, but we are not allowed to accept letters—only faxes."

She called Indiana and asked for a fax. "I am sorry, but we are not allowed to send faxes—only letters."

So the regulations of Indiana and New York conflict.

It gets worse. The New York DMV suggested asking the Indiana court to send her an official document saying that the case had cleared. "I'm sorry," the court said, "but we can only send official documents to Indianapolis. You should ask the New York DMV to call us to confirm that your case has been cleared." The New York DMV—of course!—said that wasn't an option: "We cannot make phone calls on driver's license questions."

Many Americans, I'm certain, have had similar encounters with government bureaucracy, which suggests this is a great drag on American productivity.

Though my daughter could not get an official document from the Indiana court, she did get a receipt listing the ticket number and confirming the fine was paid. Six weeks ago she faxed that to the New York DMV. So far no response. She plans to call but keeps putting it off. Kafka would have understood.

Mr. Miller's latest book is "Walking New York: Reflections of American Writers from Walt Whitman to Teju Cole."

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BUSINESS & FINANCE

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THE WALL STREET JOURNAL.

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Northrop Nears \$7.5 Billion Deal

Purchase of Orbital ATK would boost focus on military aircraft and space systems

BY DANA MATTIOLI
AND DOUG CAMERON

Northrop Grumman Corp. is nearing a deal to buy **Orbital ATK** Inc. in a transaction that could be valued at upward of \$7.5 billion, as acquisition activity in the aerospace industry ramps up.

An all-cash tie-up between the two defense contractors could be announced Monday, according to people familiar with the matter.

Terms of the transaction

couldn't be learned, but with a typical takeover premium, it could value Orbital, which currently has a market value of \$6.3 billion, at more than \$7.5 billion. Northrop has a market capitalization of more than \$45 billion.

The impending deal follows another big aerospace union announced earlier this month when **United Technologies** Corp. agreed to buy **Rockwell Collins** Inc. for about \$23 billion.

A purchase of Orbital would add to Northrop Grumman's existing focus on military aircraft and space systems, expanding the franchise to include more fast-growing missile-defense business.

Orbital provides space

rocket motors and other parts for offensive and defensive missile systems, as well as satellites for military and commercial space operations. It was formed in 2015 from the merger of two missile and space specialists, Alliant Techsystems and Orbital Sciences. Orbital ATK employs about 13,000 and is targeting sales this year of \$4.6 billion.

Its role in space and missile systems has led some analysts to view the company as a potential takeover target for big customers such as Boeing Co., Lockheed Martin Corp. or Northrop.

Northrop, which beat out Boeing and Lockheed to build the new B-21 Raider long-range bomber, is also compet-

ing to build a new fleet of intercontinental ballistic missiles for the U.S.

Northrop is vying with Boeing for the Ground-Based Strategic Deterrent nuclear missile

Orbital has been viewed as target for Boeing, Lockheed and Northrop

program and has joined with Orbital and fellow rocket maker Aerojet Rocketdyne Inc. during the current development phase of the \$80 billion program.

Domestic and international defense budgets are starting to climb because of tensions in the Middle East, Eastern Europe and East Asia, with missile defense a priority for many nations.

Meanwhile, some defense contractors are seeking to become more vertically integrated, bringing production in house to give them better control of the supply chain and an ability to capture extra profits from repair work; this deal would fit into that pattern as well.

The planned purchase of Orbital marks a departure for Northrop, which has focused heavily on share buybacks, retiring around 25% of its stock over the past three years.

CFO at 29: It Fits One Investor's Strategy

BY ANNIE GASPARRO
AND EZEQUIEL MINAYA

Appoint young executives, groom them to your liking—and save some money while you're at it. That seems to be Brazilian private-equity firm **3G Capital Partners** LP's strategy for the companies it controls.

Kraft Heinz Co., the firm's biggest investment and the fifth-largest food company in the world, recently named 29-year-old David Knopf as its chief financial officer. In giving the job to Mr. Knopf, a 3G partner who joined the food company in 2015, Kraft Heinz passed over an accounting officer with more than a decade of experience in the food business.

3G has a history of appointing young financiers often from its own ranks to top positions, replacing industry veterans. Such moves are a departure from strategies generally employed at other publicly traded companies, es-

David Knopf was named CFO by Kraft Heinz, which is controlled by 3G Capital Partners.

pecially those the size of Kraft Heinz, which has nearly \$30 billion in annual sales and a market capitalization of about \$100 billion. 3G remains the company's largest shareholder, after orchestrating the merger that formed the food giant in 2015.

Publicly traded companies even half Kraft Heinz's size often hire older executives with more operating experience for top roles. Since December, General Mills Inc. and Hershey Co. have both installed new chief executives who have worked in Big Food for decades. Mondelez International Inc. last month named its new CEO: Dirk Van de Put, an industry veteran who was leading Canada's closely held McCain Foods Ltd.

When Mr. Knopf takes on his new role in October, he will be the youngest CFO among Fortune 500 companies, according to data provider BoardEx. The average

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◆ A brief history of hedge funds and 'side pockets' B8

INDUSTRY FOCUS



Drone Champions See Upside in Regulation

Industry proponents in the U.S. are seeking federal approval for broader commercial applications

BY ANDY PASZTOR

At a moment when many companies are looking for deregulation from Washington, drone proponents are clamoring for more federal rules as the way to open up the skies for unmanned aircraft.

The stance stems from the fact that until roughly a year ago, commercial drones effectively were barred from U.S. airspace because of safety concerns. Since then, the Federal Aviation Adminis-

stration has given limited approvals for small, remotely piloted aircraft weighing as much as 55 pounds.

With some exceptions, the initial package of rules permits operations only during daylight hours, up to an altitude of 400 feet and within sight of operators on the ground.

But for many leaders of a budding industry that already has nearly 80,000 registered commercial drones in the U.S. and is projected to have 1.6 million by 2021, progress is too

slow because the next wave of rules is still a year or two off. Considering the goal of having a single pilot control a flock of drones from long distance—possibly doing everything from dusting crops to inspecting railroad tracks—they see the FAA's current boundaries as unduly restrictive.

That is why drone makers, operators and many of their would-be customers are bucking the governmentwide trend toward looser oversight. Additional regulations are their

sole means of getting a green light for a much broader array of promising uses.

So from packed conferences to congressional hearings to FAA-sponsored advisory committees, these contrarian voices argue that swift federal action is essential for the technology to flourish.

This approach differs from that of many other industry sectors. Largely prompted by White House directives to scale back regulations, coal

mining companies, oil and gas producers, chemical manufacturers and large agricultural outfits are among those pushing for looser regulations. Last week, the Transportation Department pleased many auto industry officials by deciding to take a hands-off approach to federal regulation of autonomous vehicles.

In contrast with those businesses, "we want and need rules and regulations to

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INSIDE

KEYWORDS | By Christopher Mims

Why There Aren't Enough New iPhones

The big let-down from Apple's product announcement last

Tuesday was news that its most desirable new gadget, the iPhone X, can't be preordered until late October and won't start shipping until November. Even then, analysts are predicting supply shortages. Dealers in Hong Kong expect to sell the phones at a \$300 to \$400 premium in the first weeks they are available.

Shortages of hot new gadgets are so common, it is easy to take them for granted. This past year alone, Google's Pixel phone, Nintendo's Switch and classic gaming-system reboot, and even Apple's iPhone 7 Plus have been thin on the ground.

You would think after years of hard-won experience, tech hardware companies could deliver goods

when and where there is demand—especially at Apple—whose chief executive, Tim Cook, made his name as an operations maestro.

Are these shortages some kind of Machiavellian marketing play? Calculated risk management? Or is it the case that manufacturing millions of complex electronic gadgets, and distributing them globally, is really hard? It is likely a bit of all of these.

Companies often force early adopters to wait. This is because of the increasingly important preorder period, says Asokan Ashok, who was at Samsung Research America from 2009 to 2015, most recently as the director of emerging products and services, and saw many of Samsung's flagship products go from the lab to the consumer.

He says the preorder mechanism, where customers signal their intent to buy

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BUSINESS NEWS

Litigation Funders Are Awash in Cash

Promise of sharing in legal settlements lures more investors; new \$500 million fund

BY SARA RANDAZZO

Investors apparently can't get enough of financing U.S. litigation.

Litigation funder **Longford Capital Management LP** was expected to announce Monday it closed a \$500 million fund that will be used to back corporate lawsuits in exchange for a cut of any eventual settlement or judgment.

Competing litigation-finance firms have raised and deployed hundreds of millions of dollars more in recent months. The industry has accelerated as investors, including pension funds, family offices and wealthy individuals, are increasingly drawn to a new asset that isn't tied to the broader markets.

The investments traditionally have funded plaintiffs in corporate litigation, though funders have begun looking for more creative ways to support defense-side work as the industry has matured.

Longford said it attracted enough interest from investors to raise \$1 billion for the recently closed fund, its second, but decided to cap it at half that. The firm's first fund raised \$56.5 million.

Since its founding in late 2011, Longford has put \$137 million into 102 lawsuits. So far, 43 of those have settled or otherwise resolved and been "very successful for investors," said William Strong, Longford's chairman and managing director. He declined to discuss the exact rate of return.

Burford Capital, the biggest player in the industry, made \$488 million in new investments in the first half of 2017, the publicly traded firm said in July, up from \$200 mil-

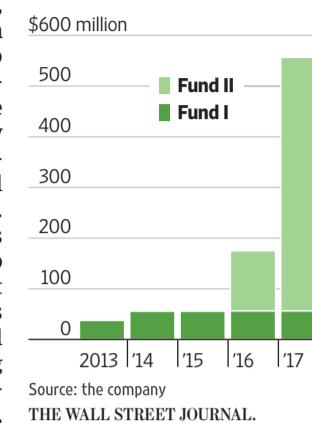
lion in the same period last year. Six-month profits-after-taxes were up 170%, to \$142.7 million, Burford said.

Lawsuits are idiosyncratic, often taking years to resolve, and the terms of litigation funding call for investors to lose everything if a case is unsuccessful. To help mitigate the risk, funders are increasingly packaging lawsuits into portfolios, which has also helped them deploy money faster. Longford said the size of its new fund would allow it to work with law firms to support portfolios of existing cases they are handling. Longford said it hoped to start backing litigation pursued by universities and government agencies, in addition to the corporate litigation it already is funding.

Its investors include Jeffrey Vinik, owner of the NHL's Tampa Bay Lightning and former manager of the \$50 billion Fidelity Magellan Fund, and Edward Liddy, former

A Strong Appeal

Longford Capital has raised \$556.5 million from investors for two funds that finance lawsuits.



Source: the company
THE WALL STREET JOURNAL.

CEO of Allstate Corp.

LexShares, a three-year-old funder that invests primarily in small to midsize commercial cases, recently announced it is raising \$25 million for its first fund focused on portfolio

investments. The firm, which uses an online platform to pair cases with investors, said it has invested \$16.3 million in 40 cases so far. Of those, eight have ended favorably, and one case was lost—returning a median of 1.7 times the money put in—and the rest are pending, LexShares said.

To help it find potential investments, LexShares has developed software that mines around 1,000 newly filed federal and state cases a day. The algorithm flags cases based on factors including the law firm that filed the case, type of claims and creditworthiness of the defendant.

Litigation finance has largely moved past the initial skepticism it faced when it came onto the U.S. scene around a decade ago. Critics, including the U.S. Chamber of Commerce, say the influx of money is driving unnecessary lawsuits and that funders have too much influence over litiga-

tion outcomes. The funders contest both points.

While most deals continue to remain confidential, some law firms are becoming open to attaching their name to the practice. **Woodsford Litigation Funding** said in August it entered into a \$20 million financing arrangement with litigation law firm **Lewis Baach Kaufmann Middlemiss** to fund future contingency-fee matters. Woodsford, founded in 2010 in the U.K., opened its first U.S. office in Philadelphia in July.

"The economics of litigation have changed a lot," said Eric Lewis, senior partner at Lewis Baach.

Interest in financing litigation shows no sign of slowing. "The amount of growth to take place is extraordinary," said Longford's Mr. Strong, who previously worked as a senior executive at Morgan Stanley. "It reminds me of what private equity felt like in the late 1970s."

Bosses Reward Best And Forget the Rest As Merit Pay Gains

BY JOHN SIMONS

Unless you are one of the highest performers at the office, don't expect next year's paycheck to grow much.

Businesses plan to keep budgets for raises relatively flat in 2018, while continuing to devote more dollars to performance-based pay, according to a survey of salary planning at 1,062 organizations conducted by consulting firm Aon Hewitt.

Despite low unemployment and increased competition for talent, companies are bearish on across-the-board pay raises, said Ken Abosch, an Aon Hewitt executive who works on the annual survey,

now in its 41st year.

Companies are paying to keep their highest performers happy, with an average 12.5% of payroll going to incentive and bonus pay next year.

Overall, two-thirds of the organizations in the survey said they would use merit pay to show workers who's doing a good job, and who could stand to improve. Of those companies, 40% said they would reduce or eliminate raises for low performers. And some high performers will have to work harder next year—15% of the companies changing merit pay say they will set more aggressive targets for bonuses and incentive pay.



Ad-tech firm AppNexus is bucking the performance-pay trend.

Lindenwood University, a liberal-arts school near St. Louis, Mo., introduced a merit pay system for the school's staff of 950. Previously, there was no formal structure for rewarding performance.

High performers get rewarded for their extra effort, said Dr. Deb Ayres, the university's vice president of human resources. "They're not get-

ting the same small increases as everyone else. It's very motivating for them."

Bucking the bonus-pay trend is **AppNexus Inc.**, a New York-based advertising technology company with about 1,000 employees. Last year, it removed the annual bonus plan for roughly 700 employees below director level. That money instead went to in-

crease base salaries of those employees, said Nithya Das, the company's chief legal and people officer.

The old plan had become ineffective at spurring employees to go above and beyond, she said. "It's seen as just different compensation. It's perceived as a given that they'll get it at the end of the year."

At the same time, App-

Nexus redesigned its bonus plan for executives (some 13% of employees), making awards dependent on financial goals, shared company objectives and an assessment of their own personal performance.

The changes didn't raise AppNexus's compensation costs and helped to "align priorities across the company," Ms. Das said.

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BUSINESS NEWS

Can This New York Hotel Beat Airbnb?

Veteran hotelier Ian Schrager positions Public as industry's answer to the upstart

BY CHRIS KIRKHAM

NEW YORK—Stroll into Public, a full-service, 367-room hotel that opened this summer on Manhattan's Lower East Side, and it quickly becomes apparent that certain features are nowhere to be found.

Sure, there is a coffee shop and market on the ground floor, complete with fresh fruit, local gourmet hot dogs and poke bowls. But in the lobby, an escalator ride up from the market, there is no front desk, no concierge, no luggage attendant.

Guests check in via a series of self-service tablets along a wall, where they can find their reservations, create their own room keys and proceed up an elevator to their rooms. If questions arise, they are answered by a handful of roving, jack-of-all-trades staffers known as public advisers.

These cost-cutting efficiencies are all part of an attempt by Ian Schrager, the veteran hotelier and night-life impresario who owns Public, to fight back against Airbnb Inc. on behalf of the hotel industry, which he believes hasn't properly assessed the challenge posed by the tech upstart.

"Airbnb is a mortal threat to the U.S. hotel industry," said Mr. Schrager, 71 years old, known for creating nightclubs such as Studio 54 in the 1970s and later the first wave of boutique hotels including the Royalton and Paramount. "The only way you can compete with a strong idea is by having another strong idea."

A study last year from Morgan Stanley projected that 25% of leisure travelers and 23% of business travelers will have



An escalator connects the hotel's lobby with a coffee shop and market on the ground floor. The lobby has no dedicated staff but customers are helped by 'public advisers,' right.

used Airbnb by the end of 2017, up from 12% for both groups of travelers in 2015. The report found Airbnb was a common substitute for hotels: 49% of Airbnb users said they had substituted Airbnb for a traditional hotel stay in the past year.

With Public, Mr. Schrager said he aims to better compete with Airbnb on nightly rates and offer superior amenities such as bars and other places to socialize. While cutting staff costs for hotel operations, Mr. Schrager's new concept fuses a sprawling bar and restaurant operation onto the property, deriving revenue and profits from amenities that are meant to attract a much larger crowd than just the hotel's guests.

Public has five bars: Two on the second floor, one on the rooftop with 360-degree views of Manhattan, one in a lower-level music venue and one connected to Public Kitchen, the hotel's ground-floor "world food" restaurant by Jean-Georges Vongerichten.

Mr. Schrager said the hotel is reaping 35% to 45% of its revenue from the food and beverage business, compared with a national average of about 24%, according to a survey by STR Inc., a data company that tracks the industry. He said he is aiming for profit margins of 45% at the bars and 25% at the restaurant—about 20% higher than what is typical at similarly priced hotels.

It has been difficult historically for hoteliers to get strong returns from food and beverage. That is why some of the industry's most profitable hotels are limited-service brands such as Courtyard by Marriott, which offer less in the way of bars or restaurants and rely on competitive room rates to drive occupancy and profits.

Mr. Schrager said he wants to replicate that cost efficiency, "but not by stripping everything out. You add in an exciting food and beverage concept, and it's a real profit center," he said.

The hotel's rates officially



MICHAEL BUCHER/THE WALL STREET JOURNAL (2)

start at \$150 and increase during high-demand times, such as fashion week. In early August, rates started at \$250, with some last-minute online rates as low as \$180—well below the rates of upscale, full-service Manhattan hotels, which typically range higher than \$500.

To keep rates competitive, Public has eliminated traditional room service and dedicated lobby staff, amenities Mr. Schrager believes provide

insufficient benefit for their costs. He brought up the example of checkout at a traditional full-service hotel, where a bellhop brings a guest's bags to the lobby and hands them to a front-desk attendant, who then brings them out to a parking employee.

"Three people, three trips. It's ridiculous," he said. "That's what we cut out."

The hotel has no staff dedicated to answering phones. Calls from room telephones re-

direct to a call center in Las Vegas. Guests can send a Facebook message to the hotel, generating an automated response from a chatbot that can address questions about cleaning, hotel amenities or requests for repairs.

When a Wall Street Journal reporter stayed at the hotel in August, the Facebook chatbot still had a few kinks. For simple service requests like "cleaning" it worked perfectly. For requests that fell under the category of "something else," however, results were mixed.

Asked if the hotel offered laundry service for guests, the chatbot said a member of the team would take over for "live assistance." Ten minutes later a staff member arrived at the door, but he didn't know the answer, either. He offered to find out but didn't return before it was time to leave.

Mr. Schrager acknowledged that perfecting the technology has been one of the biggest challenges.

Bjorn Hanson, a clinical professor at New York University's hospitality program, said Mr. Schrager's concept flips the traditional role of food and beverage in hotels. Rather than being a less-profitable service that a hotel must provide as an amenity to guests, Public's food-and-beverage offerings are meant to be a centerpiece that can ultimately drive more room occupancy, he said.

"Incremental profitability is what he's really trying to strive for," said Mr. Hanson, who hasn't stayed at the hotel but is familiar with the business model. "It's the idea of beverage leading to food leading to rooms."

Mr. Schrager has five more Public hotels planned over the next three years—another in Manhattan, along with Brooklyn, Miami, Las Vegas and Europe.

Ticket Resellers Target Sales Codes

BY ANNE STEELE

Ticketmaster's latest attempt to stamp out scalping has spawned a new market—not for tickets themselves, but for special codes that offer the opportunity to buy them.

The concert promoter's Verified Fan system aims to identify "real" fans and give them a shot at buying tickets without having to compete with scalpers. Now professional resellers are offering hundreds of dollars for the codes that grant access to the hottest tickets.

Private message boards used by ticket brokers and seen by The Wall Street Journal have been lighting up with offers ranging as high as \$1,000 for a single code to access tickets for Bruce Springsteen's solo run residency at Broadway's Walter Kerr Theatre. Each code allows a buyer the chance to purchase a maximum of two tickets. The market includes smaller acts: Codes for Trans-Siberian Orchestra are going for \$30 and \$50.

Having a Verified Fan code doesn't guarantee the holder will get tickets. And for brokers, it is an extra cost on top of the price of the tickets themselves, whose face value, in the case of Springsteen, ranges from \$75 to \$850. Trans-Siberian Orchestra tickets range from \$35 to \$75.

"Ticketmaster is committed to getting tickets directly into



Offers for 'Springsteen on Broadway' sales codes are sky-high.

the hands of fans," the company said in a statement. "We will continue to innovate and combat those that attempt to subvert that mission."

Representatives for Mr. Springsteen and Trans-Siberian Orchestra didn't respond to requests for comment.

Ken Solky, a broker who owns Las Vegas Tickets and two agencies in Southern California, insists the secondary market is never going to go away—and that resellers like

him will always find away around Ticketmaster's efforts. Mr. Solky said Verified Fan did little to stop him from procuring Springsteen tickets for such clients, and it hasn't affected his business.

"Reputable brokers bought enough to satisfy the initial demand of their clients," he says.

It has become a high-risk, high-reward game. Brokers say Ticketmaster is making it more expensive, time-consum-

ing and difficult for fans to get tickets.

The system asks users to register weeks before tickets go on sale with their name, email and phone number. Ticketmaster, owned by Live Nation Entertainment Inc., doesn't disclose the exact details of how the program works. But according to people who have worked on Verified Fan tours, the ticketing giant seeks to weed out scalpers by delving into its own sales records, along with publicly available data such as social-media history, to check out users' identities. Those deemed genuine fans are sent codes that let them access—but don't guarantee—tickets.

Not all brokers are dealing in codes. Some are creating dozens of Ticketmaster accounts using burner phones, alternate email addresses and Visa gift cards in hopes the system will grant codes to some of the aliases. It isn't clear whether that gambit has worked.

Speaking at an investor conference Thursday, Live Nation Chief Executive Michael Rapino said the system has been over 95% successful.

"Between our database—which is the largest in the world in terms of ticket purchase data—and that algorithm and a bunch of other data we inject once you register, we've been very efficient," he said. "We can figure out if you're a bad actor or a fan."



Coming in third place was 'mother!' starring Jennifer Lawrence.

Estimated Box-Office Figures, Through Sunday

FILM	DISTRIBUTOR	SALES, IN MILLIONS		
		WEEKEND*	CUMULATIVE	% CHANGE
1. <i>It</i>	Warner Bros.	\$60	\$218.7	-51
2. <i>American Assassin</i>	Lions Gate	\$14.8	\$14.8	--
3. <i>mother!</i>	Paramount	\$7.5	\$7.5	--
4. <i>Home Again</i>	Open Road	\$5.3	\$17.1	-38
5. <i>The Hitman's Bodyguard</i>	Lions Gate	\$3.6	\$70.4	-26

*Friday, Saturday and Sunday Source: comScore

Horror Movie 'It' Stays On Top at Box Office

Associated Press

NEW YORK—The Stephen King adaptation "It" continues to scare up record ticket sales, taking in an estimated \$60 million in its second week and leaving a paltry \$7.5 million for Darren Aronofsky's audacious genre-bending psychological thriller "mother!"

New Line and Warner Bros.' "It" remained easily the top draw in North American theaters, according to studio estimates Sunday. It slid 51% from last week's unexpectedly strong opening of \$123 million, the first September release to debut north of \$100 million. Most had expected "It" to open to about half that.

With \$218.7 million to date, "It" is now the highest grossing September release ever, and a much-needed hit to follow a summer box office that slumped to a historically bad August. "It," starring Bill Skarsgård as the evil clown Pennywise, also added \$60.3 million interna-

tionaly.

Paramount Pictures' "mother!" has horror elements, too, so it was risky to schedule it right behind "It." But Mr. Aronofsky's film is a more art-house proposition, made for about \$30 million. For star Jennifer Lawrence, it is the worst wide-release opening of her career.

Reviews were generally good (68% "fresh" on Rotten Tomatoes) for "mother!", which premiered last week at the Venice Film Festival. But the film—an intense, allegorical tale about a woman (Ms. Lawrence) whose rural Victorian house is overrun by unwanted house guests—is an undeniably atypical, auteur-driven studio release. Audiences didn't care for it, giving it a seldom-seen F CinemaScore.

The counterterrorism thriller "American Assassin," from Lionsgate and CBS Films, edged out "mother!" for second place with \$14.8 million. That was a solid result for the film starring Dylan O'Brien and Michael Keaton.

BUSINESS WATCH

SNAP

Al Jazeera Blocked In Saudi Arabia

Snap Inc. on Sunday said it has followed a request from the Saudi Arabian government to block access to Al Jazeera news articles and videos on its Snapchat social-media app to residents in the country.

Al Jazeera's Arabic-language channel in Snapchat Discover was removed from the Saudi Arabian version of the app, a spokeswoman from Snap said. Al Jazeera articles remain open to Snapchat users in 14 other countries in the Middle East.

A spokesman for Al Jazeera said Snap's move appears to be

"an attempt to silence freedom of expression."

Qatari businesses face pressure after Saudi Arabia, the United Arab Emirates, Bahrain and Egypt broke diplomatic ties in June, accusing Qatar of supporting Islamist groups such as the Muslim Brotherhood, claims that Qatar denies.

Qatar's adversaries issued a list of 13 demands, including shutting down Al Jazeera for news coverage they see as biased against them. Al Jazeera said its website and apps have been blocked in Saudi Arabia since May.

"We make an effort to comply with local laws in the countries where we operate," the Snap spokeswoman said.

—Douglas MacMillan

JBS

Founder Succeeds Jailed Son as CEO

Brazilian meatpacking giant JBS SA named founder José Batista Sobrinho, 84 years old, to replace his jailed son as chief executive Sunday, defying shareholder calls for outside management as the family-run company faces a mounting corruption scandal.

JBS also promoted the former CEO's 26-year-old son, Wesley Batista Filho, to a "global leadership team" responsible for helping the founder make decisions, the company said.

Mr. Batista Sobrinho, who started JBS as a small-town

slaughterhouse in 1953, said he was "proud" to reassume the top job and has "a lot of confidence in the performance of our leadership."

It came days after Brazilian police arrested JBS's former CEO, Wesley Batista, and his brother, former Chairman Joesley Batista, both sons of Mr. Batista Sobrinho. Authorities allege the brothers used insider trading to profit from a plea deal in which they admitted to bribing nearly 2,000 Brazilian politicians.

Brazil's Federal Police said last week Wesley and Joesley Batista had used the company to make illegal trades of currency derivatives and JBS shares. The brothers and the company denied wrongdoing.

—Paul Kiernan

TECHNOLOGY

WSJ.com/Tech

MIMS

Continued from page B1
a product before it starts shipping, provides early data that is essential to predicting demand for a gadget and distribution of demand across its various configurations—both notoriously difficult to forecast.

The calculus gets trickier when the device's price hits a new high and the company has no precedent to gauge demand, says Mr. Ashok, now chief executive of mobile software startup UnfoldLabs. That is certainly the case with the \$999 iPhone X. Apple has "never gone there before," he says.

Apple may well be facing its biggest demand-forecasting challenge since the original iPhone. While Apple has empirical data on demand for new iPhones, it is harder to know what proportion of orders will be for the iPhone X versus its somewhat less pricey new siblings, the iPhone 8 and 8 Plus. In addition, many analysts are predicting this could be a "super cycle" of upgraders who have been holding out for a complete redesign—leading to a sales surge such as the one caused by the 2014 launch of the iPhone 6.

One reason forecasting demand matters so much is the rise in just-in-time manufacturing. Producing millions of phones means coordinating a symphony of component manufacturers, all delivering parts on demand. These partners can't risk unsold inventory eating into their already razor-thin profit margins. The result is that electronics tend to ship directly from factory to retailer.

Asked about production delays for the iPhone X, a spokeswoman for Apple said only that the November ship date was reflected in financial estimates Apple gave in July.

One of the biggest challenges top-tier manufacturers face in delivering product on time is their own



Many factors from parts shortages to design changes are behind bottlenecks in new devices.

exacting standards, says Mr. Ashok.

Apple is notorious for changing small but important details of its final hardware designs more or less at the last minute. That perfectionism isn't unwarranted, because hardware can't be revised once it's in the hands of the consumer, and the cost of recalls, such as Samsung's Galaxy Note 7 battery-fuse fiasco, can be enormous.

Even relocating a single screw can have consequences for the dimensions, placement and performance of dozens of other components, says Chetan Sharma, a mobile-industry consultant. Details like this can be worked out in advance given enough time, but in the cut-throat mobile industry, time is something even Apple doesn't have.

When a company brings in new technology—such as the iPhone X's OLED display, not seen in any previous iPhone—the headaches multiply.

"Yield" is the percentage of a batch of components that meets production standards. Yield is the enemy of first-time technologies, says Wayne Lam, the principal analyst for smartphone electronics at IHS Markit.

"On the original iPhone, yield rates for capacitive touch [screens] were like 80% because it was new technology," says Mr. Lam. Throwing out one in five displays means absorbing a huge cost, he adds. (Apple's touch-screen yields have since risen, he says.)

Sometimes, a component is scarce at any price. Nearly every smart gadget you can name contains NAND memory, which retains data when powered off. This key component has lately faced a global supply crunch.

"It's sort of like OPEC," Mr. Lam says. Just as refineries will contract with oil companies years in advance, giants such as Apple will make deals for enormous quantities of NAND memory,

squeezing out smaller competitors.

Even Apple can't get around what may be the most critical bottleneck for the iPhone X. At present, analysts say, only one conglomerate can manufacture that OLED screen—and it is Apple's biggest smartphone competitor. Granted, Samsung Electronics' visual display business is separate from its mobile business, but Apple appears to be trying to bring in other partners to make OLED displays, including Japan Display and LG Display.

Manufacturing smartphones is so complicated, it's a minor miracle they get to us at all. Companies control whatever they can by pre-announcing products, collecting preorders, stoking demand and, when necessary, managing expectations. They even ponder how much scarcity may increase desire—so that when the product does arrive, weeks or even months later, it feels like it was worth the wait.

Facebook's System Boosted Russia Ads

By DEEPA SEETHARAMAN

On Facebook, a little ad spending goes a long way—and the more contentious the ads are, the further they may go.

Facebook Inc. disclosed last week that Russian entities spent some \$150,000 for ads about "divisive" topics during a two-year period that included the recent U.S. presidential race.

Compared with the \$1.4 billion spent on digital ads in races during the 2016 election season, \$150,000 is a drop in the bucket. But the Russian-backed messages may have had outsized reach, ad buyers say, because Facebook favors ads that grab users' attention and make them click, whether the content is political or otherwise, sensational or not.

In all, the Russians' ads could have reached three million to 20 million or more people on the social network, according to digital-advertising experts including Joe Yakuel, founder and chief executive of Agency Within, a New York-based firm that manages more than \$100 million a year in digital ad purchases, mainly for e-commerce companies.

Facebook has said little about the approximately 5,200 ads it disclosed, which mostly centered on hot-button social and political issues like immigration and race relations. Facebook declined to say what the ads looked like, how many people they reached or who their targets were.

Depending on how they are presented, ads on such provocative topics can have wide reach at a low cost if the messages go viral or gain traction among their target audience, say ad buyers who work with companies and political candidates to create Facebook campaigns. Experts cautioned that it isn't clear how well the Russian-backed ads performed or whether they swayed the election in any way.

Ads that appear in users' news feeds power the vast majority of Facebook's revenue, which amounted to more than \$17 billion for the first half of 2017, according to company financial reports. In Facebook's internal ad-auction system, ads compete in billions of auctions a day for slots in users' news feeds. The system tends to reward ads that spark engagement—by getting users to click, share or otherwise spend time viewing—and sometimes it picks such ads over less-engaging ads that have a higher bid, advertisers say.

"When you put out an ad and Facebook sees that relative to other ads this is one is getting a lot of shares, that really seems to drive the cost down," said Anthony Astolfi, creative director at IVC Media, who led digital advertising for Gary Johnson's presidential campaign.

Facebook favors ads that grab users' attention and make them click.

campaign.

Mr. Yakuel said Agency Within once launched a video ad campaign that he would describe only as "controversial" for a corporate client that he wouldn't identify. The day before the campaign, 32,500 Facebook users had engaged with the client's ads. The client spent only a fraction of a penny, or 0.024 cent, for each user its ads were intended to reach. After the video launched, 55,000 users engaged, and the cost of reaching a single user dropped 30% to 0.017 cent, he said.

"If you have strong opinions on two sides of the same topic, those will typically be more engaging," Mr. Yakuel said. "Even inadvertent controversy can cause a lot of engagement."



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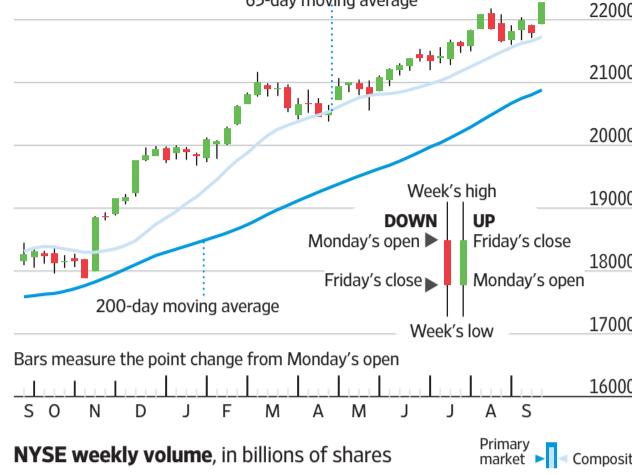
MARKETS DIGEST

Dow Jones Industrial Average

22268.34 ▲ 470.55, or 2.16% last week
 High, low, open and close for each of the past 52 weeks

Trailing P/E ratio 20.38 19.65
 P/E estimate * 18.80 17.56
 Dividend yield 2.31 2.60
 All-time high 22268.34, 09/15/17

Current divisor 0.14523396877348



Bars measure the point change from Monday's open

S O N D J F M A M J J A S



Weekly P/E data based on as-reported earnings from Birinyi Associates Inc.

Major U.S. Stock-Market Indexes

Dow Jones High Low Latest Week Close Net chg % chg

	High	Low	Latest Week Close	Net chg	% chg	Low	Close (●)	High	% chg	YTD % chg	3-yr. ann.
Industrial Average	22275.02	21927.79	22268.34	470.55	2.16	17888.28	● 22268.34	22.9	12.7	9.3	
Transportation Avg	9562.24	9419.19	9546.25	162.51	1.73	7770.33	● 9742.76	22.9	5.6	3.9	
Utility Average	755.37	736.36	746.25	-0.69	-0.09	625.44	● 754.8	11.1	13.1	10.6	
Total Stock Market	25865.97	25591.94	25865.74	421.39	1.66	21514.15	● 25865.74	16.8	11.1	7.7	
Barron's 400	653.99	639.95	653.36	13.39	2.09	521.59	● 661.93	20.1	8.6	7.2	

Nasdaq Stock Market

	High	Low	Latest Week Close	Net chg	% chg	Low	Close (●)	High	% chg	YTD % chg	3-yr. ann.
Nasdaq Composite	6464.27	6410.71	6448.47	88.28	1.39	5046.37	● 6460.19	23.0	19.8	12.6	
Nasdaq 100	6009.44	5957.85	5988.00	74.63	1.26	4660.46	● 6004.38	24.3	23.1	14.1	

Standard & Poor's

	High	Low	Latest Week Close	Net chg	% chg	Low	Close (●)	High	% chg	YTD % chg	3-yr. ann.
500 Index	2500.23	2474.52	2500.23	38.80	1.58	2085.18	● 2500.23	16.9	11.7	8.0	
MidCap 400	1754.55	1730.19	1753.91	34.82	2.03	1476.68	● 1791.93	15.3	5.6	7.4	
SmallCap 600	861.07	844.28	860.84	21.92	2.61	703.64	● 876.06	16.3	2.7	9.4	

Other Indexes

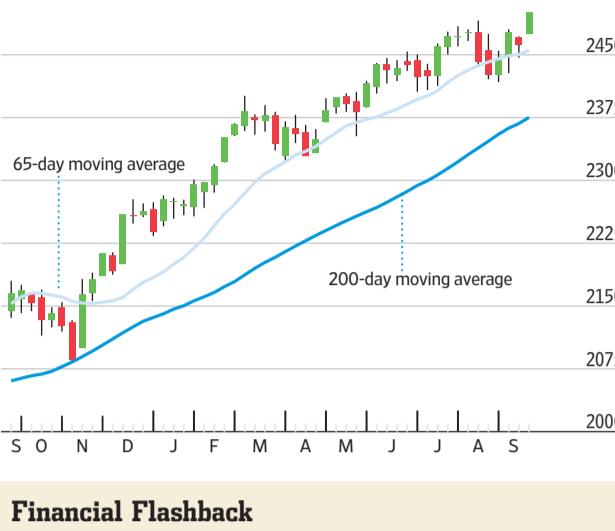
	High	Low	Latest Week Close	Net chg	% chg	Low	Close (●)	High	% chg	YTD % chg	3-yr. ann.
Russell 2000	1431.99	1400.56	1431.71	32.28	2.31	1156.89	● 1450.39	16.9	5.5	7.7	
NYSE Composite	12080.68	11943.47	12080.14	192.16	1.62	10289.35	● 12080.14	14.7	9.3	3.5	
Value Line	526.46	514.86	526.46	11.60	2.25	455.65	● 533.62	11.2	4.0	2.1	
NYSE Arca Biotech	4222.39	4151.45	4177.34	-13.25	-0.32	2834.14	● 4232.9	24.4	35.8	11.3	
NYSE Arca Pharma	550.02	541.81	546.23	5.92	1.10	463.78	● 549.2	5.1	13.4	1.0	
KBW Bank	94.21	91.04	93.81	3.64	4.03	69.71	● 99.33	33.3	2.2	8.9	
PHLX Gold/Silver	91.82	87.72	88.38	-3.27	-3.57	73.03	● 99.2	-3.4	12.1	-1.2	
PHLX Oil Service	135.78	124.51	133.85	9.01	7.22	117.79	● 192.66	-10.8	-27.2	-21.9	
PHLX Semiconductor	1147.64	1103.33	1146.68	53.20	4.86	796.64	● 1146.68	43.1	26.5	22.0	
CBOE Volatility	11.39	10.00	10.17	-1.95	-16.09	9.36	● 22.51	-33.8	-27.6	-10.4	

\$Philadelphia Stock Exchange

S&P 500 Index

2500.23 ▲ 38.80, or 1.58% last week
 High, low, open and close for each of the past 52 weeks

Trailing P/E ratio 24.11 24.47
 P/E estimate * 19.10 18.25
 Dividend yield 1.99 2.14
 All-time high: 2500.23, 09/15/17



Bars measure the point change from Monday's open

S O N D J F M A M J J A S

Source: SIX Financial Information; WSJ Market Data Group

New to the Market

Public Offerings of Stock

IPOs in the U.S. Market

Initial public offerings of stock expected this week; might include some offerings, U.S. and foreign, open to institutional investors only via the Rule 144a market; deal amounts are for the U.S. market only

Expected pricing date Filed	Issuer/business	Symbol/primary exchange	Pricing Range(\$ mil.)	Bookrunner(s)
9/19 6/26	BEST Inc Provider of delivery service in China.	BTI N	13.00/ 15.00	Citi, Credit Suisse, GS, JPM, DB
9/19 8/23	Celcyt LLC cellular analysis company that is discovering new cancer sub-types and commercializing diagnostic tests.	CELC Nq	8.00/ 10.00	Craig-Hallum Group
9/19 8/15	Despegar.com Corp Software-E-commerce company operating an online travel booking platform.	DESP N	23.00/ 26.00	MS, Citi
9/19 8/21	Krystal Biotech Inc Gene therapy company dedicated to developing and commercializing novel treatments for patients suffering from dermatological diseases.	KRYS Nq	9.00/ 11.00	Ladenburg Thalmann
9/19 8/16	Techpoint Inc Wholesaler of video surveillance systems and broadcast video systems.	M-6697 Intl	620.00/ 650.00	Mizuho
9/19 8/15	Zai Lab Ltd Biopharmaceutical and research company focused on the development of novel therapeutics.	ZLAB Nq	16.00/ 18.00	JPM, Citi, Leerink Prtnrs
9/20 5/12	Oasis Midstream Partners LP Midstream energy company.	OMP N	19.00/ 21.00	MS, Citi, WFS, CS, DB, GS, RBC Mkts
9/21 8/25	Secoo Holding Ltd Software-E-commerce company providing an online shopping platform for upscale products.	SECO Nq	11.50/ 13.50	Jefferies, BNP Paribas

Nasdaq Composite

▲ 88.28, or 1.39% last week

Source: SIX Financial Information; WSJ Market Data Group

Lockup Expirations

Below, companies whose officers and other insiders will become eligible to sell shares in their newly public companies for the first time. Such sales can move the stock's price.

|
| |

CLOSED-END FUNDS

Listed are the 300 largest closed-end funds as of Friday, September 15, 2017. Closed-end funds sell a limited number of shares and invest the proceeds in securities. Unlike open-end funds, closed-ends generally do not buy their shares back from investors who wish to cash in their holdings. Instead, fund shares trade on a stock exchange.

a-The NAV and market price are ex dividend; b-The NAV is fully diluted; c-NAV is as of Thursday's close; d-NAV is as of Wednesday's close; e-NAV assumes right offering is fully subscribed; f-Rights offering is being adjusted for rights issue; g-Data not yet adjusted; h-NAV as of previous day; i-Offerer offer in process; v-NAV is converted at the commercial bank rate; w-Convertible Note-NAV (not market) conversion value; y-NAV and market price are in Canadian dollars; NA signifies that the information is not available or not applicable; NS signifies fund not in existence of entire period.

12 month yield is computed by dividing income dividends paid during the previous twelve months for periods ending at month-end or during the previous fifty-two weeks for periods ending at any time other than month-end by the latest month-end market price adjusted for capital gains distributions.

Source: Lipper

Friday, September 15, 2017

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BANKING & FINANCE

Fund Has Asked to Revive Crisis-Era Tool

Pine River sought to put assets in 'side pocket' amid rush of redemption requests

BY JULIET CHUNG

Pine River Capital Management has asked investors if its flagship hedge fund can resort to a controversial tactic popular during the financial crisis: the "side pocket."

Clients said the request from the \$8.5 billion firm was a response to a move by investors to pull more money than Pine River expected from the \$1 billion multistrategy fund, which has significantly lagged behind the S&P 500 the past two years. Pine River in recent weeks asked fund investors if it could segregate roughly \$90 million in illiquid assets to sell them off over time instead of

immediately, clients said. The deadline for investors to approve what Pine River is calling a "special liquidating vehicle" was Friday. Firm executives also have considered closing the fund entirely, said people familiar with the matter.

Side pockets became a flashpoint during the financial crisis, when some managers inundated with withdrawal requests relied on provisions in their fund documents to segregate assets over their clients' objections.

The move can lead to better returns for clients by not forcing fire sales of investments and helping ensure that remaining investors won't get stuck with more than their share of what are typically less liquid assets. Some investors credit the mechanism for helping to treat clients fairly, though others say unwinding side pockets can take too long.

Side pockets "are the underbelly of hedge funds," said Jane Buchan, chief executive of Irvine, Calif.-based hedge-fund investor Paamco, saying they are a little-discussed risk of putting money with hedge funds and can still result in investment losses.

Investor frustration with hedge funds has deepened after years of disappointing performance. Returns on average remain lackluster this year, investors say, though some funds that bet on and against stocks have been a bright spot, outpacing the S&P 500.

Some longtime investors in hedge funds say they haven't seen a widespread return of side pockets, but that the practice could tick up again if liquidity in markets disappears or funds continue to get hit with larger-than-expected redemption requests.

In the case of New York

hedge-fund firm Eton Park Capital Management, some investors have been waiting more than a decade for the firm to fully exit from its side pocketed investments.

Launched in 2004 by Eric Mindich, the youngest partner

firm expected to exit from individual deals after two to three years, several said.

Eton Park in March told investors it was shutting down because it could no longer sustain its multistrategy investment approach.

It still holds roughly \$250 million of side pocketed investments and is charging fees on some of them. Clients' returns vary widely based on which of the investments they have exposure to, said people familiar with the firm.

The Minnetonka, Minn.-based Pine River was founded by Brian Taylor and is best known for making big profits off the rebound in government-backed mortgage bonds after the financial crisis.

The flagship fund assets Pine River wanted to place in a side pocket include equity and debt in Africa and Latin America, said people familiar with the

\$90M

Total in illiquid assets sought to be set aside for sale over time

Gold ETFs Get a Boost From Market Uncertainty

It has been a good month for gold exchange-traded funds.

Tensions with North Korea, the falling dollar and the prospect of widespread devastation from Hurricane Irma boosted investor demand for gold, which is billed as a hedge against uncertainty and inflation.

The \$35.8 billion SPDR Gold Trust, the first and largest U.S. gold ETF, has added \$2.2 billion since mid-August, reversing outflows for the year, according to FactSet. Investors put \$320 million into the \$9.4 billion iShares Gold Trust, about one-third of its 2017 inflows.

Both ETFs offer investors a slice of physical gold bars stashed in vaults in London, New York and Toronto, but there are differences in price and tradability. The SPDR Gold Trust, better known by its ticker GLD, is the more expensive of the two, with fees of \$40 a year for every \$10,000 invested compared with \$25 for the comparable iShares fund.

But while GLD is more expensive to hold, it is typically cheaper to trade. GLD shares

cost \$125.67, representing a larger slice of a gold bar than the iShares ETF, which costs \$12.71. Traders can get the same gold exposure with fewer shares of GLD, reducing transaction costs.

That has made GLD the favorite for short-term bets. Ev-

ery day, an average of \$854 million in GLD shares changes hands, seven times as much volume as the iShares ETF, according to FactSet.

With its cheaper fees, iShares has staked out a claim to retail buy-and-hold investors. That makes a big differ-

ence when it comes to drawing retail investors, where the lowest-priced funds gain the most assets.

Undercutting both ETFs is a new fund launched Aug. 31 by GraniteShares, a firm founded by Will Rhind, who ran the SPDR Gold Trust for more than

two years. The GraniteShares Gold Trust, with the ticker BAR, launched Aug. 31 and bills itself as the cheapest way to invest in gold, with fees of \$20 a year for every \$10,000 invested. BAR shares cost \$132.55.

—Asjlyn Loder

CME Ends Its Swaps Clearing Business

BY ALEXANDER OSIPOVICH

CME Group Inc. has abandoned its credit-default swap clearing business after it failed to gain traction against its rival, **Intercontinental Exchange** Inc.

Credit-default swaps are insurance-like contracts that allow investors to buy protection against the risk that a company will default—or to bet that it will. Wall Street's rampant use of credit-default swaps to bet on the U.S. housing market contributed to the 2008 financial crisis.

Clearing was supposed to help prevent a repeat of that mess. Part of the problem in 2008 was that most credit-default swaps were contracts agreed between two firms, with no central registry of who was betting on what.

In contrast, when a swap is cleared, the two firms entering the trade allow a middleman to stand between them. That middleman—the clearinghouse—helps ensure both firms are creditworthy and acts as a central source of information about the swaps market.

CME and ICE both wanted to be that middleman. The two exchange giants both started clearing credit-default swaps in 2009. The next year, Congress passed the Dodd-Frank financial overhaul, which made it mandatory for many kinds of swaps to be cleared.

But ICE, which is also the owner of the New York Stock Exchange, proved far more successful. Last year, the Atlanta-based firm cleared \$11.5 trillion of credit-default swaps globally, compared with \$500 billion at CME, according to the two exchange operators.

For Chicago-based CME, which announced its decision to exit from the business last week, the move is part of a broader housecleaning by CME Chairman and Chief Executive Officer Terrence Duffy, who has been closing other underperforming businesses since he took on the CEO role late last year.

Jack Ma-Linked Online Insurer Readies IPO

BY CHUIN-WEI YAP

HONG KONG—China's first online-only insurer said Sunday that it plans to raise up to \$1.5 billion in an initial public offering that could value the company at around \$10 billion, tapping into rising investor interest in the region's financial-technology sector.

ZhongAn Online Property & Casualty Insurance Ltd., a Shanghai-based company co-founded in 2013 by Chinese billionaire Jack Ma, was set to begin a share sale Monday morning in Hong Kong. It named Japan's **SoftBank Group** Corp. as a cornerstone investor in the deal, with a 5% stake in the company.

ZhongAn's biggest shareholders include **Ant Financial Services Group**, an affiliate of Mr. Ma's **Alibaba Group Holding** Ltd. As a result of Ant's ownership structure, Mr. Ma and several investment entities linked to him

also hold significant stakes. The insurer's other founders include Pony Ma, chairman of **Tencent Holdings** Ltd., and Ma Mingzhe, chairman of **Ping An Insurance** Group Co. of China Ltd. The three individuals surnamed Ma aren't related.

One of ZhongAn's biggest businesses is selling insurance to merchants and buyers for e-commerce purchases on Taobao, Alibaba's flagship online shopping mall in China. The company also sells insurance policies to Chinese consumers that provide compensation for cracked smartphone screens or delayed flights.

During a recent Chinese online-shopping festival similar to Black Friday in the U.S., ZhongAn sold a record 13,000 policies per second, the company said. More than 60% of ZhongAn's customers are aged 20 to 35.

"Numbers like that aren't something that traditional in-



Jack Ma and related entities have large stakes in ZhongAn.

surers can imagine," Chief Executive Chen Jin said.

The large sales volumes have yet to translate into big profits. ZhongAn produced a net profit of \$1.4 million in 2016 after earning about \$488 million in net premiums, which were up two-thirds

from the previous year. In the first quarter of this year, ZhongAn suffered a net loss of \$31 million that it attributed to costs associated with ramping up its business. The company warned it would incur a "significant net loss" in 2017 as a result.

The coming listing is among the largest among technology offerings in Hong Kong this year. Other imminent listings include gaming-gear developer Razer Inc. and e-books publisher **China Literature** Ltd., which is controlled by Chinese tech giant Tencent. Ant also is pursuing plans to list as early as next year, though it hasn't confirmed a venue.

Many Chinese tech giants are trying to expand into the insurance business. Private-equity investor Yunfeng Financial Group Ltd., another Jack Ma vehicle, last month joined a consortium that acquired the Hong Kong business of U.S. insurance giant Massachusetts Mutual Life Insurance Co.

ZhongAn said it plans to start taking investor orders for its IPO on Monday. Its shares are expected to start trading on the main board of the Hong Kong Stock Exchange on Sept. 28.

The BIS's quarterly review didn't just examine missing debt, it also examined what it called "missing inflation" in the global economy, which has helped spur risk taking and drove up financial asset values in recent months.

The implications are big for stock and bond markets that have moved largely in tandem, with bond yields staying super low while equity markets reached records. Whereas faster growth typically implies higher inflation and central bank rate increases, the prospect of significantly tighter monetary policy in the U.S. and other big economies has receded.

"This puts a premium on understanding the 'missing inflation,' because inflation is the lodestar for central banks," said BIS chief economist Claudio Borio.

Currencies

U.S.-dollar foreign-exchange rates in late New York trading

Country/currency	US\$ vs. in US\$ per US\$	Fri (%)	YTD chg
Americas			
Argentina peso	.0589 16.9750	7.0	
Brazil real	.3215 3.1106	-4.4	
Canada dollar	.8200 1.2195	-9.3	
Chile peso	.001603 623.70	-6.9	
Colombia peso	.0003453 2896.00	-3.5	
Ecuador US dollar	1 1 unch		
Mexico peso	.0566 17.6590	-14.8	
Peru new sol	.3078 3.249	-3.1	
Uruguay peso	.03452 28.9700	-1.3	
Venezuela b. fuerte	.100150 9.9851	-0.1	
Asia-Pacific			
Australian dollar	.8001 1.2498	-10.0	
China yuan	.1526 6.5537	-5.6	
Hong Kong dollar	.1279 7.8189	0.8	
India rupee	.01559 64.149	-5.6	
Indonesia rupiah	.0000755 13253	-2.0	
Japan yen	.009023 110.83	-5.3	
Kazakhstan tenge	.002946 339.50	1.7	
Macau pataca	.1245 8.0332	1.5	
Malaysia ringgit	.2387 4.1900	-6.6	
New Zealand dollar	.7292 1.3714	-5.0	
Pakistan rupee	.0049105 105.350	0.9	
Philippines peso	.0195 51.294	3.4	
Singapore dollar	.7433 1.3453	-7.0	
South Korea won	.0008824 1133.23	-6.2	
Sri Lanka rupee	.0065402 152.90	3.0	
Taiwan dollar	.03326 30.069	-7.4	
Thailand baht	.03020 33.110	-7.5	
Europe			
Czech Rep. koruna	.04578 21.842	-15.0	
Denmark krone	.1605 6.2292	-11.9	
Euro area euro	1.1947 8.371	-11.9	
Hungary forint	.003863 258.86	-12.0	
Iceland króna	.009391 106.48	-5.7	
Norway krone	.1274 7.8491	-9.2	
Poland złoty	.2794 3.5795	-14.5	
Russia ruble	.01736 57.600	-6.0	
Sweden krona	.1255 7.9655	-12.5	
Switzerland franc	.04020 .9597	-5.8	
Turkey lira	.2909 3.4376	-2.4	
Ukraine hryvnia	.0382 26.2050	-3.2	
UK pound	1.3592 .7357	-9.2	
Middle East/Africa			
Bahrain dinar	2.6526 .3770	-0.05	
Egypt pound	.0567 17.6420	-2.7	
Israel shekel	.2840 3.5206	-8.5	
Kuwait dinar	3.3203 .3012	-1.5	
Oman rial	.2591 .3850	0.02	
Qatar rial	.2695 3.711	1.9	
Saudi Arabia riyal	.2666 3.7503	-0.01	
South Africa rand	.0760 13.1658	-3.9	
Close Net Chg % Chg YTD%Chg			
WSJ Dollar Index	85.07	-0.11	-0.13 -8.4

Sources: Tullett Prebon, WSJ Market Data Group

cause FX swaps are backed by cash collateral and can be used to hedge exposure to currency swings, thus promoting stability. Still, the debt "has to be repaid when due and this can raise risk," the authors wrote.

According to the paper, published with the BIS's quarterly update on global financial conditions, nonbanks outside the U.S. owed roughly \$13 trillion to \$14 trillion through forward-contract swaps and forward-rate swaps.

That exceeds the nearly \$10.7 trillion in dollar debt held on their balance sheets at the end of the first quarter.

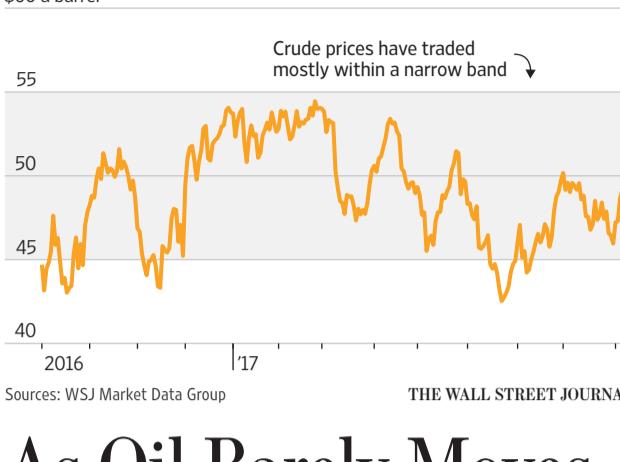
"Nonbanks" include non-financial companies, households,

MARKETS

Range Bound

Oil markets have been quiet, with prices fluctuating within a tight range. That's caused a strategy that bets on sideways trading to excel.

U.S. crude-oil futures



Sources: WSJ Market Data Group

THE WALL STREET JOURNAL

As Oil Barely Moves, Many Traders Bet on Reversion to the Mean

BY STEPHANIE YANG

A placid oil market is emboldening traders to adopt strategies that reap modest gains on small price moves, while risking big losses in the event of

COMMODITIES larger ones.

U.S. oil

f u t u r e s

have spent much of 2017 in a range around \$50 a barrel—their least-volatile period in three years. The stalemate reflects expectations that crude will be supported by production cuts by the Organization of the Petroleum Exporting Countries and limited by the capacity of nimble U.S. shale producers to boost output when prices rise. U.S. crude settled flat Friday at \$49.89.

Many traders are adapting by pursuing what is known on Wall Street as a mean-reverting strategy, generally one that wagers prices will fall when oil is above a certain level and rise when it declines below a

Olszewski, chief investment officer at Eclipse Capital Management Inc., whose mean reversion strategy is actively trading only about 10% of the time.

Many analysts say economic fundamentals support continued placidity, though others worry that bets on low volatility will be wrong-footed when an event causes investors to change their outlook or markets take a different view of various risks.

A trader who thinks U.S. oil is overvalued at \$55 could use a mean reversion strategy to bet against oil and wait for prices to fall back below that level. But losses would be compounded if the move marked the start of a trend higher.

In addition, futures trading typically involves using leverage, or placing a large bet with a small amount of money. If the bet goes wrong, the holder may be on the hook for losses at several times the initial deposit.

"Those strategies work well because they are targeting short-term horizons and...a very low-volatility environment," said Jean-Jacques Duhot, chief investment officer of Arctic Blue Capital Ltd. "It's going to be very challenging for them to do well when the volatility bottoms out."

Mean-reverting strategies are an essential part of many traders' tool kits. Versions of these strategies form the core of approaches such as value investing, which has fallen out of favor in recent years as dynamics, ranging from central bank stimulus to industry consolidation and higher-than-expected corporate profits, have supported expanded multiples in many markets.

The proliferation of algorithmic trading may have also had a hand in the increased presence of mean-reversion strategies, said Mauro Taratuto, chief investment officer of Tiber Capital LLP, which uses algorithms to put on short-term trades. The mean-reversion program used by Tiber Capital has returned 4% this year.

Algorithmic mean-reversion strategies in commodities have returned about 9% in 2017, compared with algorithmic trend-following strategies down about 2% for the year, according to quantitative research firm **Bridgeton Research Group**.

Even practitioners of the mean-reversion trade warn that it can be hazardous. Such trades typically make up a small portion of Mr. van Essen's fund activity, he said, but his use of it has increased to more than 50% over the past year.

—Gunjan Banerji

contributed to this article.

A long period of low volatility has swept over markets since the financial crisis.

threshold.

Though the strategy promises only modest returns when the price is near the trading target, some traders are compensating by boosting their activity. In overall trading, average daily volume in U.S. oil futures rose 51% in August from a year earlier to the highest on record, according to **CME Group Inc.**

The rise of the "yo-yo market" trade is the latest sign of how Wall Street is seeking to make the most of an environment in which outsize trading profits are few and far between. A longstanding regime of low volatility, or muted price swings, has swept over markets since the financial crisis.

"You've got this standoff where everything is sort of in balance," said Emil van Essen, head of the energy-focused fund **Emil Van Essen LLC**.

Some investors say the strategy can help generate additional gains with limited risk, as long as it is properly managed with leverage, which gives futures traders exposure to contracts for a fraction of the full cost, and the use of tools such as stop-losses that force traders to promptly sell when the market turns against them.

"This year's a great example of those diversifying programs performing when we need them the most," said Fran

Storms Lift Refiner Profits

BY LYNN COOK
AND BRADLEY OLSON

HOUSTON—U.S. fuel prices are poised to remain elevated for the rest of the year after hurricanes Harvey and Irma, costing consumers billions but providing a profit boost to some refining companies.

Harvey knocked out 25% of the nation's fuel-making capacity at the height of the storm's flooding in Texas. More than 12% is still shut, with three plants idle and 11 struggling to resume operations. A week later, Irma compounded fuel shortages in the Southeast, as millions of people fled in a mass evacuation that emptied gasoline stations.

A record amount of fuel was pumped out of storage tanks in the week ended Sept. 8, according to federal data, to keep East Coast gas pumps working. It was the largest one-week drawdown in U.S. gasoline stockpiles since 1990.

Nearly every refinery that could went into overdrive in the wake of the storms, but the one-two punch of Harvey and Irma knocked out millions of barrels a day of fuel production, rapidly driving up gas prices to \$2.80 a gallon recently. The nationwide average is about 50 cents higher than this time last year.

While some pump prices have drifted lower, increases could persist in certain areas for months, analysts and economists said. An extended increase of 25 to 50 cents a gallon would translate to billions of dollars in costs to consumers over the course of 60 to 90 days, according to federal data on U.S. vehicle miles traveled and average fuel efficiency.

Higher fuel prices mean refinery owners—even some with flooded plants that won't go back into service for weeks—could see an improvement to their bottom lines.

"You've got a lot of refiners running at full tilt, and they're going to make better margins," said Sandy Fielden, an energy analyst with Morningstar Inc. "Supply and demand is effectively telling the market that there's a big incentive to produce more."

In the Midwest, refineries hummed at their maximum capacities in the days before and after Harvey hit, according to the U.S. Energy Information Administration.

Aggregated across the industry, the boost to profit margins on fuel is likely to be sufficient to offset most lost revenue from the refinery shutdowns, according to a Wall Street Journal analysis of pricing data from FactSet.

Most refiners' margins would get a boost because the price of the fuel they sell will



A flooded gas station in Florida's Everglades after Hurricane Irma swept through the area.

SPENCER PLATT/GETTY IMAGES

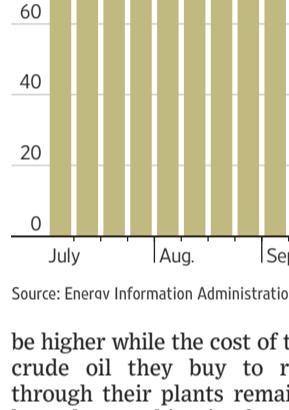
Up Like a Rocket, Down Like a Feather

Gasoline prices shot up as Hurricane Harvey knocked out refineries.

It could take several weeks for fuel prices to fall.

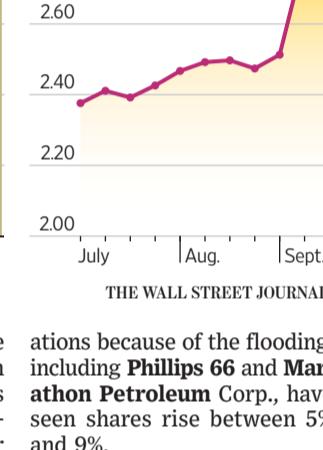
Refinery capacity utilization

Weekly



Retail gasoline prices (all grades)

Weekly U.S. average



THE WALL STREET JOURNAL

area remain hobbled. The 600,000-barrel-a-day plant owned by **Saudi Arabian Oil Co.**—the biggest in the U.S.—is operating at half capacity because many of its motors and electronics were fouled by floodwater, according to a report by Damien Courvalin, a managing director at Goldman Sachs Group Inc.

Valero is trying to restart its plant in Port Arthur, but the effort could take until the end of September, Goldman Sachs said. The investment bank expects **Exxon Mobil Corp.**'s refinery in nearby Beaumont, Texas, to take a month to fully recover. The companies have said they are ramping up operations.

The decline in output is a switch for the U.S., which had been producing so much gasoline that stockpiles of the fuel reached a three-decade high of more than 255 million barrels in February. The refinery outages and continued draws on gasoline stocks leave the U.S. with less of a cushion, which helps push up fuel prices, according to Sam Margolin, an analyst at Cowen & Co.

"We believe it could take all of the fourth quarter to replenish lost supply, with an ongoing inflationary impact to gasoline prices," Mr. Margolin said.

Major storms in the past decade have failed to dent refining profitability in a number of cases. After hurricanes Ike and Gustav struck the Gulf Coast in succession in 2008, refining profit margins for some fuels more than doubled. Valero, one of the biggest U.S. refiners, said the storms that year cost it about \$350 million in lost business, but the company still reported profit of \$1.15 billion.

35%
The decline in Equifax's shares in September, on pace to be the worst month ever for the stock.

Low Score for Equifax

September hasn't been kind to **Equifax Inc.**

Shares in the credit-check company have fallen 35% this month, putting it on track for its worst month in its four-decade-plus history as a public company, surpassing even October 1987 when the stock market crashed.

The shares tumbled Sept. 8,

a day after the company disclosed an enormous data breach that could affect as many as 143 million consumers. Equifax's stock dropped 15% Wednesday and slid again on Thursday and Friday as the company faced mounting costs, lost revenue and increased scrutiny from regulators, consumers and lawyers.

Of particular concern for shareholders is Equifax's Global Consumer Solutions business. That houses the company's high-margin business monitoring credit files and protecting against identity theft and is "the

MONEYBEAT

largest area of revenue at risk," said Andrew Steinerman, an analyst at J.P. Morgan Chase & Co., in a research report.

Wednesday's slide came after Equifax Chief Executive Richard Smith wrote in a USA Today column published late Tuesday that 11.5 million consumers had already signed up for credit monitoring, which the company is now providing free of charge. Analysts say that is likely to eat into paid subscriptions..

Based on Mr. Smith's numbers, the free monitoring could drag between 1.3 and 3.8 percentage points off the company's estimated sales growth of 6.9% in 2017, said Brett Huff, an analyst at Stephens Inc., a Little Rock, Ark., investment bank.

Shareholders are taking note. Equifax had a market capitalization of \$17.2 billion before the breach was disclosed. Its value has since dropped to \$11.2 billion.

—Ben Eisen

ONLINE



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THE TICKER | Market events coming this week

Monday

No major events are scheduled

Tuesday

Fed 2-day meeting starts

Building permits

July, previous 1.220 mil.

Aug., expected 1.230 mil.

Current account

1st qtr., previous

\$116.8 bil. deficit

2nd qtr., expected

\$118.2 bil. deficit

Wednesday

Fed policy meeting ends

Target rate

1.00-1.25

Thursday

Mort. bankers indexes

Purch., previous

Refinan., prev.

EIA status report

Previous change in stocks in

millions of barrels

Crude oil

Gasoline

Distillates

up 5.9

down 8.4

down 3.2

Existing home sales

July, previous

5.44 mil.

Aug., expected

5.46 mil.

Friday

Earnings expected*

Estimate/Year Ago(\$)

General Mills

0.77/0.78

Earnings expected*

Estimate/Year Ago(\$)

CarMax

0.94/0.88

</			

MARKETS

THE DAILY SHOT | By Lev Borodovsky and Colin Barr

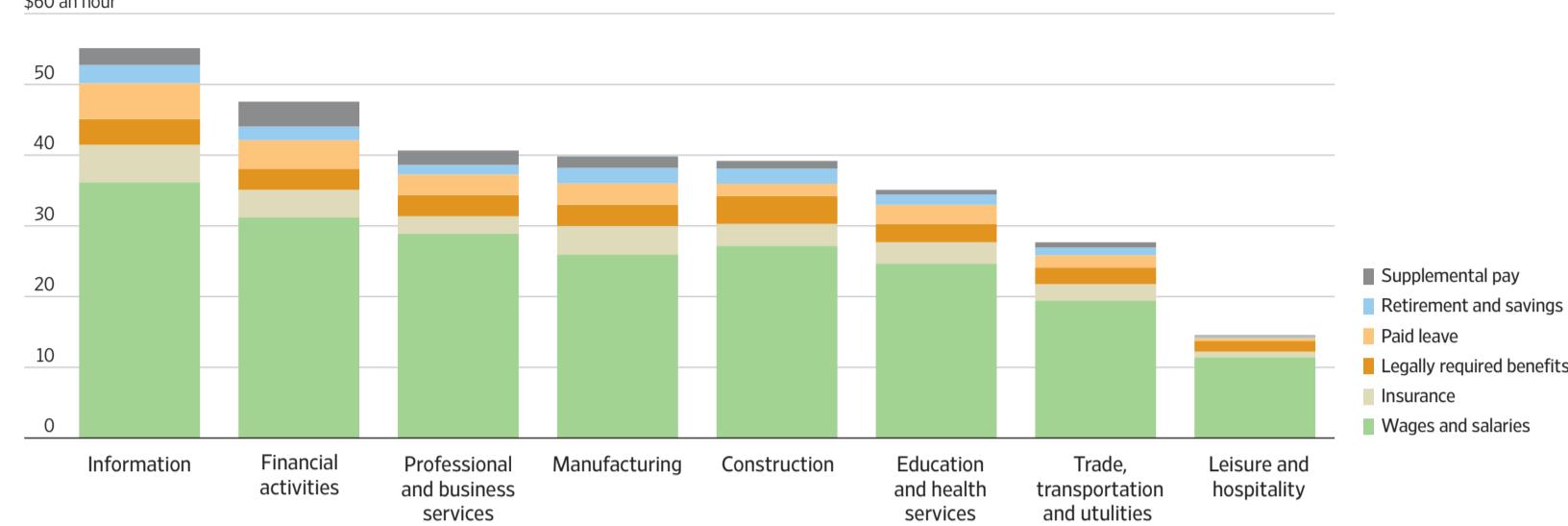
More Bad News for the Labor Market

Among the central mysteries in markets right now is when tumbling U.S. unemployment might finally force up wage growth and shake inflation out of its slumber. Despite Thursday's rise in consumer inflation, the signs right now aren't good.

The problem is the disconnect between the workforce and the skills employers are seeking. Finding skilled workers is the most pressing problem for small businesses in recent surveys. Job openings in construction are rising, but those positions are notoriously difficult to fill. Professional and business services tend to pay well, but openings have slowed.

At the other end of the spectrum, where experience is less important and pay is accordingly less, leisure and hospitality openings have jumped. As hiring in the economy shifts toward this low-paid sector and away from the better-compensated ones, it's likely we will see even more downward pressure on wages—a development that wouldn't be welcomed by central bankers.

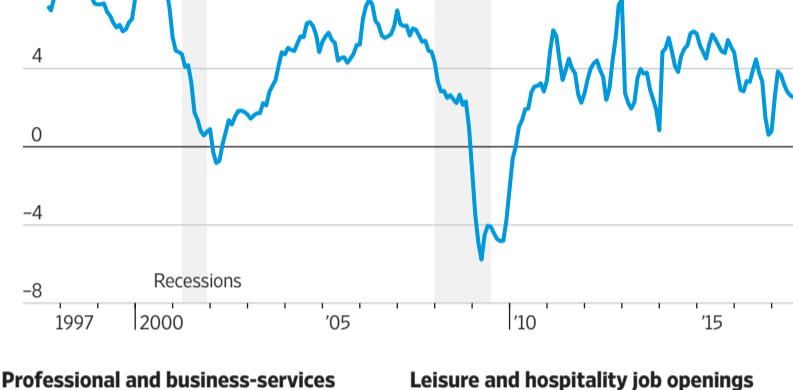
Employer costs for worker compensation, by private industry



U.S. unemployment rate



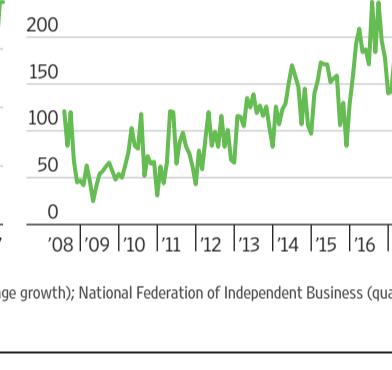
Employee wages and salaries, change from a year earlier



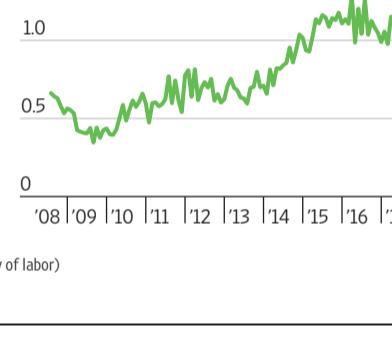
Small businesses identifying quality of labor as biggest problem



Construction job openings



Professional and business-services job openings



Leisure and hospitality job openings



Sources: U.S. Bureau of Labor Statistics (costs, unemployment, openings); U.S. Bureau of Economic Analysis (wage growth); National Federation of Independent Business (quality of labor)

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Housing Puts Australian Banks at Risk

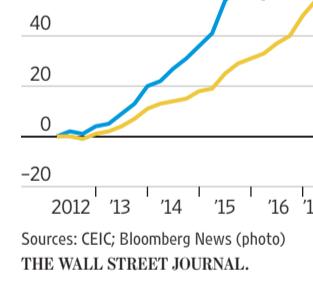
Investors have been calling the Australian housing market a “bubble” for years, yet prices keep charting higher. The market, though, could finally be about to turn south. That won’t be pretty for the country’s banks.

The property market has been skyrocketing Down Under—prices in Sydney have gone up 80% since 2012, while in Melbourne they have gained 54%. In turn, houses have become unaffordable for many Australians as prices keep outpacing income growth. An average home in Sydney now costs more than 12 times the median income there, according to research firm Demographia.

To keep houses within the reach of buyers, banks seem to have loosened their lending standards. Home lending is big business for Australian banks—more than half of their loan books consist of residential

Skyscraping

Gains in home prices in Australian cities



Central business district in Sydney, Australia

mortgages, amounting to \$1.2 trillion, a figure that has risen 47% in the past five years. Analysts say much of this new lending has been dubious: Around one-third of Australian mortgage applications contain inaccurate information, resulting in around \$400 billion of so-called liar loans, according to UBS.

Many home buyers have also been taking out interest-only mortgage loans, meaning that borrowers don’t need to repay the principal for a certain period, usually five years. Nearly 40% of outstanding home loans are interest-only. The risk is that borrowers will be unable to repay these loans once their interest-

only period expires.

This is fine as long as the property market keeps going up, as homeowners can sell their houses to cover loan repayments. Once the market stops rising, though, it will become much harder for stretched households to avoid problems.

Australian regulators are trying to cool the property market by reining in the use of interest-only loans.

But they face another difficulty. Tightened capital controls in China have damped property demand in Australia, previously a popular venue for Chinese buyers.

Direct overseas property investment from China plunged 82% in the first half globally, according to Morgan Stanley, with investors there finding it harder to get their money out of the country.

Little wonder, then, that Australian house prices are starting to slow—they were

flat month-on-month in major cities in August. That, in turn, could hurt banks’ earnings as loan growth slows and provisions start to rise.

Australian banks, though, are still trading at a premium to their peers in other countries: The four biggest Australian banks on average trade at 2.1 times tangible book value, much higher than, say, J.P. Morgan Chase, which trades at 1.7 times.

The country’s largest bank by market value, **Commonwealth Bank of Australia**, looks the most vulnerable. It is the most expensive of the big four, at 2.5 times tangible book. Aside from housing-market worries, it has recently been embroiled in a probe related to money laundering.

Shorting Australian banks has long been a “widow-maker.” Now, though, it could finally be a winning trade.

—Jacky Wong

OVERHEARD

Danish biotech **Bavarian Nordic** announced Thursday evening that it was ending a pivotal trial study of its prostate cancer vaccine due to a lack of efficacy. Shares dove 48% in Copenhagen Friday.

Chad Messer, biotechnology analyst at Needham and Co., captured the mood. After asking about the details of collaboration arrangements with other drugmakers, he signed off by saying, “Thanks, and my condolences”—a far cry from the typically chipper “great quarter, guys.”

When reached for comment, Mr. Messer pointed to the hard work that had gone into the study. “It was an unfortunate outcome for the company and for prostate cancer patients,” he said in an email. “I have gotten to know the management team of the company well over the years, and I felt an expression of my sympathy for how it must feel to experience such a disappointment was in order.”

For Auto Makers, Big Isn’t Always Best

Does scale matter any more in the automotive industry? Carlos Ghosn, boss of the **Renault-Nissan-Mitsubishi** alliance, is taking an increasingly lonely road in betting it does.

General Motors has withdrawn from Europe, South Africa and India this year.

Investors have bid the value of

Tesla up to \$63 billion, even

though it currently only

makes about 100,000 cars a

year. Sergio Marchionne has

unleashed breakup speculation

at **Fiat Chrysler**. Analysts

have written excited notes about the potential of spinoffs at **Daimler** and

Volkswagen.

Yet Mr. Ghosn is doubling

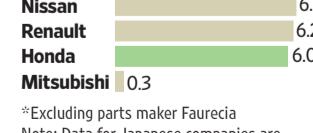
down on the old-fashioned

virtues of scale: sharing vehicle

platforms, factory capaci-

Profit Problem

Operating margin of alliance members and their peers



*Excluding parts maker Faurecia

Note: Data for Japanese companies are through March 2017, French companies through June 2017

mity and technology. On Friday, he unveiled a six-year plan that involved doubling annual cost savings from cooperation within the alliance to €10 billion (\$11.9 billion).

Renault, Nissan and Mitsubishi will share 22 engines out of 31 by the end of 2022, up from 14 out of 38 last year.

Importantly, they will also share an electric-vehicle platform, infotainment and self-driving technology.

Mr. Ghosn’s big synergy numbers haven’t always been apparent in the profits of the listed companies that form the alliance. At 6.2%, Renault’s first-half operating margin was lower than that of smaller French peer **Peugeot Citroën**. Nissan’s margins are ahead of **Honda**’s but behind **Toyota**’s.

The alliance overtook Volkswagen and Toyota to make more cars than any single car manufacturer in the first half. But if Mr. Ghosn wants to prove the value of that scale in the rapidly changing car industry, he needs to get margins up, too.

—Stephen Wilmot

Drug Stocks Heal With Sound of Silence

Peace and quiet never sounded so good to drug stock investors.

The NYSE Arca Pharmaceutical Index is up 5% over the past month, which has handily outpaced the broader market. The Nasdaq Biotechnology Index, meanwhile, has shot up 8%.

The return of large acquisitions has been one reason for the rally. **Gilead Sciences** stock rose sharply after the company announced an \$11 billion deal to buy **Kite Pharma** on Aug. 28.

Positive clinical data also have spurred the rally. **AbbVie** shares are up 25% in just one month after the company unveiled strong results for experimental medicines in atopic dermatitis and rheumatoid arthritis. **Johnson & Johnson** and **Bayer** revealed sparkling new data late last month for their anti-clotting blockbuster drug, Xarelto.

But what hasn’t been happening is arguably just as important for investors. A push to crack down on high drug prices appears to have fizzled in Washington. President Donald Trump has gone largely silent on the issue.

Meanwhile, leading Democrats in the Senate have turned their focus away from bills that would allow Medicare to negotiate drug prices directly with companies and toward single-payer health-insurance legislation.

A single-payer system would be a huge negative for the drug industry, but that is years away at best.

Risks to drug prices haven’t vanished—two bills that could affect prices in California have reached the governor’s desk, though their fate is unclear.

But relative calm on the drug-pricing front pushes the attractive investing traits of pharma to the forefront.

These companies have predictable earnings and respectable dividends, and are relatively insensitive to the economy’s twists and turns.

Valuations are generally in line with the broader market, which continues to trend higher.

Monthly returns of 8% aren’t realistic over the long term. But a calmer political environment should continue to mean happy shareholders.

—Charley Grant

CYBERSECURITY

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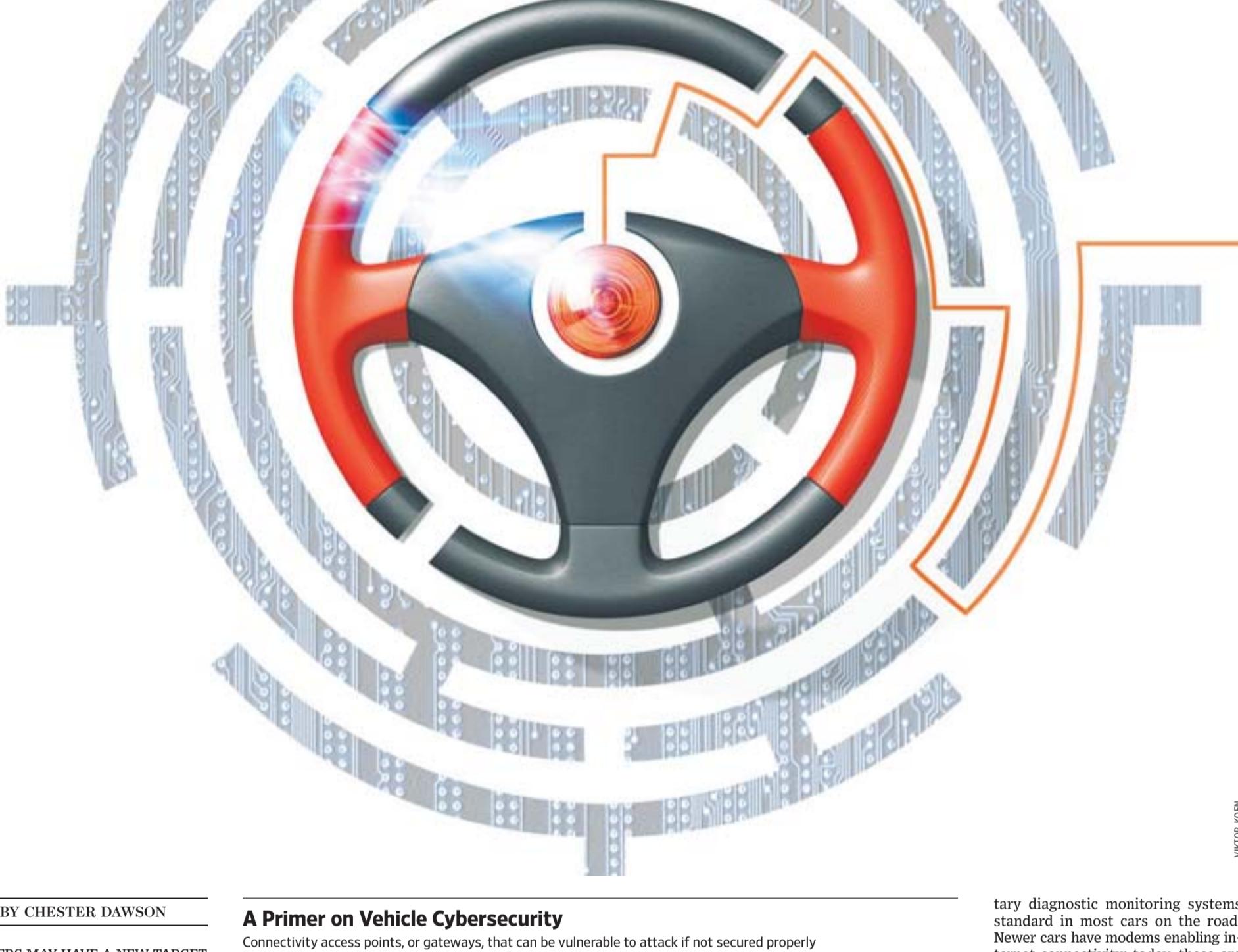
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Monday, September 18, 2017 | R1

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The Danger of the Hackable Car

As cars go increasingly digital—and connected—cybersecurity experts worry that they also are becoming a lot more vulnerable



VIKTOR KOREN

BY CHESTER DAWSON

HACKERS MAY HAVE A NEW TARGET in their sights—one that's just as central to everyday life as computers are.

Our cars.

As vehicles fill up with more digital controls and internet-connected devices, they're becoming more vulnerable to cybercriminals, who can hack into those systems just like they can attack computers. Almost any digitally connected device in a car could become an entry point to the vehicle's central communications network, opening a door for hackers to potentially take control by, for instance, disabling the engine or brakes.

There have been only a handful of successful hacks on vehicles so far, carried out mostly to demonstrate potential weaknesses—such as shutting down moving a car and taking control of another's steering. But security experts paint a grim picture of what might lie ahead. They see a growing threat from malicious hackers who access cars remotely and keep their doors locked until a ransom is paid. Cybercriminals also could steal personal and financial data that cars are starting to collect about owners.

Or they might get even more ambitious. Some experts warn of a day when millions of fully internet-connected vehicles will be at risk of being hijacked remotely. A mass hack could be catastrophic for the self-driving cars of the future, especially if those cars don't have steering wheels or other backup systems to let drivers take manual control.

Now the auto industry and lawmakers are rushing to meet these threats. Congress is proposing new standards that car companies must meet to guard against cyberattacks. Car makers are beefing up their software to make their vehicles tougher to hack, as well as reaching out

A Primer on Vehicle Cybersecurity

Connectivity access points, or gateways, that can be vulnerable to attack if not secured properly



EMBEDDED INTERNET MODEMS

These strong wireless cellular radios connect a car to the internet for everything from map upgrades and music streaming to automated 911 calls in an accident; auto industry officials say this is becoming standard equipment and eventually will provide a gateway to massive transfers of data to and from cloud computing networks.



WI-FI INTERNET ROUTERS

Provides local wireless connectivity within a car for smartphones and other devices to stream data and entertainment media. Wi-Fi "hot spots" are standard in many new cars and can be added to older vehicles with devices that plug into a diagnostic port.

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BLUETOOTH MODULE

Another form of localized wireless connectivity to stream data and media. Like Wi-Fi routers, these modules are increasingly standard equipment and can be added to older vehicles with devices that clip onto sun visors or even screw onto tires as part of a pressure-sensor kit.



NEAR-FIELD COMMUNICATION DEVICES

Short-range wireless connectivity using a magnetic field often used for keyless entry and engine ignition or applications such as automatic payment of tolls and customized seat and mirror adjustments.



HI-DEFINITION RADIO

A digital broadcasting format that allows

transmission of audio signals and data such as album cover art and real-time traffic information. A number of audio and auto makers now offer this as an option.



USB DEVICE PORTS

Typically used to download media files via flash drives that may contain viruses, the USB port can also be used to connect to smartphones and other internet-connected devices.



OBD-II DIAGNOSTIC PORTS

Standard on all cars since the mid-1990s, this port was designed for garage mechanics to download diagnostic data, but increasingly has become a popular way to connect vehicles to the internet via palm-size devices known as dongles.

tary diagnostic monitoring systems standard in most cars on the road. Newer cars have modems enabling internet connectivity; today, these are used mostly for entertainment, but they are fast evolving into portals for software upgrades of critical systems and for sending data to cloud-computing networks.

Even older models can be retrofitted with Wi-Fi routers and Bluetooth modules that create wireless networks in and around a car, enabling drivers to do things like answer phones hands-free, determine how many miles are left in the tank before the next refill and stream videos to the children in back seats.

Cybersecurity experts say this has made cars far more like personal computers, with all the vulnerability that comes with that. Yet until recently, network security was largely treated as an afterthought—the systems were designed to give auto mechanics access to a car's functions, not fend off criminal hackers.

A handful of widely publicized attacks has demonstrated that vulnerability, including a 2014 incident involving a Jeep Cherokee. Hackers looking to point out potential vulnerabilities found a password to a Wi-Fi

hot spot and cellular connections used in the Jeep's central display and entertainment system. From there, they accessed the car's internal computer network and took control of functions ranging from the door locks and window wipers to electronically assisted steering. That prompted the recall of 1.4 million vehicles by Fiat Chrysler Automobiles, and served as a warning to the industry that car networks are no longer islands unto themselves.

Earlier this year, researchers at Argus Cyber Security Ltd. remotely shut down a car's engine using a Bluetooth-enabled device that monitors

Please turn to the next page

to benevolent hackers to help them identify potential security flaws.

While there are disagreements among manufacturers and security experts about the exact magnitude of the possible threats, there is a widespread consensus that action is needed immediately to minimize risks.

Cyberintrusions have given auto makers a "wake-up call" over the past five years, says Phil Jansen, Fiat Chrysler's vice president for North American product development. "It has caused us to rethink how we set up architectures" for vehicle electronics.

The new vulnerability comes as auto makers

are increasingly using software to control features and functions that have long been dominated by hardware, such as braking, gear shifting and throttle control. It represents a seminal break from the mechanical hydraulic systems of the recent past, one that began with the introduction of electronically controlled fuel injection in the late 1960s.

"Software is rapidly replacing hardware," says Colin Bird, a senior automotive industry analyst at IHS Markit Ltd. "More than 50% of a car's value today is defined by software, and that is continuing to increase."

The digital features go far beyond rudimen-

INSIDE

Insurance Against Cyberattacks Continues to Grow

Businesses purchase coverage against a wide array of threats

R2

Cybersecurity Ratings Emerge As a Tool for Insurers

And methodology is surprising

R2

Biometric, Behavioral Factors Are Hot New Defenses

Better ways to verify identity

R4



Two-Factor Authentication: The Ins and Outs

Companies do it different ways, but do it they must

R4

Beware the False Sense of Security About Viruses

Software helps but isn't invincible

R4

The Game of Cybersecurity

Training employees with carrots, not sticks

R5



The Unexpected Soft Spot in Cloud Security

Some are leaving data exposed after migrating to the cloud

R5

A 1950s Data-Storage Tech Comes Roaring Back

More companies put it on tape

R5

In the Internet of Things, Risk Is Everywhere

What is my toaster really up to?

R6

JOURNAL REPORT | CYBERSECURITY

Insurance Grows for Cyberattacks

Companies seek to protect themselves against a wide array of threats

BY ADAM JANOFSKY

AS THE THREAT from hackers grows, businesses are hoping that cyberinsurance will provide a new line of defense.

Once largely limited to technology firms, cyberinsurance has emerged as the fastest-growing type of coverage among U.S. companies. The policies are designed to cover financial losses from different kinds of attacks—from theft of data to extortion using ransomware—as well as recouping damages from a tainted reputation and stolen money. Many carriers are also trying to distinguish themselves by offering tools and services to help firms respond quickly

been a legal imperative, and along with that, company awareness of the issue has grown,” says Claire Wilkinson, a consultant to the Insurance Information Institute Inc., a New York-based trade group, and an author of several white papers on cyberinsurance.

Twenty years ago, insurers offered only policies that covered things like coding errors and other software accidents that could bring down a company’s networks, according to Ms. Wilkinson. Now, cyberinsurance can cover a vast array of computer-related risks, and insurers have introduced policy riders designed for small firms.

New breaches and attacks “accelerate the need for cyberinsurance, and carriers have innovated in response,” says Ms. Wilkinson.

One recent example is the influx of ransomware attacks, in which a computer is locked until the victim pays a demand. In May, hundreds of thousands of computers running outdated operating systems were infected with the “WannaCry” ransomware, and in June several major organizations were infected with a variant of the “Petya” ransomware that security researchers say was particularly destructive.

One victim of the June attack, shipping conglomerate **A.P. Moller-Maersk A/S**, says it will cost the company between \$200 million and \$300 million because system shutdowns halted a large part of the firm’s operations.

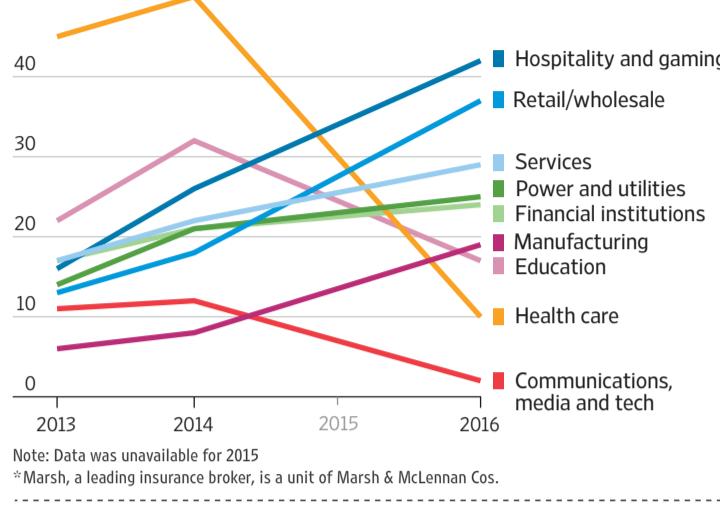
Insurers say the evolution of ransomware has been a wake-up call. “Our policies covered cyberextortion for years, but if you asked me five or 10 years ago what that would look like, it would be a disgruntled ex-employee who had a back door to the system,” says Mr. Francis. “Now we have ransomware, and we have to figure out how that [affects] how we price policies.”

Ransomware is only one of many new threats that have led to the creation of new policies. For instance, insurers offer coverage for property damage and bodily injury coverage due to cyberattacks on critical infrastructure operators, transportation companies and oil and gas firms.

Some of these risks may be covered under other kinds of insurance policies—businesses with kidnap and ransom insurance occasionally use it to recoup losses from ransomware, for example. But insurance experts say such policies weren’t designed with cyberisks in mind, and will likely be disputed

Increasing Coverage

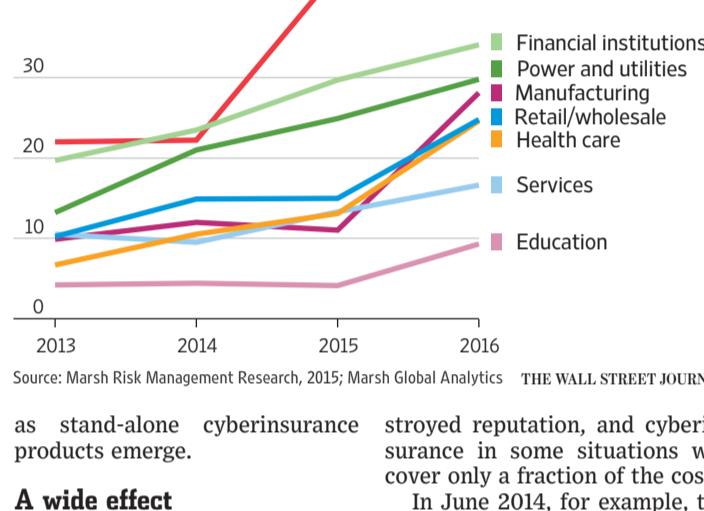
Percentage of Marsh LLC* clients in the U.S. purchasing standalone insurance against cyberattacks, by industry...



Note: Data was unavailable for 2015

*Marsh, a leading insurance broker, is a unit of Marsh & McLennan Cos.

...And average total limit of cyber-liability coverage purchased, by industry



Source: Marsh Risk Management Research, 2015; Marsh Global Analytics THE WALL STREET JOURNAL.

as stand-alone cyberinsurance products emerge.

stroyed reputation, and cyberinsurance in some situations will cover only a fraction of the costs.

In June 2014, for example, the restaurant chain P.F. Chang’s China Bistro Inc., which paid a \$134,000 annual premium for cyberinsurance, learned that hackers had stolen the credit-card numbers of 60,000 customers. According to court documents, the restaurant was reimbursed more than \$1.7 million by the insurer for costs such as a forensic investigation and litigation, but had to pay \$1.9 million in fines levied against it by its credit-card processing vendor.

P.F. Chang’s didn’t respond to requests for comment.

Mr. Janofsky is a staff reporter for WSJ Pro Cybersecurity. Email: adam.janofsky@wsj.com.

INSURERS LOOK TO MEASURE RISK

One of the biggest challenges for cyberinsurers is making sense of what little data there is on cyberattacks.

Unlike property or life insurance, which benefit from centuries of actuarial data, cyberinsurance is a new and fast-changing field. Cyberinsurers ask potential clients about their risk exposure and security practices, but there’s often little evidence that these factors indicate whether or not a company will be targeted by cybercriminals, according to insurance providers.

Some firms, including **American International Group Inc.** and **Travelers Cos.**, have started to join with independent security-rating companies to get a better picture of risk. These firms collect data on cyberattacks and try to create standard scoring systems to indicate the likelihood that a company will suffer an attack or won’t be able to adequately respond to one.

Scouring for information

Instead of relying on questionnaires from the companies being reviewed, as insurers do, the ratings firms track data about hacker attacks and data breaches that’s publicly available through state notification laws, Freedom of Information Act requests and news sites. They also collect information through more complex means, such as listening in on hacker chatter in hard-to-reach corners of the internet.

All of those factors are then boiled down into scores. For instance, the security-rating firm **BitSight Technologies Inc.**, based in Cambridge, Mass., rates companies on a scale of 250 to 900, with scores below 500 considered poor and above 700 considered good. Companies at the low end of the scale are five times more likely to suffer a data breach than a company at the high end of the scale, according to Stephen Boyer, BitSight’s chief technology officer. The company also serves companies seeking insight into the security of vendors, partners or acquisition targets, as well as their own operations.

An accurate picture?

Some underwriters and businesses question the accuracy and usefulness of the scores, and say that they want the methodology to be transparent, so they can see where they had shortcomings and fix them.

In June, the U.S. Chamber of Commerce unveiled a list of principles for “fair and accurate” cybersecurity ratings that was signed by 44 companies, including **Aetna Inc.**, **Bank of America Corp.**, **Microsoft Corp.**, and **Starbucks Corp.**. Three rating firms—BitSight, **Risk Recon Inc.** and **SecurityScorecard**—also supported the principles, which called on the rating companies to be more open about their methods and give organizations the right to challenge their rating.

—Adam Janofsky

The Potential Dangers of the Hackable Car

Continued from the prior page

engine performance and downloads vehicle data, made by German auto-parts supplier Robert Bosch GmbH. The company says the device was in limited distribution and that it immediately sent out a patch to fix the flaw. Separately, Bosch said this month that it has developed an encrypted standard for over-the-air software upgrades in vehicles.

Last month, cyber sleuths at security provider **Trend Micro Inc.** disclosed a flaw in almost all cars from the past 30 years that makes any number of safety features—such as anti-lock brakes—vulnerable to attack. First, however, hackers need to gain access to a car’s internal communication network by compromising a device connected to it, such as a smartphone or USB adapters. But once inside, researchers found they could shut down critical systems relatively easily by mimicking—or spoofing—error messages on the central communications network standard in most cars.

No simple fix

“There’s no simple fix,” says Mark Nunnikhoven, vice president of cloud-computing research at Trend Micro. “This kind of internal network was never meant to be connected the way it is now.”

Another immediate concern for safety experts is customer data. Auto makers are setting up cars to collect and transmit a wealth of detailed information such as the auto’s location, speed and even the driver’s alertness—in other words, how, where and in what condition someone drives. Industry officials say car makers are preparing to roll out connectivity packages allowing owners to interact with service providers and, for example, make purchases by credit card from the car while on the road.

All of which could make that information a hacking target for spam-based marketers or thieves looking to hijack people’s credit cards or blackmail them using personal information about their whereabouts or state of health.

Privacy advocates say more safeguards are needed to make it harder for other people to get personal information about drivers—whether the disclosures are authorized or not.

“Cars are for many Americans their second home. I don’t think I’m exaggerating when I say that probably most of us have danced in our car, cried in our car, and we’ve yelled in the privacy of our car,” says Joe Jerome, a lawyer with the Center for Democracy and Technology

a Washington, D.C.-based nonprofit advocacy group. “A lot of this technology sort of changes that dynamic.”

But the really serious threats, security experts say, lie a few years ahead, as interconnected networks spread across car makes and models. For instance, hackers might lock the doors of an entire model line, extorting the

Hoping to stave off regulatory action, 14 auto makers created a forum two years ago, known as the Automotive Information Sharing and Analysis Center, or Auto ISAC, to act as a clearinghouse for industry best practices. The group says it will hold a summit in December.

Meanwhile, two leading auto-maker trade groups have spelled out privacy principles re-

cess, but the company won’t say if that has identified any vulnerabilities. **Ford Motor Co.** and other global auto makers also have active programs to counter vehicle hacking.

What level of threat?

For now, analysts inside and outside the auto industry agree the systemic risk to cars is limited. Most attacks have been contained to a specific vehicle, and usually require close physical proximity and an intimate knowledge of which connectivity technology is being used. All of the known penetrations of vehicles were orchestrated by cybersecurity experts for demonstration purposes.

These “white hat” hackers are more interested in exposing auto makers’ vulnerability and hubris than causing any harm to drivers. And even “black hat” hackers may be more of a nuisance than a danger, doing things like disabling a rear camera or erasing a digital-music library.

Security officials say criminal hackers are more likely to remain focused on targets such as financial institutions that can be penetrated remotely, at greater scale and for some sort of financial payoff.

And some auto-industry representatives say the threat of systemic hacks is overblown, noting that so far there has never been a successful “commercial hack” by criminal groups.

“Yes, it provides some potential vulnerabilities,” Dave Schwietert, executive vice president of the Alliance of Automobile Manufacturers, an industry lobby, said at the June conference in Washington. But “the benefits, we believe, far outweigh the downside risks.”

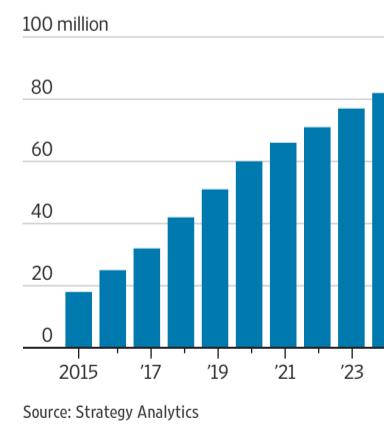
Consumers are willing to accept that trade-off when it comes to smartphones and other connected devices, and cars are the next logical frontier for the internet to conquer. But as those connections to the outside world proliferate, so does the potential for exposure to bad actors, says Craig Smith, research director of transportation security at **Rapid7 Inc.**, a Boston-based security-data and analytics firm, and author of a guide for penetration testers, “The Car Hacker’s Handbook.”

“There’s always a bug you’re not aware of, so you’re not going to be able to avoid penetration at every point of contact,” says Mr. Smith.

Mr. Dawson is a staff reporter in The Wall Street Journal’s Detroit bureau. Email him at chester.dawson@wsj.com.

Calling All Cars

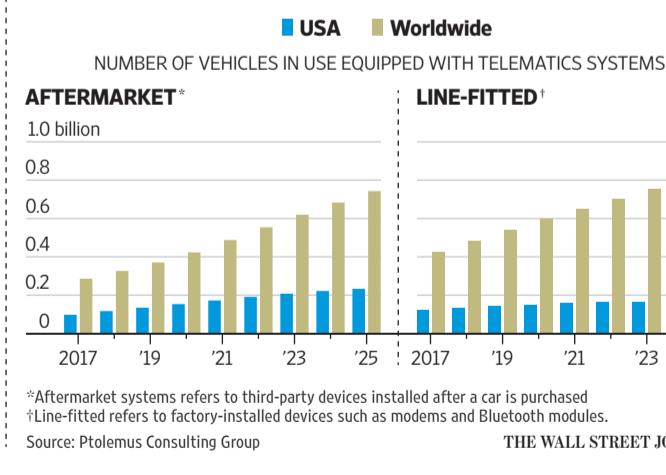
Global shipments of vehicles with embedded cellular modems



Source: Strategy Analytics

Honk If You’ve Been Hacked

Internet connectivity in vehicles, including buses and heavy-duty trucks



*Aftermarket systems refers to third-party devices installed after a car is purchased.

†Line-fitted refers to factory-installed devices such as modems and Bluetooth modules.

Source: Ptolemy Consulting Group

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What's After Passwords

Biometric scans, behavior monitoring and more

BY STEVEN NORTON

WHAT WILL LIFE after passwords look like?

For many companies, the goal is for the authentication of customer and employee identities to be nearly invisible, taking only a second as a shopper logs into the website, or running in the background as office staff do their work.

To achieve that, and be able to accurately verify that employees and customers are who they say they are, companies are embracing new technologies—including biometric scans of faces and fingerprints, and behavioral-monitoring systems that track such activities as what apps you open most frequently.

As hackers are getting more sophisticated, traditional passwords are starting to be seen as less secure. The recent data breach of credit-reporting agency **Equifax Inc.** is likely to raise further questions about using Social Security numbers and other personal data to

access an application, Mr. Wilson says.

Like any authentication measure, such tools also remain susceptible to spoofing by hackers. A high-quality photo or animation, or in some cases an animated avatar, can fool some facial-recognition systems.

"It's an arms race between biometric designers and the criminals that are trying to fool the systems," Mr. Wilson says.

Companies are coming up with creative ways to combat the problem. **Vasco Data Security International Inc.**, a maker of cybersecurity technologies, uses "liveness detection" technology which asks users to blink their eyes or turn their heads to verify that they're a living being, says David Vergara, the company's head of global product marketing.

Despite their limitations, biometric authentication measures such as facial recognition continue to become more mainstream. Indeed, **Apple Inc.** has said facial recognition will be used as the primary way to unlock its latest smartphone, the iPhone X, which could significantly popularize the technology.

A number of firms are turning to technology powered by machine learning to constantly authenticate people as they use an app. Such measures, which are largely behavior-based and look at a person's typical patterns of technology use, are relatively new, but corporate interest is high, says Forrester Research analyst Andras Cser.

Automatically analyzing users' behavioral patterns, which can include hundreds of disparate data points such as typing speed, is the Holy Grail for authentication, Mr. Vergara says, because it allows firms to monitor security in real time rather than relying on a one-time password.

Behavior-based authentication is focusing on consumers first, Mr. Vergara adds, because of the potential to improve the user experience, and therefore a company's bottom line.

Health insurer **Aetna Inc.** is rolling out behavior-based security measures for its mobile and web applications, which also will include options for biometric factors such as fingerprint swipes. The technology collects the attributes of Aetna members, such as how they move through an application or how quickly they type, and feeds that data into a risk engine. Based on data about a customer's behavior on the app and what device he or she is using, the engine can create a picture of "normal" behavior in about two weeks.

Then, if someone's actions deviate significantly from their typical behavior, the system takes note. If a customer gives her phone to a friend, for example, the app may recognize the friend as a different person and ask for another form of authentication, such as a finger swipe across the screen.

Voice is currently the hot area for startups, says Mr. Wilson. There are voice-identification systems that can learn and verify speech cadence, accent and pronunciation, and other factors to create a unique "voiceprint." Some companies are building algorithms that use voice to determine contextual clues, such as whether the speaker is under duress.

Other biometric authentication measures being developed or explored include tools that recognize handwriting, scanners that authenticate users based on their ear shape, and even ID markers obtained through a person's DNA. No matter what forms future authentication methods take, Mr. Wilson observes, "what really matters is getting a biometric that consumers can use."

Companies shouldn't rely on a single authentication tool, analysts say. Experts recommend taking a layered approach to security, one that uses a combination of biometrics, behavior monitoring and, yes, even passwords.

Mr. Norton is a reporter for CIO Journal in New York. Email steven.norton@wsj.com.



SASA DINIC/STOCKPHOTO/GETTY IMAGES/VASCO DATA SECURITY

The My Bank app from Vasco uses facial recognition to authorize banking transactions.

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JOURNAL REPORT | CYBERSECURITY

The Game of Cybersecurity

Companies are training employees with carrots, not sticks



WESLEY BEROZIAN

BY JEFF STONE
AND ADAM JANOFSKY

COMPANIES ARE starting to take a new approach to getting employees to be more vigilant about cybersecurity. Instead of punishing employees when they make mistakes, they're rewarding them when they do something good.

The problem, security experts say, is that the usual security training is a big turnoff for employees. Most of the time, all it does is try to instill fear of clicking on suspicious links or using weak passwords. But research shows that ap-

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proach doesn't work. Even with training, employees are still prone to making simple security mistakes that leave a company vulnerable to damaging hacks.

Now some companies are abandoning the stick for the carrot. In some cases, they're using games, contests and prizes to teach employees lessons about staying safe. Others are sticking with more familiar training methods but re-thinking them so that employees feel more comfortable with the instructors. And research suggests the new approaches are working.

The current training sends "the wrong message," said Amadeus Stevenson, chief technology officer of education-technology company Decoded, at a recent industry conference in New York City.

"Ask a young colleague to do word association," Mr. Stevenson said. "When you say dog, they say cat. But when you say cybersecurity, they will say, 'I'm sorry I clicked that email, please don't send me to cybersecurity training.' They're terrified."

Prizes for safety

Success is crucial, since many security experts say that the biggest threat companies face is from within, from careless employees. Despite years of employee training,

an estimated 91% of cyberattacks begin with a "phishing" email, in which an employee clicks on an unsafe link, according to a December 2016 study released by PhishMe Inc., a company that protects against email fraud.

One of the biggest efforts to rethink training comes from **Facebook** Inc., which holds a "Hacktober" event every October to coincide with National Cybersecurity Awareness Month. In this monthlong program, Facebook tests employees by simulating a variety of phishing attacks, spam campaigns and other threats. Staffers who fend off the attacks are rewarded with memorabilia and other prizes. Betsy Bevilacqua, head of security programs and operations at Facebook, says the program has experienced "high engagement rates" and has been met with "a lot of positive feedback."

Other companies take traditional training methods and make them more personal. Some, for instance, use a system where security teams identify executives who present especially valuable targets for hackers, then train the executives and their families at home. The personal setting helps to get the lessons across, says Lance Spitzner, a director at the **SANS Institute**, a security-training organization that has endorsed the idea and is developing its own approach. "It's a more relaxed situation at home," he says.

Some major companies—including the cloud-computing giant **Salesforce.com** Inc. and **Adobe Systems** Inc.—have adopted a method where security experts don't do the training. Regular employees do.

In this setup, employees without a security background are trained in best practices. Then they get incentives to help their co-workers by conducting training sessions, organizing contests and approaching security in a way nontechnical employees can understand.

"It's one thing to hear from the corporate security team, but another to hear about these things from your buddy," says Julia Knecht, Security and Privacy Architecture at Adobe.

The employees who led training would get points "which could be turned in for airline miles, a parking spot, free clothing or something fun like a lock-picking class," says

Masha Sedova, the former senior director of trust engagement at Salesforce, who has since co-founded the training firm Elevate Security.

Slow to catch on

Positive-reinforcement campaigns are often one of the best ways to modify risky behavior, but they're "definitely an outlier" in the corporate world, says Ms. Sedova. Companies typically rely on awareness tests and off-the-shelf tutorials, which security experts say are often useless because employees see them as a chore.

Other simple security measures are often ignored as well. In 2015, researchers at the Computing Technology Industry Association, a non-profit trade group, dropped 200 USB sticks in airports and coffee shops around the country, only to find that a significant number of passersby—including several IT industry workers, cybersecurity experts and people who said they were aware the device may have been infected with malware—picked up the devices and plugged them into a computer.

On the other hand, evidence is piling up that games and other exercises using positive incentives do get the job done. That was the conclusion of a report issued in 2012 and delivered to the U.S. Department of Homeland Security by RTI International, a nonprofit research institution based in Research Triangle Park, N.C.

The report found that students changed their cybersecurity behavior after a phishing exercise that sent encouraging emails for correct behavior and reprimanding emails for incorrect behavior. "Feedback and behavioral reinforcement messaging in our experiments led to improvements in risky behavior on both phishing email and password use," according to the study.

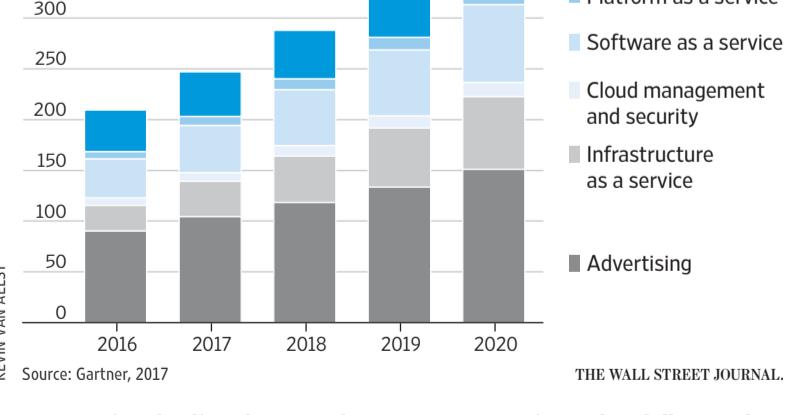
Another study by researchers at the University of Maryland, Baltimore County's Cyber Defense Lab in 2014 found high-school students were easily able to learn about encryption, authentication and software updating through a multi-player computer game called Security Empire. In the game, players are business owners who take financial hits and suffer production delays if they make security mistakes. Students compete against one another to create the most successful company, and the teacher is given a summary of who suffered from security lapses.

"Some of the gaming methodologies have been successful in high-tech industries where it becomes a competition between people," says Mischel Kwon, chief executive of the security consulting firm **MKA Cyber** Inc. and former director for the U.S. Computer Emergency Readiness Team, a division of Homeland Security responsible for reducing cybersecurity threats and spreading awareness about best practices.

Messrs. Stone and Janofsky are staff reporters for WSJ Pro Cybersecurity. Email them at jeff.stone@wsj.com and adam.janofsky@wsj.com.

Cloud Cover

Projected growth of public cloud-based services



Source: Gartner, 2017



What's Old Is New

Companies are once again storing data on tape, just in case

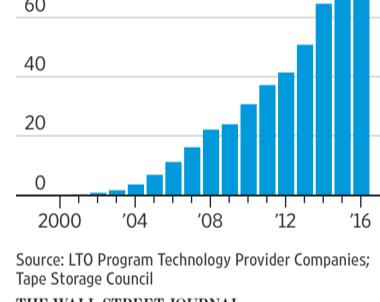
BY ROB SLOAN

TO STAY UP to date in the battle against hackers, some companies are turning to a 1950s technology.

Storing data on tape seems impossibly inconvenient in an age of easy-access cloud computing. But that is the big security advantage of this vintage technology, since hackers have no way to get at the information. The federal government, financial-services firms, health insurers and other regulated industries still keep tape as a backup to digital records.

Going to the Tape

Annual shipments of tape storage capacity using LTO (Linear Tape-Open), an open-standard technology for data storage, in compressed gigabytes



Source: LTO Program Technology Provider Companies; Tape Storage Council
THE WALL STREET JOURNAL.

Now a range of other companies are returning to tape as hackers get smarter about penetrating defenses—and do much more damage when they do get in.

Rob Pritchard, founder of the Cyber Security Expert consulting firm and associate fellow at the Royal United Services Institute think tank, has noticed the steady resurgence of tape as part of best-practice backup strategies.

"Companies of all sizes must be able to restore data quickly if needed," he says, "but also have a robust, slower-time, recovery mechanism should the worst happen."

Mr. Pritchard, who works with a range of organizations to improve corporate cybersecurity practices, says: "A good backup strategy will

have multiple layers. Cloud and online services have their place, but can be compromised."

Companies started using digital tape as far back as the 1950s, when it was largely the only choice available for reliable, large-scale data storage. Companies sent full reels to an on-site library for storage until needed.

As computers got slimmer and more powerful, so did tape, moving from reels to compact cartridges able to store much more data and making storage and transport more convenient. Still, companies moved away from tape to digital records and more recently to the cloud—where companies don't even need to maintain servers to keep backup data, let alone a storage facility for tape cartridges.

Some security experts and tape users argue that the medium has big advantages over other forms of storage—including a higher reliability rate than hard drives and a lifespan in excess of 30 years. The total cost of ownership per terabyte is also the lowest of any storage medium. Top-of-the-line tapes can hold up to 15 terabytes and can be archived in third-party locations at a fraction of the cost of cheapest cloud storage.

PDP Group, a provider of insurance policies for auto dealerships, uses tape as its primary backup. "Tape is our main form of backup and recovery" says Computer Operations and Network Manager Ralph Heisey. "We remain confident that tape will continue to be the most reliable and cost-effective means of protecting our company data."

The company says the tapes are encrypted for security purposes, but can be easily retrieved and the data easily restored when required.

Marc Langer, founder and president of Recovery Point Systems, a business continuity and disaster recovery firm, says tape isn't meant to be the primary way for companies to restore data lost to hackers, but it can be a safe choice.

"Most people are looking for convenience and the cloud is convenient," he says. "Tape isn't inefficient or ineffective, but it can be inconvenient. Good security is almost always inconvenient."

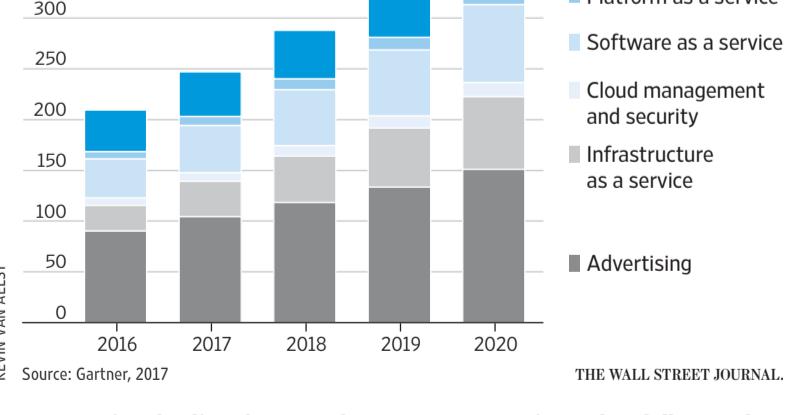
Mr. Sloan is cybersecurity research director at WSJ Pro. Email him at rob.sloan@dowjones.com.

An Unexpected Security Problem in the Cloud



Cloud Cover

Projected growth of public cloud-based services



Source: Gartner, 2017

brought such projects back under corporate IT's control, says Mr. Chronis, chief information security officer at Turner Broadcasting System Inc. "What you're seeing in some of these security incidents today is a lack of a plan and a lack of a governance model," he says.

IT departments need to understand when a company's assets are online, when software needs to be patched, how critical applications connect to each other and when developers are making "high-risk changes," Mr. Chronis says.

Amazon and Microsoft are making it easier for companies to keep on top of their cloud infrastructure. In August, Amazon introduced a service called Macie that helps companies determine when their cloud data is misconfigured or being accessed without authorization. Microsoft says it has several services to help customers protect sensitive data. "We continue to invest heavily in new innovations that build on our strength in cloud security," a company spokesman says.

Mr. Liu and Mr. Linthicum say cloud companies could do more. One idea: help companies better determine when an employee is using a corporate credit card to purchase a new Amazon or Microsoft service.

"Provisioning is now in the hands of someone sitting in a cubicle who has a credit card and a web browser," Mr. Liu says.

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ture services leading the way. These are the basic computer storage, networking and computing services that are particularly prone to misconfiguration problems, Mr. Liu and others say.

Cloud computing caught on in part as an end-run around stodgy corporate information-technology departments, its proponents say. Instead of waiting weeks for IT staffers to turn on a new server in the data center, software developers were able to instantly purchase computer services from companies such as Amazon, using their Amazon ac-

counts. For just a few dollars, coders could test out new programs on Amazon's cloud within minutes.

The problem is, many cloud users simply don't have the expertise to keep things as secure as they should, says David Linthicum, senior vice president with Cloud Technology Partners Inc., a consulting firm that helps corporations move to the cloud. "They're new to cloud and they don't understand it," he says.

Security executives such as Pete

AS MORE COMPANIES unplug their data centers and rent out cloud-computing services from providers such as **Amazon.com** Inc. and **Microsoft Corp.**, some are discovering an unexpected problem: They're accidentally leaving their corporate data exposed for all the world to see.

Configuration errors made while using cloud-storage services are common, security experts say, and often occur when users set access permissions so someone outside of

JOURNAL REPORT | CYBERSECURITY

The Risk of Internet-Connected Devices

Eight questions consumers should ask before they buy a connected appliance

BY DEBORAH GAGE

A GROWING NUMBER of devices in our homes, such as refrigerators, vacuum cleaners and toasters, are connected to the internet.

Those connections promise convenience, such as software updates that can improve the product's performance. But they also pose security challenges for consumers.

Last year, thousands of internet-connected devices such as cameras and digital video recorders were infected with malware and used to bombard Dyn, a provider of internet directory services, with requests for connections, taking down a number of popular websites.

Consumers have few ways of knowing how secure a device is when they buy it. Several U.S. nonprofits and government agencies, including the National Institute of Standards and Technology, are working on standards, certifications, tests and ways to label devices to inform consumers about security and privacy issues.

For now, however, buyers are on their own.

Consumer Reports is working with partners to develop security and privacy standards for internet-connected devices. Its partners include Disconnect, a maker of privacy-protection software, Ranking Digital Rights, which ranks companies on their privacy practices, the Cyber Independent Testing Lab, which researches and tests software safety, and Aspiration, which connects software and technology skills with nonprofits. Public input is welcome, says Maria Rerecich, director of the electronic testing team at Consumer Reports. The standard in progress is posted at www.thedigitalstandard.org and on GitHub, but a completion date hasn't been set, Ms. Rerecich says.

Meanwhile, here are steps consumers can take to give them the best chance of staying secure when they buy or inherit a connected device:

Research the manufacturer's record. Start by reading reviews and online manuals to see how a device works and how it handles privacy and security. Think especially hard about devices you're likely to have



SELMAN DESIGN

for a long time, says Michael Kaiser, executive director of the National Cybersecurity Alliance. These include internet-connected refrigerators, washing machines and home-security systems. Sometimes companies get acquired or go out of business and abandon devices, or they just stop supporting them. By buying one, you take on the job of keeping its protections up-to-date.

Search the Web for security flaws and past breaches to see how the manufacturer handled them, and check the Better Business Bureau's website for complaints against a manufacturer and scams involving counterfeit products. Check the maker's website to see if there is a way to report security flaws in the device, perhaps in the customer-service or "help" section. Cybersecurity-savvy companies want to hear about flaws so they can fix them.

Be suspicious of unreasonably low prices, and consider choosing a manufacturer that has a large market share for your type of device and a record through sales and reviews of selling reliable and safe products, says Todd Thibodeaux, chief execu-

Consumers have few ways of knowing how secure a device is when they buy it. They are on their own.

tive of CompTIA, a trade group for the IT industry.

See if you can change the default password and username. The attack on Dyn recruited connected devices whose default usernames and passwords had not been changed. Instructions for changing the default logon information might be on the product box, under the tech specifications if you're buying it online, or maybe on YouTube, if the manufacturer or another customer is willing to share the information, Mr. Kaiser says. Sometimes the default username and password can be found in a web search (and hackers can do this, too). Don't use the same password you use for other devices on your home network.

See if you can upgrade or patch the device's software. Better yet, see if the device upgrades itself over time. All software needs to be maintained. Security flaws, as they're discovered, need to be fixed, and new features need to be added.

Safeguard your home router. In addition to knowing how to change your password and update your software, make sure your router, which creates a home network for your devices, has a built-in firewall and that you understand any changes the device makes to it. Make sure your network doesn't have a name that can be associated with you. Consider creating a guest network separate from the network for your computer.

Find out how the device interacts with your smartphone. Internet-enabled devices are often controlled by smartphone apps. Read the terms and conditions of those apps as you would any other piece of software to find out what the device is doing, Mr. Kaiser says. Typically, an app will ask you for permission to access your contacts, location, photo-

tos or other information, and often you can limit that. If the app is already installed, look in your phone's settings to see what you can control. Keep your apps updated.

Find out what data the device is collecting and where it is going. Suppose a device is recording audio while you're not using it, says Michelle De Mooy, director of the Privacy & Data Project at the Center for Democracy & Technology. If you don't like that, can you change it? Where is the device's data being stored, and how long does it stay there? Is it shared with or sold to anyone else? Can you wipe the device to erase data? Is data encrypted? Check the company's website and, if necessary, contact the company with questions. Also, keep up with changes in the device's terms of service and privacy policies.

A maker of software-enabled sound systems, Sonos Inc., recently revised its privacy policy to say that if customers decline to provide certain information about how their Sonos products function, the products won't be able to receive software updates and may eventually stop working. The policy has generated an online debate over whether customers who have already purchased a product should have to agree to new privacy terms to keep it working.

A company spokeswoman says Sonos is adding voice assistance to its systems and is asking customers for new data, including error reporting, so it can get ahead of any trouble.

Consider turning off devices when you're not using them. Resetting a device can disrupt some forms of cyberattack by getting rid of malware, Ms. De Mooy says, and a disconnected device lowers risk.

Ask yourself if this device really needs to be connected to the internet. If you unplug it, does it still work? "If it's not internet-enabled, is it still a toaster?" Ms. De Mooy says. "We're trying to push this as part of any kind of standard. It's a traditional consumer-protection question."

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