THE WALL STREET JOURNAL.

DOW JONES | News Corp ****** MONDAY, FEBRUARY 5, 2018 ~ VOL. CCLXXI NO. 29 WSJ.com ★★★★ $4.00

Last week: DJIA 25520.96 ▼ 1095.75 4.1% NASDAQ 7240.95 ▼ 3.5% STOXX 600 388.07 ▼ 3.1% 10-YR. TREASURY ▼ 1 19/32, yield 2.852% OIL $65.45 ▼ $0.69 EURO $1.2459 YEN 110.15

What's News

Business & Finance

Apple Music is on the verge of overtaking Spotify in U.S. paid subscribers, a sign that music streaming's dominant force faces growing competition ahead of its stock offering. **A1**

◆ **Broadcom plans** to raise its offer for Qualcomm to around $120 billion, a move aimed at increasing pressure on the takeover target. **B1**

◆ **The Fed's move** to handcuff growth at Wells Fargo sent a message that boards, not just management, will be held accountable when big banks fail to manage risks. **B1**

◆ **The stock market's** recent selloff crystallizes challenges facing the Fed's new chairman, Jerome Powell, who takes charge Monday. **A2**

◆ **Some investors** worry that lockstep drops in various asset prices offer an ominous signal that could presage deeper declines in markets. **B1**

◆ **Some health-care firms** have complained to JPMorgan about the bank's new health-care partnership with Amazon and Berkshire. **B2**

◆ **Bon-Ton Stores** sought bankruptcy protection, as talks with its debt holders have yet to come to a conclusion. **B3**

◆ **With about half** of the S&P 500 companies having posted fourth-quarter results, roughly 80% have beaten revenue expectations. **B12**

◆ **Arbitrage is going** viral in the digital-currency world, where bitcoin trades on more than 100 exchanges. **B1**

◆ **SpaceX's Falcon Heavy** rocket, slated for its maiden flight Tuesday, faces uncertain commercial prospects. **B3**

World-Wide

◆ **Congress is expected** this week to pass yet another short-term spending bill to avoid a government shutdown, prompting a bipartisan pair of senators to introduce a narrow bill on immigration aimed at ending the impasse that has hindered a two-year budget deal. **A1**

◆ **A House panel** is expected to consider whether to release a rebuttal to a GOP-authored memo about surveillance of a former Trump campaign adviser. **A4**

◆ **South Korea's** surprise decision to hold talks with North Korea is stirring tensions between Washington and Seoul. **A1**

◆ **A Syrian regime** campaign to wrest Idlib province from rebels is raising tensions among foreign powers on different sides of the conflict. **A6**

◆ **An Amtrak train** slammed into a parked CSX freight train outside Columbia, S.C., killing two people and injuring more than 100. **A3**

◆ **One of Trump's** top environmental nominees is withdrawing after a year of criticism for being skeptical about climate change. **A4**

◆ **Tillerson sought** to present a message of cooperation in Latin America while trying to keep Trump remarks from overshadowing his trip. **A9**

◆ **Voters in Ecuador** approved a referendum that all but blocks ex-president Correa from returning to power. **A9**

◆ **An Italian man** went on a shooting spree in the town of Macerata, wounding six African immigrants. **A6**

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Eagles Win First Super Bowl Title in Shootout With Patriots

KEVIN LAMARQUE/REUTERS

FLYING HIGH: Philadelphia Eagles quarterback Nick Foles celebrates after leading his team to a 41-33 victory over the New England Patriots in Super Bowl LII. The Eagles withstood a trademark New England rally to stun the defending NFL champions. **A14**

Apple Nips at Spotify's Lead

Its paid music service is on pace to become No. 1 in U.S. as rival readies share sale

BY ANNE STEELE

Apple Music is on the verge of overtaking Spotify AB in U.S. paid subscribers, a sign that the music-streaming world's dominant force faces growing competition ahead of its hotly anticipated public stock offering.

Apple Inc.'s streaming-music service, introduced in June 2015, has been adding subscribers in the U.S. more rapidly than its older Swedish rival—a monthly growth rate of 5% versus 2%—according to people in the music industry familiar with figures reported by the two services. Assuming that pace continues, Apple will overtake Spotify in the world's biggest music market this summer.

Apple's music-streaming service has been quietly gaining ground in part thanks to the popularity of the company's devices: Apple Music comes preloaded on all iPhones, Apple Watches and other hardware the company sells.

Globally, however, Spotify remains in a league of its own, with nearly twice as many paid subscribers as No. 2 Apple, and slightly faster growth. Other players in paid streaming music include Pandora Media Inc., Amazon.com Inc. and Alphabet Inc.'s YouTube.

Streaming services have fueled a recovery in the recording industry after years of declines amid plummeting sales of CDs and, more recently, downloads. Streaming customers pay a flat monthly fee or listen to ads in exchange for unlimited access to vast music catalogs; with downloads, consumers pay for individual songs or albums once and own them permanently. Paid subscriptions, up 61%, were the largest source of record-company revenue in the U.S. in the first half of 2017, according to the Recording Industry Association of America.

But music streaming has

Please see MUSIC page A9

◆ Christopher Mims: Apps, music can buoy Apple B1

'Dreamer' Talks Aim To End Budget Impasse

BY KRISTINA PETERSON AND LAURA MECKLER

WASHINGTON—Congress is expected this week to pass yet another short-term spending bill to avoid a government shutdown, prompting a bipartisan pair of senators to introduce a narrow bill on immigration aimed at ending the impasse that has hindered a two-year budget deal.

The government's current funding expires at 12:01 a.m. Friday. Lawmakers are increasingly frustrated by the gridlock that has prevented them from striking a long-term deal on either immigration or spending levels.

Immigration has become entangled in the spending negotiations ever since President Donald Trump last year ended an Obama-era program that protects young people who were brought to the U.S. illegally as children.

Senate Armed Services Committee Chairman John McCain (R., Ariz.) and Sen. Chris Coons (D., Del.) plan to announce a proposal that offers a path to citizenship for these undocumented immigrants—

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Market Jitters

After stocks slid last week, some fear that similar drops in gold and other assets presage steeper falls B1

Some 80% of S&P 500 firms reporting quarterly results so far have beaten revenue projections B12

Amtrak Crash Stirs Safety Fears

TIM DOMINICK/THE STATE/ASSOCIATED PRESS

WRECKAGE: An Amtrak train slammed into a parked CSX Corp. freight train outside Columbia, S.C., killing two and injuring over 100. Safety systems that could have prevented the crash weren't in place. **A3**

Japan's Famed Manufacturing Model Is Facing a Crisis

Concepts celebrated world-wide are tarnished by a string of scandals

BY ALASTAIR GALE AND SEAN MCLAIN

TOKYO—Japan's reputation for flawless manufacturing quality and efficiency transformed the country's postwar economy, changed business practices world-wide and spawned a library's worth of management manuals and business advice books. Now, the model is cracking.

Kobe Steel Ltd., Mitsubishi Materials Corp. and Subaru Corp. have all admitted in recent months to manipulating quality inspections, though all say no safety problems emerged. Takata Corp. declared bankruptcy last year after admitting to supplying more than 50 million defective vehicle air bags in the U.S. Mitsubishi Motors Corp. has admitted covering up vehicle faults and falsifying fuel-economy data.

Nissan Motor Co. the world's fifth-largest auto maker, disclosed in September that its Japanese factories let unqualified employees perform final quality inspections on some cars, a practice that might date back to the 1990s. During audits, foremen routinely provided trainees with badges from certified inspectors, the company said.

Because results from new-car inspections are recorded on paper and stored in binders, it was nearly impossible to determine how many cars were affected, according to one person familiar with the process. Nissan recalled 1.2 million vehicles in Japan—nearly every one it produced in the three years through September. It says safety was

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U.S. Olympic Skiers Have Legions of Enthusiastic Fans—in Austria

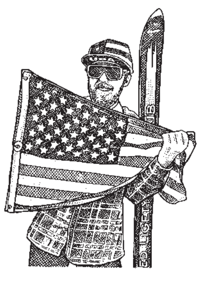
* * *

While racers can stroll American streets unbothered, they're rock stars in Europe

BY RACHEL BACHMAN

Last October a few dozen boosters of U.S. downhill skier Ted Ligety marched in a parade. They waved American flags and brandished "Ted Ligety fan club" banners as a woman in a stars-and-stripes onesie belted out "Born in the U.S.A." from the back of a pickup truck.

These fans weren't from Denver or Ohio. They were from Austria and Germany. And they were marching in an annual fan parade in Austria, the nation with more Olympic downhill skiing medalists than any other.



German fan

"I like Ted because he is a very good skier and a likable man," wrote the pickup-truck singer, Jeannette Marschner of Wilkau-Haßlau, Germany, in an email with a smiley emoji. The 44-year-old truck dispatcher at a brick factory has traveled to see Mr. Ligety race at least once a year since she joined the fan club in 2013.

While U.S. professional skiers can stroll American streets unbothered, they're rock stars in European countries where skiing is as popular as baseball is stateside. The ranks and organization of U.S.-flag-waving European fans have swelled in

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Thawing of Korea Ties Divides U.S. And Seoul

BY JONATHAN CHENG AND MICHAEL R. GORDON

SEOUL—South Korea's decision to hold talks with North Korea is stirring tensions between Washington and Seoul, even as the allies try to present a common front in dealing with Pyongyang, according to senior U.S. and South Korean officials.

When North Korean leader Kim Jong Un suggested in a New Year address that his country might be open to participating in the Winter Olympics, which start this week, South Korea's president and top aides were quick to craft a friendly response.

U.S. officials weren't included in those consultations and, to their consternation, were told only hours before Seoul announced its proposal to Pyongyang for negotiations.

For the U.S., the inter-Korean talks are a double-edged sword.

If the discussions lead to an easing of tensions on the Korean Peninsula that prompts North Korea to hold off on further nuclear and missile tests, that might set the stage for negotiations between Washington and Pyongyang over the North's nuclear program.

But some U.S. officials see a risk that North Korea will use the lure of better relations with South Korea to try to blunt the American-led push to impose and enforce tougher sanctions. That could frustrate the Trump administration's goal of denuclearizing the Korean Peninsula and heading off North Korea's efforts to develop the capability to target the U.S. with a nuclear-tipped missile.

"We're good today, but there are lots of policy tests that we have to manage in the days ahead and then after the Olympics," said an official familiar with the diplomatic pro-

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U.S. NEWS

THE OUTLOOK | By Josh Mitchell

The Mounting Student-Loan Shortfall

U.S. officials have long maintained the federal government would make a profit on its $1.4 trillion student loan portfolio or at least break even, but two recent reports suggest just the opposite will be the case. Government lending to college and graduate students could soon become an immense drain on federal coffers, worsening an already deteriorating U.S. budget picture.

The Education Department's inspector general, an agency watchdog, in a report released last week said the profitability of the U.S. federal student-lending program is being squeezed because millions of Americans who borrowed heavily in recent years—including many graduate students—are flocking into a program to have substantial portions of their debts forgiven.

Students who borrowed in the fiscal year ended Sep. 30, 2015, and enrolled in such "income-driven repayment" plans, for example, are expected to pay back $11.5 billion less than they took to pay tuition and other schooling costs.

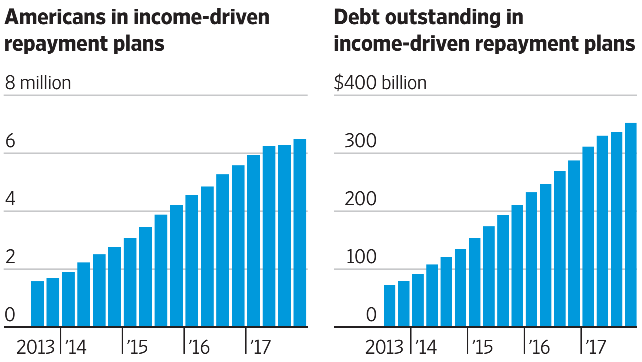
The government still earns billions of dollars every year in interest on the loans it has made to 43 million American undergraduates, graduate students and parents of undergrads. But the losses from those not repaying are now projected to mount and could eat up all of the gains. It is hard to get precise estimates, but the Education Department's annual financial report, released in November, offered a clue. A footnote in the report projected that money coming in for government student loan and guarantee programs will be $36 billion short of what's needed to cover outstanding debt and accrued interest.

A year earlier, the department projected the shortfall at $8.4 billion, while in prior years it projected the program would generate billions of dollars in taxpayer surpluses. The latest report explained that one reason for the sharp switch was the rise of income-driven repayment plans. These plans set monthly payments as a share of a borrower's income and then forgive any balance that remains after 10, 20 or 25 years, depending on the borrower's work status and loan size.

While that $36 billion projection doesn't quite compare to the $4 trillion federal budget, it's still an immense sum. To put it in perspective, the government ultimately paid $33 billion to bail out Wall Street banks and auto companies under the Troubled Asset Relief Program during last decade's financial crisis, according to the Congressional Budget Office.

The Forgiven

The number of Americans enrolled in student-debt forgiveness programs has soared, increasing the prospect the student-loan program will run a deficit.



Source: Education Department

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The prospect of taxpayer losses on student loans increases the chances that Congress will make major changes to the program, such as eliminating debt-forgiveness options or placing new dollar limits on how much individuals can borrow. Congressional Republicans have proposed such changes. Moreover, the risk of a flood of red ink highlights what analysts across the political spectrum agree has become an inefficient system that for years directed funds to universities as they raised prices, with little regard for the creditworthiness of borrowers.

The government expanded lending to help students pay for college, and it consistently estimated the program would return tens of billions of dollars in profits. Budget officials from the Education Department and Congress said that while taxpayers would end up covering a big chunk of unpaid loans—including $108 billion in forgiven debt, according to a 2016 estimate by the Government Accountability Office—enough borrowers would repay their debts with interest to maintain a surplus.

Critics inside and outside the government have said faulty accounting methods overstated how much money the program would bring in. A GAO study in 2016 called for major changes to the government's methods, including its assumptions for future interest rates, how much debt it would collect on defaulted loans, and how many students would enroll in debt-forgiveness programs. The Education Department said its November estimate of $36 billion in prospective losses reflected internal accounting changes designed to respond to the GAO concerns.

"There's been a systematic underestimate of default rates," said Douglas Holtz-Eakin, a former CBO chief who heads the conservative group American Action Forum. He said he believed costs would rise further given low student-repayment trends of recent years. "This is the financial downside of government-credit intervention, whether it's direct loans or guarantees. And it turns out these are large numbers."

Nearly five million direct-loan borrowers have defaulted, meaning they've gone at least a year without making payments. Other borrowers, particularly those with graduate degrees, are refinancing at lower interest rates through private lenders such as Social Finance Inc., reducing the money the government expected to make on interest payments. Others are getting debt obligations waived by the Education Department because investigators concluded their schools defrauded them with deceptive recruiting.

ECONOMIC CALENDAR

TUESDAY: The **U.S. Commerce Department** releases **international trade** data for December. The U.S. **trade gap** grew to a nearly six-year high in November, driven by a surge in imports on stepped-up purchases of cellphones and household items. Economists surveyed by The Wall Street Journal forecast a trade deficit of $52.1 billion in December, compared with November's $50.5 billion.

THURSDAY: The Bank of England is expected to signal that it anticipates raising interest rates in the U.K. two or three more times in the next three years when it presents its latest forecasts for growth and inflation.

The week is a busy one for monetary policy makers throughout the world. Among the central banks making policy decisions are those in Australia (Tuesday, local time), Brazil and India (Wednesday), Mexico and New Zealand (Thursday), and Russia (Friday).

THURSDAY: China's chronically large **trade surplus** likely widened in January. **Exports** likely rose around 10.2%, largely steady from December's 10.9% increase. **Imports** growth probably accelerated to 9.2% from 4.5%, leading to a trade surplus of $56.4 billion, compared with December's $54.7 billion.

FRIDAY: China's **consumer-price index** likely rose about 1.5% year-to-year in January, compared with about 1.8% growth in December, though the Lunar New Year holiday shift may have distorted the data. (The release time will be Thursday evening in the U.S.)

Challenges Confront Powell as He Takes Reins at Fed

By Nick Timiraos

The stock market's recent selloff crystallizes three important challenges facing the Federal Reserve's new chairman, Jerome Powell, who takes charge Monday.

Low inflation and steady job gains allowed his predecessor, Janet Yellen, to raise interest rates slowly, enabling the economy to heal and the markets to romp ahead. Mr. Powell takes over amid signs this blissful combination might no longer be possible.

Fed officials raised their benchmark short-term interest rate last year to a range between 1.25% and 1.5% and penciled in three quarter-percentage-point increases this year. Whether Mr. Powell and his colleagues stick to this path largely depends on the central questions that loom ahead.

First, what does the Fed do if the economy gets too hot? Telltales could include unsustainable wage gains and more run-ups in asset values. If the market tumble continues, it could spook investors and turn into more serious turbulence.

The last two economic expansions ended with bursting asset bubbles that triggered recessions in 2001 and 2007.

JOSHUA ROBERTS/REUTERS

New Fed Chairman Jerome Powell never publicly disagreed with former Chairwoman Janet Yellen.

Those examples are likely front of mind for Mr. Powell, a former private-equity executive who is the first non-economist to lead the central bank in three decades. He is expected to provide continuity from the Yellen era, in part because he consistently voted to support her policies and never voiced public disagreement.

"He understands what cheap money can do in the marketplace," said Steven Blitz, chief U.S. economist at TS Lombard, a research firm. In 2006 and 2007, Fed officials were too slow to recognize bubbles by "narrowly viewing inflation as consumer prices only, and Powell won't do that," he said.

Despite the recent pullback, stocks are up around 3% this year after advancing 25% last year. Adjusted for inflation, the price-to-earnings ratio is nearing all-time highs seen during the 2000 tech-stock bubble.

The Fed has strengthened bank regulation, but its tools to contain wider damage to the economy from bubbles haven't been tested.

Second, officials must decide how to respond to President Donald Trump's $1.5 trillion tax cut.

In the short run, giving businesses and consumers more money could spur demand for equipment, homes and other goods. If the tax cut encourages people to work more and businesses to invest more, it could raise the economy's long-term growth rate by increasing the number of workers and the goods and services they can produce.

Either outcome could lead to higher interest rates than now planned. If Fed officials conclude the tax cut is boosting demand without boosting the economy's potential—for example, because inflation begins rising too much—the Fed might boost borrowing costs more aggressively.

If it looks like the tax cut is increasing the economy's supply side by generating more investment, the Fed can tolerate faster growth. But higher potential economic growth would boost the so-called neutral federal-funds rate, a level compatible with consistent low U.S. unemployment and steady inflation. This would lead the Fed to raise rates higher than now planned.

Third, what does the Fed do if inflation moves too far above or below its 2% target?

Officials want inflation to rise to 2%, a level they view as consistent with a healthy economy, but not to shoot much higher.

Inflation has been subdued for the past half-decade, perplexing officials who had predicted bigger wage and price increases as the economy expanded.

Price drops last spring for a handful of items, such as wireless-phone plans, led to a string of soft inflation readings. Fed officials said they expected this would prove transitory.

Rising bond yields show investors have started to believe inflation is going to rise and the Fed will have to respond. But it is too soon for Fed officials to be sure price pressures will keep rising.

Economists at Société Générale forecast inflation, measured by the Labor Department's consumer price index, to reach 2.4% in the first part of this year, before a deceleration in housing costs drags it down to 1.6% in September. Any inflation softness would complicate plans to raise interest rates and hurt the Fed's credibility.

CORRECTIONS & AMPLIFICATIONS

Due to a transcription error, the surname of former FBI Director James Comey was misspelled as Corney in some editions Saturday in a U.S. News compilation of excerpts from the Republican memo alleging abuses in the surveillance of a onetime adviser to Donald Trump.

Republicans on the House Intelligence Committee produced the memo alleging improper surveillance of a former Trump aide. The Word on the Street column in Saturday's Review section incorrectly said the document came from the House Judiciary Committee.

In the Everyday Math column in the Jan. 6 Review section, the half-life of macarons in a thought experiment involving decay was approximately 3.1 days. The column incorrectly said it was about 3.5 days.

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

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U.S. WATCH

SCIENCE

New Rules Affect Research on Humans

The National Institutes of Health has established sweeping new rules governing research conducted on humans, requiring scientists who receive federal funding to publicly disclose more of their research.

The guidelines expand what constitutes a clinical trial and require scientists to register a larger swath of human research on the public online repository for clinical trials. Researchers must now report their findings on Clinicaltrials.gov within a year of study completion or risk losing future funding. Previously, they were only required to post results of certain studies submitted to the U.S. Food and Drug Administration, with the expectation that results would be published in academic journals.

The new rules are part of a push for greater transparency and accountability for the NIH's investment in biomedical research. In the past, many organizations have failed to properly register studies and report their findings, actions that NIH officials say result in misspent funds, potential human harm and a lack of public trust in science. The NIH spends about $3 billion annually on clinical trials.

"This suite of policies was designed to begin to solve some of these problems," said Carrie Wolinetz, NIH's associate director for science policy, adding that it will help the agency keep a better record of the number and kind of trials it funds.

The changes became official in January, but the effects will roll out over time as researchers begin to propose, conduct and publish new research.

—Daniela Hernandez and Amy Dockser Marcus

GINGER PERRY/THE WINCHESTER STAR/ASSOCIATED PRESS

A SHENANDOAH FREEZE: People in downtown Winchester, Va., making their way through a snow shower on Sunday. The city, in northern Virginia, was expecting as much as an inch of snow.

CALIFORNIA

Report: Power Lines Sparked Wildfires

Power lines buffeted by heavy winds ignited at least two small fires the night of Oct. 8 in Northern California neighborhoods, according to investigators.

The findings by the Santa Rosa Fire Department are the first public reports into what caused some of the dozens of blazes that erupted that night and became the deadliest and most destructive wildfires in California history, the Press Democrat said Saturday.

The city's investigations focused on two lesser-known fires that burned separately from the large blazes that swept across the region, destroying 6,200 homes and claiming 40 lives.

In both cases—a fire that destroyed two homes and another that damaged an outbuilding—investigators ruled that winds caused Pacific Gas & Electric Co. power lines to throw sparks.

"It was determined that the fire damage to the site was a direct result of the high winds causing the power lines to arc, starting a fire in the combustible vegetation," Fire Marshal Scott Moon wrote in his statement about the Brush Creek blaze.

The city reports, completed late last year and early this year, come as parallel investigations by Cal Fire and the state Public Utilities Commission continue into the cause of the fires.

PG&E spokeswoman Deanna Contreras declined to comment on the new reports or the mounting number of lawsuits filed by burned-out residents against the utility giant in connection with October's fires.

More than 100 lawsuits filed by displaced residents are pending before a San Francisco judge.

—Associated Press

Collision Kills Two Amtrak Crew Members

Passenger train jumps the track after hitting a stationary freight train in South Carolina

By Cameron McWhirter And Scott Calvert

WEST COLUMBIA, S.C.—An Amtrak passenger train slammed into a parked **CSX** Corp. freight train outside Columbia, S.C., killing two and injuring more than 100, as safety systems that could have prevented the crash weren't in place.

Amtrak Train 91 was traveling between New York and Miami with about 145 passengers and crew members, when it hit the CSX train on a bypass track, causing its engine and several passenger cars to jump the track. The Amtrak train's engineer and conductor were killed in the early Sunday wreck.

Sometime before the crash, the CSX train had been diverted onto the bypass track. A mechanical rail switch remained padlocked to direct traffic onto the side track, so when the Amtrak train appeared, it was directed onto a collision course with the freight train, said Robert Sumwalt, chairman of the National Transportation Safety Board.

"Of course, key to this investigation is learning why that switch was lined that way," he said at a news conference. The Federal Railroad Administration's investigative team is on site to assist the NTSB.

Mr. Sumwalt said an electronic safety system called positive train control that is being rolled out around the country could have prevented Sunday's collision. It is required to be installed by the end of 2018.

The Amtrak train was traveling on track owned and controlled by CSX, Mr. Sumwalt said.

"Our understanding is the signal system was down and that we were being managed by the dispatchers and by CSX controlling the switches on this bypass," Amtrak Chief Executive Richard Anderson said on a media call.

In a statement, a CSX spokesman said the railroad is working with investigators and providing assistance. "CSX hosts more passenger trains on its network than any other major railroad in the United States, and passenger rail remains one of the safest ways to travel," the spokesman said.

Having just put her mother, Alice Favors, 62, on the train in Columbia, Rashada McKnight of Gaston, S.C., received a phone call from her mother a little after 2:30 a.m.in which she was shouting, "Oh, my God, the train crashed! The train crashed!"

Ms. McKnight drove to the scene of the crash in the nearby city of Cayce and had to climb over derailed train cars to find her mother, while some trapped passengers cried for help from inside the train. "It was a nightmare," Ms. Favors said outside a middle school where passengers were gathering.

Derek Pettaway and his partner, Erin Witman, were in a sleeper car toward the back of the train when the collision happened. "The train just started shuddering very violently," said Mr. Pettaway, 33 years old, in a phone interview. "That's what woke me up."

"I went head and shoulders into the wall," he said.

Lexington County Coroner Margaret Fisher identified the engineer as 54-year-old Michael Kempf of Savannah, Ga., and the conductor as Michael Cella, 36, of Orange Park, Fla.

—Michael M. Phillips and Paul Ziobro contributed to this article.

NTSB/EPA/SHUTTERSTOCK

National Transportation Safety Board investigators at the scene of a deadly train crash near West Columbia, S.C., on Sunday.

Drought Alarms Western States

By Jim Carlton

SAN FRANCISCO—Many Western reservoirs are full, and downpours have triggered floods and deadly mudslides in parts of California. But all that water isn't enough to save the West from another drought.

Most of the region has slipped back into the drought conditions that have plagued it on and off for the past two decades—alarming water managers across several states. The dry conditions are fueling wildfires, threatening agriculture and hurting ski resorts.

Drought already grips parts of Arizona, Utah, Colorado, New Mexico and Southern California, according to the U.S. Drought Monitor at the University of Nebraska-Lincoln.

If reservoir levels fall too low, governors can declare a drought emergency, as California Gov. Jerry Brown did in 2014 to impose rules such as mandatory water cutbacks on cities. So far, though, statewide declarations haven't been made, although some are being made at the local level.

Eleven Western states, plus Texas, are abnormally dry or experiencing some level of drought, according to the latest readings from the U.S. Drought Monitor.

"It's really like someone turned the tap off," said Royce Fontenot, a National Weather Service senior hydrologist in Albuquerque, N.M., where there hasn't yet been measurable snow. Snowfall can typically be measured by Nov. 29, according to historic averages.

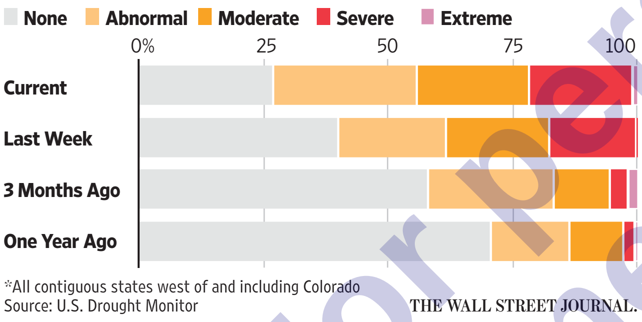
Despite a deluge that triggered mudslides in Montecito, Calif., on Jan. 9—killing at least 21 people—Southern California has received little rain. So far this winter, Los Angeles has only received 1.89 inches of rain—typically by now the city would have had nearly eight inches.

Scott McLean, deputy chief of the California Department of Forestry and Fire Protection, said the vegetation in many parts of the state remains parched and more susceptible to fire despite last year's heavy rains.

"We need several years of normal precipitation, and we need that snowpack," Mr. McLean said.

How Dry They Are

The severity of drought conditions in Western states*, by percentage of coverage



*All contiguous states west of and including Colorado
Source: U.S. Drought Monitor

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Rent Controls Gain Support in Cities

By Laura Kusisto

Calls for rent-control legislation are growing across the U.S. as apartment tenants endure sharply rising rents and memories fade of the downsides of price caps.

Lawmakers and advocates in California, Illinois and Washington state are pushing to repeal state laws that forbid rent control or place limits on cities' ability to regulate rent increases.

A similar initiative in Oregon was narrowly defeated last spring. Boston recently passed a bill that restricts landlords' ability to evict tenants.

From 2000 to 2016, median inflation-adjusted rents in the U.S. jumped 15% to $980 a month, while renter incomes declined slightly, to $37,300 from $38,000 a year, according to Harvard University's Joint Center for Housing Studies. Some cities, such as San Francisco, Portland, Sacramento and Seattle, have logged annual double-digit increases at various points during the past few years. While rent increases at the high end have slowed recently because of a flood of new luxury supply, increases for midprice properties have shown little sign of abating.

"We cannot build our way out of a crisis of this proportion," said Elena Popp, founder of the Los Angeles-based Eviction Defense Network, one of the groups pushing for stronger rent-control laws in California. "Expanding rent control is the best way to protect affordability."

Any moves to impose caps would come as a new tax overhaul takes effect that reduces tax incentives for homeownership. If rent caps are put in place, the balance could shift even more toward renting over buying.

Price pressures have been increasing since the latest recession. Some cities have seen an influx of young, educated workers who are eager to rent apartments near downtown amenities. At the same time, there has been little apartment construction targeted to moderate-income residents, partly because of rising construction costs and tight building regulations.

"I don't blame some people for being upset about [rent increases], but they don't look at the root causes," said Douglas Bibby, president of the National Multifamily Housing Council, a landlord group.

California is set to be the largest battleground for rent controls this year. Advocates for low-income residents in less than a month have gathered more than 100,000 signatures out of some 365,000 required to put a measure on the ballot in November that would repeal a bill that places statewide limits on rent control.

If that is repealed, California cities would be able to impose rent control on apartments built after 1995 and on single-family rentals, a key issue for advocates who say large companies bought up homes during the bust and have been raising rents more aggressively than mom and pops.

Sheri Eddings, who lives in a single-family rental in Los Angeles owned by Invitation Homes, said the owner twice has tried to increase her rent by $500 a month over the course of two years. She pushed back, and the increase over the next two years is closer to $360 a month. "Right now, renting in L.A. is scary," she said.

A spokeswoman for Invitation Homes said in the time Ms. Eddings has lived there her rent increases have averaged out to less than 5% a year.

The current law also gives landlords the right to raise rents to market each time tenants move out, which owners say is critical because market-rate-paying tenants subsidize those who have lived there for years and pay significantly less.

Earle Vaughan, president of the Apartment Association of Greater Los Angeles, which has rent control for older multifamily buildings, said in one of his buildings two tenants who pay market rents of $1,895 for a two-bedroom unit subsidize six others who pay $1,200.

"Our small owners get vilified....I'm the definition of an affordable-housing provider," Mr. Vaughan said.

Landlords plan to oppose the measure by saying the state needs more development. But that may be a tough sell in California, where homeowners and renters alike are often wary of additional density.

Regulations Have Drawbacks, Critics

The beginnings of rent control date to World War II in New York City, when labor and material shortages because of the war meant little new housing was being built and policy makers sought to avoid a rental affordability crisis.

An emergency measure to curb rent increases effectively became permanent, though the number of units it covers has declined over time.

Economists generally have a dim view of rent control, which they say restricts supply and drives up rents for tenants who don't live in regulated buildings.

A working paper released in January by Stanford University economists found that from 1995 to 2012 rent control in San Francisco helped residents in rent-controlled apartments, increasing the likelihood that they would stay at their address by nearly 20%.

But the study also found that rent control hurt the city overall by making landlords more likely to convert their apartments into other uses and deplete the housing stock, leading to a permanent city-wide rent increase of 5%.

"Tenants benefited dramatically when they were covered by rent control," said Rebecca Diamond, an assistant professor of economics at Stanford and one of the authors of the paper. "We don't really share it as a society."

—Laura Kusisto

House Panel Will Weigh Rebuttal

GOP-led committee to discuss Democrat-authored document that it has blocked

BY MICHELLE HACKMAN AND BYRON TAU

FROM LEFT: PABLO MARTINEZ MONSIVAIS/ASSOCIATED PRESS; SUSAN WALSH/ASSOCIATED PRESS

Rep. Adam Schiff, left, the House Intelligence Committee's top Democrat, has clashed with GOP Committee Chairman Devin Nunes.

The House Intelligence Committee on Monday is expected to consider whether to release a Democratic rebuttal to a GOP-authored document about surveillance of a one-time Trump campaign adviser, according to people familiar with the matter.

The four-page Republican document, released Friday, alleged political bias by federal law-enforcement officials in seeking surveillance of former Trump adviser Carter Page. Democrats have said the memo cherry-picked facts as a way to muddy the waters of the broader probe into ties between Trump associates and Russia, led by special counsel Robert Mueller. The buildup to the memo's release late last week fueled tensions between President Donald Trump and his own Justice Department.

The GOP-controlled committee has so far blocked the release of the Democrats' memo, but it will meet Monday at 5 p.m. to consider "the public disclosure of executive session material…and other matters," according to the panel's website.

Some Republicans on the Intelligence Committee have said they would vote to allow the Democratic document to become public once the full House had a chance to review it. It was made available to all lawmakers last week.

If the committee votes to release the memo, Mr. Trump would have five days to object. If he objects, the matter would return to the full House for a vote.

At the core of the Republican memo is the assertion that the Federal Bureau of Investigation mishandled the application for a surveillance warrant against Mr. Page. The FBI's surveillance application relied at least in part on research compiled by a former British intelligence official who was conducting opposition research on Mr. Trump that was at that point being funded by Democratic-linked groups.

Republicans contend that, by not disclosing the partisan funding of the research, the FBI's application for permission to conduct surveillance of Mr. Page obscured a possible political motive.

But Rep. Adam Schiff (D., Calif.), the top Democrat on the Intelligence Committee, said Sunday on ABC the surveillance application did in fact contain such a disclosure.

Mr. Page had been on the radar of U.S. intelligence since 2013. Critics of the GOP memo have also noted that the FBI filed a surveillance application more than a month after Mr. Page was forced to resign from the Trump campaign.

Mr. Mueller's team is investigating whether the Trump campaign colluded with Russia's interference in the 2016 election and whether the president obstructed justice. The president has denied both allegations; Moscow has said it didn't meddle in the election.

Mr. Schiff pointed to a sentence near the end of the GOP memo highlighting a separate investigation into George Papadopoulos, another former Trump adviser, for his Russia ties in July 2016. Mr. Papadopoulos pleaded guilty last year to lying to the FBI about meetings with Russian officials.

Rep. Trey Gowdy (R., S.C.) who helped draft the GOP memo, said on CBS that he didn't believe the issues the document flags hold any larger implications for the course of the Mueller probe.

TALKS

Continued from Page One

dubbed Dreamers—and orders a comprehensive study to determine what border-security measures are needed. But the bill stops well short of almost all of Mr. Trump's demands—including immediate funding for the wall along the southern border—and is likely to meet a chilly reception from conservative Republicans.

Still, Mr. McCain, who was diagnosed with brain cancer last summer and has been working from Arizona since late 2017, retains powerful sway among his GOP colleagues. His bill with Mr. Coons could also benefit from good timing, as the March 5 deadline draws closer and lawmakers grapple with the political consequences of failing to reach any agreement.

"It's time we end the gridlock so we can quickly move on to completing a long-term budget agreement that provides our men and women in uniform the support they deserve," Mr. McCain said in a statement Sunday.

"While reaching a deal cannot come soon enough for America's service members, the current political reality demands bipartisan cooperation to address the impending expiration of the DACA program and secure the southern border," he said, referring to the Deferred Action for Childhood Arrivals program.

The White House didn't immediately respond to a request for comment on the bill.

Pressure has been mounting on lawmakers since September, when Mr. Trump ended DACA, which protected its participants from deportation. Mr. Trump gave Congress until March 5 to pass a replacement, but Democrats have been pushing to resolve the issue more quickly to end the immigrants' legal limbo.

The McCain-Coons bill is almost identical to bipartisan legislation in the House from Reps. Will Hurd (R., Texas) and Pete Aguilar (D., Calif.), which has the support of 27 Democrats and 27 Republicans in that chamber.

The senators' bill would provide legal status and a path to citizenship for young immigrants who have lived in the U.S. since Dec. 31, 2013, aides said. That is expected to be a larger group than would be covered by Mr. Trump's proposed 1.8 million people.

Aiming to tighten border security, their bill calls for the Homeland Security Department to devise a strategy for "situational awareness" and operational control of the border by 2020.

The bill would provide a $110 million annual grant for five years to improve coordination between border-patrol agents and state and local law-

The McCain-Coons immigration bill is nearly identical to House legislation.

enforcement officials. It wouldn't, however, direct any funding for border technology or the more-controversial barriers or wall Mr. Trump wants.

The legislation also calls for clearing a backlog in the immigration-court system by hiring 55 judges a year, as well as dozens of staff attorneys, for three years. The bill would also direct the State Department to submit a three-year strategy aimed at addressing the underlying causes of immigration from Central America. Many Central Americans try to enter the U.S. illegally because of severe drug gang violence in their home countries.

In a framework released last month, Mr. Trump asked Congress to direct $25 billion toward a border wall and other security measures, reduce family-based legal immigration, ratchet up deportations and otherwise tighten enforcement.

Last week, Mr. Trump told Republicans gathered at a policy retreat he was prepared to walk away from talks if Democrats didn't agree to his terms.

Mr. Coons said his bill represented a starting point to resolving two central issues, the Dreamers and a study of border-security measures.

"This narrower bill addresses the two things that every member agrees we have to address to move forward," Mr. Coons said in an interview Sunday. Resolving that "would allow us to move ahead with the bipartisan deal on lifting the [budget] caps" and continuing the broader immigration debate later, he said.

Mr. Coons said other groups were making headway in dealing with family-based legal immigration, which his bill doesn't address. Their bill also doesn't affect the diversity visa lottery, which Mr. Trump wants to end.

Last month, the immigration fight culminated in a three-day partial shutdown of the government, a repeat of which lawmakers said they expect to avert this week.

As part of an agreement that ended the shutdown, Senate Majority Leader Mitch McConnell (R., Ky.) said he would bring an immigration bill to the Senate floor on Feb. 8, as long as the government remains funded.

"There is not likely to be a DACA deal, though we're working every single day," Sen. Dick Durbin of Illinois, the Democrats' chief negotiator on immigration, said Sunday on CNN.

"I don't see a government shutdown coming, but I do see a promise by Senator McConnell to finally bring this critical issue that affects the lives of hundreds of thousands of people in America, finally bringing it to a full debate in the Senate," he added.

Skeptic on Climate Withdraws Candidacy

BY TIMOTHY PUKO

One of President Donald Trump's top environmental nominees is withdrawing after a year of criticism for being skeptical about climate change and for calling global warming a "kind of paganism."

Kathleen Hartnett White, Mr. Trump's choice to head the White House Council on Environmental Quality, asked to withdraw this weekend. She cited a nomination process that had dragged on for more than a year.

Once considered a top contender to run the Environmental Protection Agency, Ms. Hartnett White ended up encountering tough opposition from Democrats in the Senate for an oversight role ensuring federal agencies are meeting environmental obligations. Critics viewed her environmental positions as extreme, even for an administration with several nominees who have questioned humans' influence on climate change or previously worked at fossil-fuel companies or lobbied for them.

Ms. Hartnett White is a fellow at the free-market think tank Texas Public Policy Foundation and was previously chairman of the Texas Commission on Environmental Quality. Her work at the foundation rejected the idea of carbon as a pollutant that worsens global warming and instead celebrated the fossil-fuel industry for pumping more carbon dioxide into the atmosphere, saying that helps plants grow.

At a congressional hearing last year, she said she was "uncertain" climate change was real before then saying it was real but that it isn't clear how much of it is caused by human activity.

The federal government's "Climate Change Special Report" issued last year said there is growing evidence that human activities are responsible for climate change and extreme weather events and that currently "there are no alternative explanations."

In recent weeks, Ms. Hartnett White's nomination appeared to be casting a larger shadow. After EPA administrator Scott Pruitt testified last week in front of the Senate environment committee, its top Democrat, Sen. Tom Carper of Delaware, told Mr. Pruitt that Democrats on the committee wouldn't be likely to help EPA nominees get approvals while Ms. Hartnett White's nomination was still under consideration.

More States Weigh Insurance Mandates

By Stephanie Armour

At least nine states are considering their own versions of a requirement that residents must have health insurance, a move that could accelerate a divide between Democratic states trying to shore up the Affordable Care Act and Republican states intent on tearing it down.

Congressional Republicans in December repealed the so-called individual mandate, a pillar of the ACA, as part of their tax overhaul. That cheered conservatives who say people shouldn't be forced to buy insurance, but it has energized liberals who say a mandate is needed to ensure coverage and keep premiums low.

The push in some states to replace the mandate illustrates a shift in the health care battle away from Capitol Hill, igniting a surge of activity that could redefine access and coverage for millions of consumers.

The ACA, also known as Obamacare, sought to create a uniform minimum floor for health coverage. It established certain benefits that many health plans had to cover and barred insurers from charging higher premiums to people with pre-existing conditions.

Republicans failed to repeal the law overall, but in addition to erasing the individual mandate, the Trump administration has been using administrative actions to roll back the ACA's requirements and give states more control.

That is creating a landscape in which blue states pursue initiatives to keep or expand the ACA, while red states try to defang the law and put a conservative stamp on health policy.

Coming years could see a growing gulf on issues such as Medicaid benefits, consumer protections, insurer regulations and the availability of cheaper, less-comprehensive health plans, health analysts say.

"The hodgepodge of congressional actions and administrative efforts have really shifted activity to the states on a whole range of health care issues," said Larry Levitt, a senior vice president at the Kaiser Family Foundation. "We're moving back to when coverage and consumer protections vary tremendously."

The individual mandate is the latest example and one of the most symbolic. The national repeal takes effect in 2019, an event the nonpartisan Congressional Budget Office estimated will result in millions of people dropping or losing coverage.

Republican-led states have welcomed its demise, saying the mandate imposes a financial burden on lower-income people and is a federal overreach.

Some states want to undo even more of the ACA. Idaho, for example, has moved to let insurers sell plans without all the benefits required under the ACA. Insurers would also be able to charge higher premiums to people who are sicker or older.

It is unclear whether the Trump administration would take action to stop the state.

The push carries some risk for Democrats, polls suggest, since the mandate is the least popular part of the ACA. About 45% of Democrats in September thought the national mandate should be kept and 20% supported repeal, according to a poll from the Urban Institute, an economic and social policy research group.

Where the Rules Might Change

At least nine states are considering their own versions of a requirement that residents must have health insurance, after Congress repealed the mandate in December.

The trend could accelerate a divide between Democratic states trying to shore up the Affordable Care Act and Republican states intent on tearing it down.

Among those publicly looking into such proposals:

- Maryland
- California
- Connecticut
- Hawaii
- Rhode Island
- Washington
- Minnesota
- New Jersey
- Vermont
- District of Columbia

Pennsylvania Voting Map At Center of Legal Fight

By Brent Kendall And Scott Calvert

WASHINGTON—The Supreme Court is facing a sensitive choice on whether to intervene in a partisan battle over Pennsylvania's congressional map, a decision expected within days that could have considerable political and legal ramifications for the midterm elections.

With the state's primary vote about three months away, Pennsylvania candidates and voters don't know what their districts will look like, after the Pennsylvania Supreme Court invalidated the state's map on Jan. 22.

A divided Pennsylvania high court said Republicans had unlawfully gerrymandered the districts to maximize the GOP's power. That court gave state lawmakers just a few weeks to redraw the districts and said the court would do so if the legislature did not.

Republican state legislators have sought emergency intervention from the U.S. Supreme Court, asking for a stay of the Pennsylvania court ruling. That would likely allow the current map to remain in place for the 2018 elections.

The Supreme Court already is grappling with how and whether the Constitution restricts excessive partisanship in redistricting in cases from Wisconsin and Maryland.

But there's a big difference with the Pennsylvania case: The state court based its ruling on the Pennsylvania Constitution, a move that would normally leave the U.S. Supreme Court with little room to intervene. Under the American system of federalism, state courts are the final word on matters of state law.

"For the Supreme Court to grant a stay now would be enormously aggressive," said Justin Levitt, a professor at Loyola Law School in Los Angeles who closely tracks redistricting matters.

But Pennsylvania Republican legislative leaders say their case is the rare exception that justifies Supreme Court intervention. They say the state court usurped the legislature's power under the U.S. Constitution to set the "Times, Places and Manner" of congressional elections.

Among other things, GOP leaders cite the Supreme Court's intervention in Bush v. Gore, the contentious case about Florida ballot-counting that effectively resolved the 2000 presidential election.

Legal challengers to the Pennsylvania map, including the League of Women Voters and individual Democratic voters, filed a brief late Friday urging the high court to stay out of the case, saying "bedrock principles" make it clear the Supreme Court can review cases purely about state law.

While Pennsylvania voters are often closely divided between the parties, Republicans hold a 13-to-5 advantage in the state's congressional delegation under the current map, which state GOP leaders enacted in 2011. Democrats are eyeing seats in Pennsylvania as part of their effort to retake the U.S. House.

The Pennsylvania electoral landscape is becoming more uncertain by the day. Though the Pennsylvania Supreme Court struck down the map, it has yet to issue a full opinion explaining its reasons for finding the Republican-drawn districts unlawful.

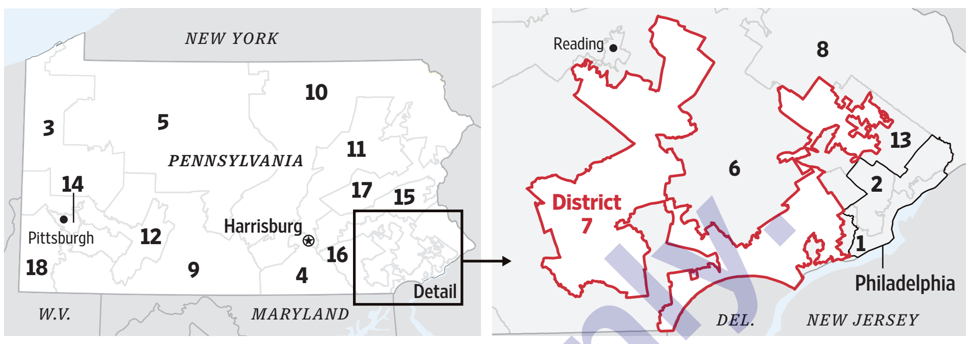
One state justice who found the map illegal nevertheless said there wasn't enough time to require a new map before the midterms because it "risks serious disruption of orderly state election processes and basic governmental functions."

Pennsylvania congressional races this year are expected to attract more candidates than usual: At least five seats will be open. In addition, the winner of a March 13 special election for the seat vacated last year by GOP Rep. Tim Murphy will have to face voters again in November, perhaps with new district boundaries.

Shaping the Debate

The battle over Pennsylvania's congressional map has focused on whether Republicans unlawfully gerrymandered the state's districts to maximize their political power. The seventh district is a flashpoint, stretching from rural Lancaster County to the suburbs of Philadelphia.

Pennsylvania's Congressional Districts



Source: U.S. Census Bureau

THE WALL STREET JOURNAL.

Syrian Offensive Strains Foreign Powers

Downing of Russian jet comes as regime presses campaign in last rebel stronghold

A Syrian government campaign to wrest one of the last autonomous pockets in the country from rebels is raising tensions among foreign powers positioned on different sides of the six-year conflict.

*By **Sune Engel Rasmussen** in Beirut and **James Marson** in Moscow*

Idlib province is home to a wide range of groups opposed to President Bashar al-Assad. His efforts to crush rebels there come after the government successfully reasserted control over large parts of the country, thanks to firepower from the regime's Russian and Iranian allies. But the offensive on Idlib is moving into risky territory, with foreign powers maneuvering in proximity to each other as alliances that used to fight Islamic State fray.

"Idlib really represents the massive complications that Syria presents to everybody because it is the last rebel stronghold. But at the same time it is the biggest stronghold of al Qaeda-affiliated rebels and deeply committed Islamists," said Joshua Landis, director of the Center for Middle East Studies at the University of Oklahoma.

The prospect of new frictions between Moscow and Washington surfaced with the crash of a Russian military jet and the death of the pilot in Idlib. A former al Qaeda-affiliated group claimed Saturday to have shot down a Russian Su-25 with a shoulder-launched surface-to-air missile over the rebel-held town of Saraqeb. After the pilot ejected with parachute, he was killed in the ensuing fighting with rebels, the Russian Ministry of Defense said.


ABDALLA SAAD/EPA/SHUTTERSTOCK

Pieces of a Russian military jet near Saraqeb on Saturday. Its pilot was killed in fighting with rebels, Russia's Defense Ministry said.

Hours later, a Russian airstrike killed 30 militants, Russian state media said, quoting the defense ministry. At least 14 civilians also were killed in Russian military strikes, according to Syria Civil Defense, a rescue organization also known as the White Helmets.

Although U.S. and Russian troops both fought Islamic State in Syria, the fighting in Idlib has strained any alliance.

The Kremlin didn't comment Sunday, but hawkish Russian lawmakers suggested the U.S. may have been involved in the attack that brought down the jet fighter in order to draw Moscow deeper into the war.

Franz Klintsevich, first deputy chairman of the committee on defense and security in Russia's upper house of parliament, said the missile was provided by the U.S. via other countries. He didn't cite any evidence to support his claims.

The U.S. doesn't arm rebel groups in Idlib, and, despite pleas, has long refused to deliver them so-called Manpads, or man-portable air-defense-systems, according to the U.S. State Department.

"The United States has never provided Manpad missiles to any group in Syria, and we are deeply concerned that such weapons are being used," State Department spokeswoman Heather Nauert said.

The U.S. has previously warned that a takeover of Idlib by extremist rebel forces would have grave consequences for the stability of Syria and make it difficult to persuade Russia to de-escalate its attacks.

Activists in Saraqeb town, where the pilot was killed, said Russian bombardments ceased on Saturday evening.

With the killing of the Russian pilot, prospects of resolving the conflict through negotiations appear to be dimming.

Most anti-Assad rebels boycotted the latest round of peace talks held late last month in the Russian resort of Sochi. Western powers including the U.S. also chose not to participate.

Fresh inroads into Idlib would diminish any leverage the Syrian opposition had hoped to claim in future rounds of negotiations.

THE WALL STREET JOURNAL.

And while Turkey had agreed with Russia and Iran to de-escalate violence in Idlib and other areas in Syria, the offensive is also raising tensions among the countries.

Turkey, which presides over the second-largest military in the NATO alliance, supports factions of the armed Syrian opposition it deems moderate. Tahrir al-Sham, the former al Qaeda affiliate in Syria, which claimed to be behind the downing of the Russian jet, doesn't receive direct support from Ankara, but it has operated close to Turkish troops.

Turkey now finds itself politically isolated in Syria. It faces U.S. opposition to its plans to seize territory from Syrian Kurds who seek federalism and semiautonomy, but whom Ankara views as a national threat. Meanwhile, Russia and Iran have largely brushed off pleas to stop the Idlib offensive.

Now with the killing of the Russian pilot, Idlib residents fear what may come next. Aref Watad, an antigovernment activist in Saraqeb, said people had begun fleeing Saraqeb, toward the Turkish border.

"People are afraid of Russian retaliation," he said. "They have been shelling Idlib since they intervened."

—Nour Alakraa in Berlin contributed to this article.

Cyprus Leader Wins Second Term

BY NEKTARIA STAMOULI

Center-right candidate Nicos Anastasiades was comfortably re-elected president of Cyprus for a second five-year term in a runoff poll on Sunday, beating rival Stavros Malas, an independent backed by Communist party AKEL.

The conservative leader secured 55.99% support, while Mr. Malas was backed by 44.01% of those who voted.

Both men proceeded to the runoff without the endorsement of other contenders, who were knocked out of the race last week. Abstention was higher than is usual for Cyprus, estimated at 26.03%.

Mr. Anastasiades, a 71-year-old lawyer, is credited with leading the country's economy back to growth after it nearly collapsed in 2013. He had campaigned on stability and the continuity of the rebound.

The Mediterranean island's €10 billion ($12.45 billion) bailout program was launched in 2013, when Cypriot banks collapsed and the country had to impose capital controls to prevent a complete financial meltdown. The chief lenders, Germany and the International Monetary Fund, forced Cyprus to inflict losses on bank depositors to help pay for the rescue.


AMIR MAKAR/AGENCE FRANCE-PRESSE/GETTY IMAGES

President Nicos Anastasiades spoke in Limassol on Sunday.

Cyprus exited the program three years later and its economy has returned to growth—estimated at 3.5% in 2017. That pace of expansion is expected to slow, but remain robust at 2.9% this year, according to European Commission estimates.

Mr. Anastasiades is also credited for bringing talks to reunify the divided island closer to success than they had been in more than four decades. But Mr. Malas accused him of not being bold enough to clinch an agreement. Both candidates were in favor of reuniting the island.

Cyprus—a European Union member in the eastern Mediterranean close to Turkey and Syria—has been split between the Greek south and the Turkish north since 1974, when Turkish troops invaded and occupied the northern third of the island.

The latest round of reunification talks collapsed in July, marking the end of a process that had been seen as the best and probably the last chance to resolve the conflict.

Mr. Anastasiades has pledged to start fresh talks with Turkish Cypriot leader Mustafa Akinci and said he would seek to work with all parties to reach a deal. An agreement could deliver economic benefits, such as allowing natural-gas pipelines connecting Europe and the Middle East to traverse the island and giving an economic and security boost to a troubled region.

African Immigrants Shot in Italian Town

BY ERIC SYLVERS

An Italian man went on a shooting spree in the central town of Macerata, wounding six African immigrants before getting out of his car and doing the fascist salute, police said.

The 28-year-old suspect drove through Macerata on Saturday, shooting in an area where police had arrested a Nigerian man suspected of killing an 18-year-old Italian woman, a spokesman for the Interior Ministry said.

The victims—five men and a woman—ranged in age from 21 to 33, the newspaper la Repubblica reported, adding that none of the injuries was life threatening.

Photos published on the website of newspaper Corriere della Sera showed police restraining the suspect, identified by authorities as Luca Traini, on the steps of a fascist-era monument dedicated to Italian soldiers killed in combat.

The alleged shooter, who had a shaved head and lives in a town near Macerata, about 150 miles northeast of Rome, last year was a candidate in local elections for the anti-immigration League political party.

League leader Matteo Salvini condemned the shooting.

"Violence is never the solution," he wrote on his Facebook page, but added, "Out-of-control immigration brings chaos, hatred, social disputes...drug dealing, rape, robberies and violence."

Immigration has been a hot-button issue in Italy in recent years as hundreds of thousands of immigrants have arrived illegally, mostly on rickety boats that depart from Libya. Several parties, including the League, have ramped up their anti-immigration rhetoric ahead of national elections on March 4.

"Hatred and violence won't succeed in dividing us," Italian Prime Minister Paolo Gentiloni said after the shooting.

KOREA

Continued from Page One

cess. "It's a challenging road."

Differences were on display last week when President Donald Trump, in his first State of the Union address, reiterated a call for tough sanctions on North Korea, while omitting mention of the inter-Korean talks and their most prominent outcome: Athletes from both Koreas will march under one flag when the Winter Olympics open on Friday in South Korea.

Diplomats and officials in Washington and Seoul have been struggling to manage the complex relationship between the government of South Korean President Moon Jae-in, who has long favored developing ties with the North, and the Trump administration, which aims to strip North Korea of its nuclear weapons by isolating Pyongyang, and has warned it might take military action if North Korea doesn't agree to give up its nuclear arsenal.

Illustrating the wedge between the two, the allies drew starkly different conclusions from Mr. Kim's Jan. 1 speech, according to people familiar with the matter.

At the White House, officials were struck by the bellicose talk from Mr. Kim, who ordered the mass production of nuclear warheads and ballistic missiles and called for reunification of the Korean Peninsula, saying he would pursue "the final victory of the revolution."

By contrast, in the South Korean presidential Blue House, Mr. Moon and his advisers were encouraged by Mr. Kim's openness to participating in the Olympics and discounted what they considered formulaic tough talk from the North.

Seoul's subsequent outreach to Pyongyang, cutting the U.S. out of the process, left U.S. officials particularly frustrated because of Mr. Moon's repeated demands last year that the U.S. seek his consent before taking any pre-emptive military action against North Korea.

Diplomats at the U.S. Embassy, which sits across the street from South Korea's ministries of Foreign Affairs and Unification, expressed their displeasure to their South Korean counterparts, according to people familiar with the matter.

South Korean officials told the U.S. the immediacy of the Winter Olympics left them little choice but to act quickly in response to Mr. Kim's speech, those people said.

Mr. Trump spoke with Mr. Moon by phone on Jan. 4, and the two agreed to postpone joint annual military exercises until after the end of the Winter Paralympics on March 18. But U.S. officials were still rankled by the fact that Mr. Moon had in December publicly presented the idea of a delay as a South Korean request awaiting U.S. agreement.


AHN YOUNG-JOON/ASSOCIATED PRESS

Visitors hang ribbons and unification flags on a fence near South Korea's border with North Korea.

U.S. officials said they had, in fact, anticipated the request and quickly signaled their willingness to Seoul. As the divide threatened to widen, Mr. Moon in a Jan. 10 press conference acknowledged a policy gap with the U.S., and sought to ease the strain by giving Mr. Trump credit for creating the opening for the inter-Korean dialogue.

Mr. Trump thanked Mr. Moon for the compliment in a follow-up phone call—the second of two between the leaders in January.

Then, in an unannounced mid-January meeting in San Francisco, Lt. Gen. H.R. McMaster, Mr. Trump's national security adviser, emphasized to his South Korean and Japanese counterparts the importance of keeping up pressure on North Korea, according to people familiar with the matter.

Gen. McMaster said it was necessary to proceed with exercises and maintain unity in the face of Pyongyang's attempts to drive a wedge between the U.S. and its Asian allies, the people said. Seeking to keep relations on track, the U.S. canceled a February port visit to South Korea by an attack submarine, the U.S.S. Texas, to assure Seoul that Washington wouldn't upset the atmosphere for inter-Korean detente, these people said.

Easing U.S. concerns, Seoul agreed with Washington to proceed with the joint exercises as originally envisioned after the Paralympics.

Differences remain between Seoul and Washington. While Mr. Trump has vowed not to let North Korea develop a missile that can strike the American mainland with a nuclear warhead, South Korea has long lived under the shadow of North Korea's 1.1 million-person armed forces. Any U.S. military operation would risk turning the South's bustling capital into a battlefield.

The U.S. has 28,500 military personnel in South Korea. The South Korean military numbers about 650,000 and is deemed to be highly capable; the South Koreans would initially do most of the fighting on the ground as part of a combined U.S.-led command in any war.

Talk in Washington that some officials are considering a limited "bloody nose" strike on North Korea, together with the withdrawal last week of nominee Victor Cha to fill a vacancy as U.S. envoy to Seoul, has also led to confusion in South Korea, according to people familiar with the matter. Mr. Cha has written that he disagrees with the idea of a preventive military strike.

"This city was once completely destroyed. No Korean is interested in seeing that happen again—period," said an official at South Korea's Blue House. If there is war, the official said, "The cost will have to be borne by us."

Olympic Fans Are Baffled By Transport

BY EUN-YOUNG JEONG

SEOUL—Laura Osur, a research analyst from Rochester, N.Y., spent about $1,000 for tickets to this month's Winter Olympic Games in Pyeongchang, South Korea. About three weeks ago, she decided not to go after all.

The reason has nothing to do with North Korea, and everything to do with a more prosaic and widespread concern among overseas Olympics enthusiasts: Logistics for the coming Games are proving to be an absolute headache.

Pyeongchang, the host city for the Winter Games, is located in a remote part of the country where English-language resources are scarce, with scant accommodations and a local transport system that can be confounding for non-native speakers.

The main conduit for Olympics travelers, a new high-speed rail line, has been mired in concerns about capacity, and confusion over how even attendees who bought special train passes can secure seats.

Some die-hard Olympic fans like Ms. Osur, 32 years old, who attended the 2014 Sochi Olympics and 2016 Summer Games in Brazil and planned to follow up in Pyeongchang, are throwing in the towel.

Part of the trouble for Pyeongchang fans is that the four-day Lunar New Year break—the peak travel season for much of East Asia—falls in the middle of the Games, further driving up demand for transport.

Ms. Osur found out the hard way. About a month ago, she learned that train tickets for some of the days she wanted to attend the Games were being sold first domestically because of the Lunar New Year—a practice South Korea's rail operator says it follows every year during the national holidays.

An official at Korail, South Korea's train operator, said the system has taken extra measures to ease the situation for international visitors traveling with Olympic rail passes. A new batch of train seats was made available exclusively for pass holders late last month.

The Olympics organizing committee has encouraged fans to download a new smartphone app to help with travel planning.

That isn't enough for travelers like Linda Chou, a 28-year-old software engineer from Taiwan, who last month created a Facebook group for frustrated travelers after running into hurdle after hurdle to get train seats.

Securing seats on the high-speed train to Gangneung, a neighboring city to Pyeongchang where the ice events are being held, she said, "was like a war."

Ms. Chou, a first-time Olympics fan, quickly found others who shared her disgruntlement. Within a day of creating her Facebook group to exchange information on train tickets, it had 100 members. Today, it has more than 650 members, swapping daily tips on navigating the system.

To better clear a way through Korail's overtaxed seat-reservation system, Ms. Chou borrowed a Korean person's membership code to reserve her seats early.

Since the early-reservation webpage was only available in Korean, she created a 10-page instruction manual for herself, using Google Translate to translate all the Korean text into Chinese. She shared some screenshots of her process on the Facebook page for other members to refer to.

"We were really helpful to each other," she said.

Ms. Osur canceled her plans three weeks ago. She can't get refunds on her sports tickets, and has paid $150 to cancel her flight tickets.

A spokesman for Pyeongchang's Olympics organizing committee acknowledged it had been slow to supply travel information in English but said it was working with the rail operator to "maximize the comfort" of spectators.

Many fans have lost patience.

"The whole thing is a nightmare to me," said Lee Meng Fei, a 39-year-old engineer from Johor Bahru, Malaysia, who compared his experiences so far unfavorably with what he saw at the Beijing Games in 2008. "I thought Korea could do it better," he said. "It's worse."

◆ An Olympic daredevil's uphill battle A12

JEAN CHUNG/BLOOMBERG NEWS

Pyeongchang, the site of the Winter Games, is in a region with few accommodations and a transit system that can confound visitors.

Advice for Visitors On Getting Around

The 2018 Pyeongchang Winter Olympics in South Korea starts on Feb. 9 and runs through Feb. 25. Here are a few tips from WSJ's local reporter to help you find what you need.

1. Navigation tip: Google Maps may not cut it.

Because of South Korea's restrictions on exporting map data abroad, Google Maps can only provide limited services here, which means you won't be able to get walking or driving directions by relying on that app alone. Pyeongchang's organizing committee recommends using the Go Pyeongchang app, available for both iOS and Android devices.

2. A hotline can help you find and book a room.

The Korea Travel Hotline can be a useful resource for last-minute seekers of lodging, according to local district officials. Call +82-2-1330 to get information on accommodations, transport and events.

3. The high-speed train between Seoul and the Olympic venues has three stops in the capital.

A high-speed train is available from Incheon International Airport to Pyeongchang and Gangneung, where the ice events will be held. The train passes through three different stations in Seoul (Seoul Station, Cheongnyangni Station and Sangbong Station) and runs 51 times daily in each direction. An official at South Korea's railway operator, Korail, recommended that if you haven't been able to secure a seat from Seoul Station, book one from another station in the capital.

4. You don't have to stay in the cities hosting the Olympic venues.

Free shuttle buses will be available for visitors traveling from nearby cities Wonju, Sokcho and Donghae. Seats can be booked through the official Pyeongchang website.

JEAN CHUNG/BLOOMBERG NEWS

A visitor poses for a picture in a Pyeongchang neighborhood.

Trump Remark Jars Tillerson Trip

President's comments about drug trade 'not helpful,' says official traveling with secretary

By Felicia Schwartz

SEBASTIAN PANI/ASSOCIATED PRESS

Rex Tillerson, left, with Argentina's Foreign Minister Jorge Faurie in Buenos Aires on Sunday. Mr Tillerson is on a tour of Latin America.

Secretary of State Rex Tillerson, on his first multination tour of Latin America, has sought to present a message of cooperation and engagement while struggling to keep President Donald Trump's statements from overshadowing his trip.

As Mr. Tillerson met with President Enrique Peña Nieto and other top Mexican and Canadian officials in Mexico City on Friday, Mr. Trump was in Virginia, chastising countries that are sources of illegal drugs in the U.S.

"The big thing is we have to stop with the drugs," Mr. Trump said at a Customs and Border Protection round table discussing the role of illegal drugs in U.S. crime. "And these countries are not our friends. You know, we think they're our friends and we send them massive aid. And I won't mention names right now, but I look at these countries, I look at the numbers we send them—we send them massive aid and they're pouring drugs into our country and they're laughing at us."

He added: "So we give them billions and billions of dollars and they don't do what they're supposed to be doing. And they know that. But we're going to take a very harsh action."

Mr. Trump didn't name the countries. Mexico is the dominant overland route to the U.S. for cocaine, heroin and marijuana, the U.S. Drug Enforcement Administration and Justice Department have said.

His comments came at a meeting with Homeland Security Secretary Kirstjen Nielsen and border patrol officials on Friday at the agency's National Targeting Center, which seeks to detect cargo and travelers posing potential threats to the U.S.

The president spoke as Mr. Tillerson was concluding a meeting with Mr. Peña Nieto, although it wasn't clear whether those at the meeting in Mexico City were aware of Mr. Trump's comment at the time he said it.

A senior State Department official accompanying Mr. Tillerson said "the president's comments were not helpful." The official didn't elaborate on the effect of Mr. Trump's remarks.

The trip comes amid tension between the Trump administration and Mexico over differences concerning immigration and trade.

On Friday, Mr. Tillerson told reporters in Mexico City that Mr. Trump wants to settle the question of the fate of illegal immigrants who were brought to the U.S. as children.

"I think it is certainly his commitment to see this issue resolved once and for all, and provide clarity, which is so important, so that people know how to plan their lives going forward," he said.

After the Mexico City meeting, Mr. Tillerson traveled to Argentina, where he is set to meet President Mauricio Macri on Monday.

The former Exxon Mobil chief executive marked a full year on the job this week, after several months of speculation and rumor that Mr. Trump wanted to see Mr. Tillerson leave his job. Mr. Tillerson and Mr. Trump clashed publicly and privately over the past year on a number of policy issues, including the nuclear deal with Iran, a feud between Qatar and a Saudi-led bloc of Arab states, North Korea diplomacy and the Paris accord, among other things.

Ecuador Voters Approve Blocking Ex-Leader

By Juan Forero

DOLORES OCHOA/ASSOCIATED PRESS

The ballot initiative would limit presidents to two terms in office.

Voters in Ecuador on Sunday approved a referendum that all but blocks Rafael Correa, a former president and leftist firebrand, from returning to power.

With 55% of voter tallies processed, the National Electoral Council said two out of every three voters had approved a ballot initiative that limits presidents to two terms. That is a victory for its main proponent, current President Lenin Moreno, and a reversal for Mr. Correa, who feverishly campaigned against the referendum.

Mr. Correa ruled from 2007 to 2017 and had been, along with the late Venezuelan leader Hugo Chávez, among the flag bearers of 21st century socialism. That movement, pushed by several allied Latin American countries, opposed U.S. policies in Latin America, forged ties to authoritarian governments like Cuba's and curbed some civil liberties.

The results in Ecuador on Sunday bucked a trend in Latin America that has seen Mr. Correa's old allies seek to remain in office in coming elections.

In Venezuela, President Nicolás Maduro, said he will run for re-election in a vote that is expected before the end of April, an election the U.S. and other countries say they won't recognize. In Bolivia, the highest court has said President Evo Morales can run for a fourth term next year, even though Bolivians voted in a referendum to prevent him from doing so.

In Ecuador, though, voters turned out to support Mr. Moreno, who was narrowly elected to office last year, when he was considered a placeholder until Mr. Correa's return in 2021.

"Today, democracy has triumphed in a convincing way with the yes vote," Mr. Moreno said via his Twitter account. "We all manifested ourselves clearly and forcefully, freely and democratically, about the future we want."

Though he served for six years as Mr. Correa's vice president, Mr. Moreno shocked Ecuadoreans by turning against his former boss nearly as soon as he took office.

He has worked to smooth relations with the business class, journalists and indigenous groups, sectors that bristled during Mr. Correa's presidency. He has also worked to improve relations with the U.S. and said he would like to wash his hands of Julian Assange, the WikiLeaks founder, whom Mr. Correa allowed to take refuge in Ecuador's embassy in London.

Mr. Moreno, a 64-year-old former tourism guru who was paralyzed from the waist down in a carjacking two decades ago, pushed for seven constitutional changes in Sunday's referendum, most of which scuttle key policies of the Correa administration. With most votes counted, the results showed those changes received from 64% to 74% support.

Ecuadorean voters were also supporting moves to limit mining in protected areas, including Yasuni National Park.

—John Otis contributed to this article.

WORLD WATCH

CHINA

Beijing Investigates U.S. Sorghum Exports

China's Commerce Ministry said Sunday that it initiated an anti-dumping and anti-subsidy investigation after preliminarily finding that heavy volumes and low prices of American exports of sorghum, bolstered by U.S. government subsidies, hurt Chinese growers.

In announcing the action, the Commerce Ministry didn't mention the Trump administration's recent ruling to place tariffs on imports of Chinese solar panels. Chinese officials have told representatives of U.S. businesses that Beijing is preparing tit-for-tat measures to retaliate if trade is affected by President Donald Trump's "America First" agenda.

The U.S. is also in the midst of studies and processes that would impose penalties on China over intellectual property and trade in steel and aluminum.

China has emerged as a prime market for American sorghum, with growers exporting more than 27 million tons since 2013, according to National Sorghum Producers.

—WSJ staff

GERMANY

Coalition Talks Stretch to Monday

Chancellor Angela Merkel's conservatives and the center-left Social Democrats embarked Sunday on a final push for an agreement on a new German government, but negotiators adjourned for the night without resolving all their differences.

After an all-day session, the parties agreed to resume talks Monday, according to the Social Democrats' general secretary, Lars Klingbeil.

Germany's effort to put together a governing coalition after its Sept. 24 election is already its longest since World War II. It won't be over with these talks; a deal will require approval in a ballot of the Social Democrats' members, many of whom are skeptical about renewing the alliance that has governed Germany since 2013 after a disastrous election result in September.

Ms. Merkel's Christian Democratic Union; its Bavarian sister, the Christian Social Union; and the Social Democrats had set Sunday as a deadline to wrap up negotiations. They budgeted two extra days as a precaution when they opened formal talks Jan. 26.

Ms. Merkel said "important points" had to be cleared up. "We know what task we have and are trying to do justice to it," she said.

Failure to reach an agreement, or a deal's rejection by Social Democrat members, would leave a minority government under Ms. Merkel or a new election as the only viable governing options.

—Associated Press

FROM PAGE ONE

MUSIC

Continued from Page One

yet to prove itself as a viable business as the tech companies operating these services struggle to make them profitable. Active users and paid subscribers are the most closely watched metrics as these services grow.

One question lingering in the industry is what metrics Spotify will have to disclose once it becomes a publicly traded company. The service has periodically released global subscriber totals and just last month touted a new high of 70 million.

Apple Music told The Wall Street Journal it now has 36 million paid global users, up from the 30 million it last reported in September.

But both companies' numbers are boosted by counting individual users who are part of family plans and people with discounted subscriptions bundled with other services. In some countries, mobile-phone plans can include an Apple Music subscription; Spotify offers students in the U.S. a subscription plan that includes video-service Hulu. Neither company publicly breaks out figures for the U.S. or any other single market.

In their licensing deals, music labels let streaming services pay lower royalty rates for music when they meet certain subscription-growth targets. As part of those deals, the services are required to report how many accounts they have—a number not inflated by multiple users on a family subscription. They also must report the number of monthly active subscribers they have, stripping out people who were signed up in bundle deals but don't use the service and are likely to churn.

By one standard, Apple Music has already passed Spotify. Including people who are still in free or deeply discounted trial periods leading up to a paid subscription, Apple Music has a slight edge on Spotify in the U.S., according to one of the people familiar with the figures.

Apple Music has three to four times the number of such trial users as Spotify, according to this person, in part because it doesn't offer a free tier of service. Also, all Apple Music subscribers are entered automatically into a free initial three-month period. Excluding those trial users, Spotify is ahead, but by a small amount—and that gap is closing.

Apple's services segment, which includes Apple Music as well as the App Store and its payment services, was a bright spot in the company's earnings posted last week, with an 18% jump in revenue. It is unclear how much Apple Music contributed to that increase as the company doesn't break out the streaming service's results.

Launched in 2008, Spotify lets users listen to a library of more than 30 million songs on demand. It started offering its service in the U.S. in 2011. Subscribers who shell out $9.99 a month can listen without hearing ads; users of the free version need to sit through ads and have more limited ability to pick the order in which they hear the songs they select.

As of June, Spotify said it has 140 million active users world-wide. The company has been targeting March or April for its market debut, said people familiar with the matter.

Spotify has never reported a profit, but has said it believes it can become profitable once it has amassed sufficient users, without specifying what that scale would be.

Apple Music allows users to stream from a catalog of 45 million songs or play from their own iTunes library. It has only ever offered an individual $9.99-a-month subscription tier. Both Spotify and Apple Music offer $4.99-a-month student plans and $14.99-a-month family plans, which up to six individuals can use.

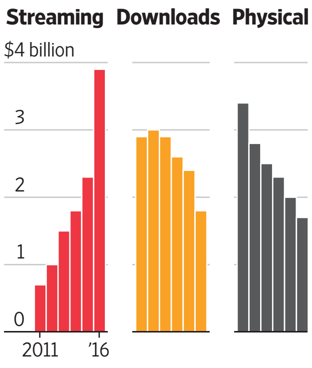
Spotify believes it can become profitable once it has amassed sufficient users.

Spotify is available in 61 territories, including the U.S. Apple Music is available in 115.

Next week, Apple will begin selling its voice-activated speaker, HomePod, which it has tried to differentiate from competitors' offerings by promising better-sound quality. The device has been marketed as a way to listen to Apple Music, which it will play directly; other music-streaming services can be played only over Apple's AirPlay. The HomePod has the potential to boost Apple Music subscriptions.

Opening the Streams

Since the U.S. introduction of Spotify in 2011, the record industry's revenue in the U.S. from streaming has grown to outstrip downloads and physical media.



Source: Recording Industry Association of America

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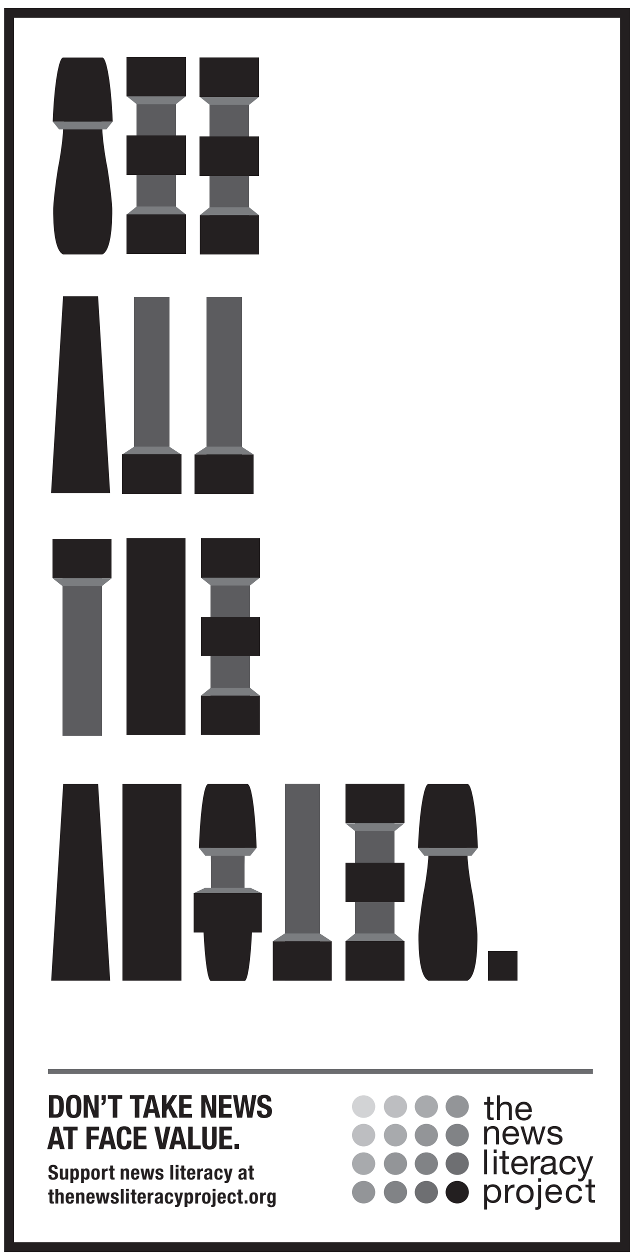


JAPAN

Continued from Page One

never compromised.

Corporate wrongdoing occurs the world over, but Japan's scandals cut to the core of what has kept Japanese brands popular, as well as the country's perception of itself. Japanese brands, once a byword for quality, score well on many quality surveys, but American car makers have bested them in the past two years in J.D. Power's Initial Quality Study, and makers of other products are also catching up.

The scandals threaten to accelerate an erosion of Japan's global market share for manufactured goods, handing main rival China further momentum in its march toward becoming the world's largest economy. They also call into question one of the world's most influential theories of management and manufacturing.

AGENCE FRANCE-PRESSE/GETTY IMAGES

Nissan Motor CEO Hiroto Saikawa, left, at a November news conference after the auto maker disclosed a quality inspection scandal.

Celebrated model

Japan's model, celebrated in publications such as Harvard Business Review, hinges largely on the concept of *kaizen*, often translated as "continuous improvement." In practice, it means eliminating unnecessary activity, reducing excess inventory and using teamwork to fix problems when they arise.

It places enormous responsibility on line workers at the factory-floor level, known as the *genba*, to manage daily operations and generate innovation. Those workers, viewed by many Japanese as craftsmen, have traditionally been guaranteed jobs for life in return for dedication to their company's goals.

The problem today is that many Japanese companies can no longer afford the luxury of guaranteed lifetime employment for craftsmen on factory floors. And delegating so much authority to line workers has left companies exposed to fraud and corner-cutting, while giving executives room to shirk responsibility, according to management consultants and corporate lawyers knowledgeable about the problems.

"The genba has been broken," says Hideaki Kubori, a Tokyo lawyer experienced in handling corporate scandals. The inability of companies to fully control it has resulted in a "kind of crisis" for Japanese industry, he says.

Kobe Steel, based near Osaka, makes high-end steel products for trains, cars and rockets. It recently admitted to faking quality-certification documents for hundreds of thousands of products for more than 500 clients.

An internal company report completed in October found that line workers were overworked as the company tried to maintain profitability, and executives were out of touch with the factory floor.

Problems intensified during busy periods, says Takashi Ueda, a 24-year-old who works for a Kobe Steel subcontractor and makes final quality checks on wire used in car engine springs. When delivery pressure was tight, he says, Kobe Steel employees approved products he told them might fail to meet required standards. "There are occasions when we are forced to prioritize a quick shipment over quality," he says.

One Kobe Steel employee who has worked for the company for three decades, as a factory manager and at headquarters, says pressure started to build on the genba after Japan's bubble economy burst in the early 1990s.

Quality-checking staffers became some of the first targets of layoffs because they didn't appear as busy as production-line workers, he says. Line workers were told to make quality checks themselves, he says, and some checks were outsourced after the company suspended hiring.

Japan's scandals cut to the core of what has kept Japanese brands popular.

Workers involved in data falsification felt they had no choice because they needed to keep production moving, he says, and customers with urgent orders sometimes accepted products that didn't meet specifications.

Kobe Steel said in a written statement that pressure from management to achieve profits and meet production deadlines was one of the root causes of misconduct. It said it has commissioned an independent investigation to provide recommendations for reform.

Kobe Steel acknowledged in a November report that a "closed culture"—one in which factory workers dealt with problems themselves, often without senior executives in the loop—contributed to its scandal. Its leaders denied having knowledge of the issues before they became public.

"It's beyond my imagination how broad this problem has become," Chief Executive Officer Hiroya Kawasaki said in an October press conference.

On Dec. 21, Kobe Steel demoted three heads of business segments it said were aware of data falsification as far back as 2009. Kobe says it hasn't found safety problems in most products it shipped, but is still investigating.

Japan remains a manufacturing powerhouse. It ranks No. 3 in manufacturing output, behind China and the U.S. and just ahead of Germany, according to United Nations data.

Some $700 billion of Japanese goods are exported annually, mostly machinery, cars and parts such as screens and memory chips for iPhones and aircraft fuselages for Boeing Co. Japanese-owned factories are also a force in the U.S., making products for brands such as Nissan and Toyota in Kentucky, Texas and elsewhere.

Powering Japan's industrial might was a manufacturing model forged after World War II, when its companies sought to rebound by improving products for global buyers. Executives relied on an American management consultant, W. Edwards Deming, who advised companies to boost quality by empowering factory-floor workers to constantly focus on fixing problems.

The approach married well with Japan's ethics of hard work and attention to detail, and was widely adopted. Exports grew in value more than 130-fold between 1950 and 1990. American companies obsessed over Japan's success.

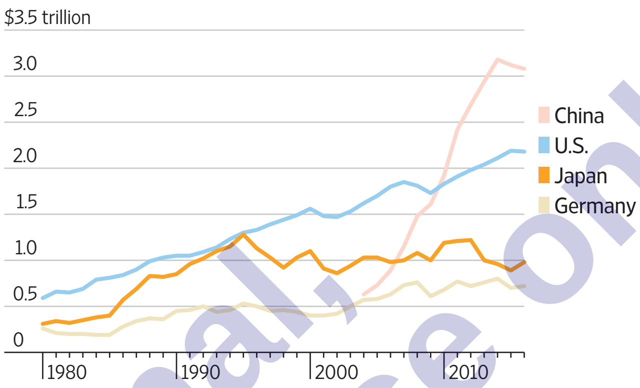
Studies of how Japanese companies outfoxed U.S. rivals considered the impact of Zen Buddhism and martial arts, as well as Japan's culture of building consensus. Ford Motor Co. and others tried to copy parts of the Japanese model.

There were also hints of shortcomings with the Japanese model. In a 1981 Harvard Business Review column, management consultant Peter Drucker wrote that Japanese executives spent little time involved in operational issues, focusing instead on managing relations with customers, bankers and government officials. Even today, manufacturing issues are rarely raised to the executive level, says Atsushi Osanai, a management professor at Waseda University in Tokyo.

Factory Floor

Japan's manufacturing output hasn't kept pace with growth in China and the U.S.

Manufacturing output, at current values



Note: Data for China isn't available before 2004.
Source: United Nations

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Foreign competition

Other countries, including South Korea and China, have gobbled up Japanese market share for exports such as ships and electronics. A strong yen after Japan's economic bubble burst reduced income from products sold overseas.

Japanese manufacturers began replacing permanent genba workers, who receive benefits including holiday pay and a retirement salary, with temporary staff. Panasonic Corp. says that less than one-third of genba workers at its appliance division are now permanent staff, a trend it says it hopes to reverse because it may be hurting its long-term business prospects.

Takuya Shimamura, CEO of Asahi Glass Co., said his company has conducted a survey every year for about the past decade that asks workers whether they would follow orders from a boss to cover up product defects. A surprising number say yes, he said.

"We're now paying the price for reducing new [permanent] hires," he said. Weeks after his comment, Asahi Glass said a subsidiary had issued quality certificates for a scientific tube without conducting the proper test. It apologized and said it would fix the issue.

Some Japanese manufacturers have shifted to more technologically advanced products to cope with the loss of business to foreign rivals. Toray Industries Inc., a maker of plastics and other industrial goods, has posted record profits from high-end products such as fiber used in auto tires.

Demand for such specialty products puts strain on the genba to accelerate innovation and boost quality control, says Hiroshi Osada, a Japanese manufacturing expert at Bunkyo University near Tokyo.

In late November, Toray said a subsidiary rewrote product-quality data on shipments of its fiber for auto tires and other products, with data manipulation as far back as 2008. The company said its actions didn't violate any laws or raise safety issues. It declined to comment further.

Rewritten data

After a subsidiary of Mitsubishi Materials rewrote test data on some products for more than 15 years, the company said in a report that employees had struggled to meet official quality targets for new products for electrical systems for cars. "Taking on impossible business caused many products to fail to meet standards, and this may have led to the inappropriate actions in this case," the report found. The company declined further comment.

Nicholas Benes, co-head of the Board Director Training Institute of Japan, who helped write Japan's corporate-governance code, believes the solution isn't to throw out Japan's manufacturing model. He says the answer lies in tougher corporate governance.

In recent admissions of quality-inspection faking, Japanese executives have repeatedly claimed they had no knowledge of problems. Subaru executives and plant managers said they had no idea workers had created an unofficial training regimen for quality inspectors, including purposely sending cars with defects down the line to see if newcomers could detect them.

A 2004 whistleblower law that guarantees protection for anyone reporting improper workplace activity has had limited success, corporate lawyers say. Japan's genba culture emphasizes dealing with problems within the employee's work team rather than raising them higher.

A corporate-governance code introduced in 2015—Japan's first—called for companies listed on Japan's main stock market to have at least two outside directors. Most companies have done so. The code says outside directors should satisfy Tokyo Stock Exchange rules for independence, but in some cases, the new directors have connections to the companies.

Some experts on Japanese industry see the recent string of scandals as a positive sign that problems are surfacing and being addressed. Others note that some Japanese quality standards may be unrealistically high. Employees of manufacturers, confident their products are of sufficiently high quality, may feel it is OK to ship some that don't meet full specifications, says Mr. Osanai, the Waseda University professor.

Sadayuki Sakakibara, head of the Japanese business federation known as Keidanren, has urged companies to improve governance and ethics, but recently apologized himself after Toray revealed its quality faking scandal.

Mr. Sakakibara was president of Toray at the time of that company's wrongdoing. He said he had no idea about problems on the factory floor.

—Miho Inada, Chieko Tsuneoka and Peter Landers contributed to this article.

FANS

Continued from Page One

recent years as several American skiing stars have emerged.

"We're every country's second-favorite team to root for," says Mr. Ligety, who at age 33 is preparing for his fourth Olympics, which open Feb. 9 in Pyeongchang, South Korea. "If you're Italian, you're not going to root for Austrians."

Nils Wamsler and Ramona Schönbrodt, both 27 years old and German, started a fan club for American phenom Mikaela Shiffrin about five years ago as the then-teenager's career took off. Ms. Shiffrin has won six of the eight slalom races she has entered this season in the World Cup, alpine skiing's top international circuit. She is favored to win her second Olympic gold in the event in Pyeongchang.

Ms. Schönbrodt was inspired to start a Facebook page devoted to Ms. Shiffrin after meeting her while volunteering at a race in Munich in 2013. Ms. Schönbrodt recalls Ms. Shiffrin dropping an armload of gear to sign an autograph for her.

Mr. Wamsler calls Ms. Shiffrin "the female Marcel Hirscher." Translation: Mr. Hirscher is the LeBron James of Austria.

TOM KELLY

Fans of American ski racer Ted Ligety cheer for him in Austria.

Mr. Wamsler built a Shiffrin fan website that he says many mistake for her official site and started a YouTube channel with highlight videos. The fan club fields 30 to 40 requests weekly for Shiffrin autographs, Mr. Wamsler says, mostly from European fans. Club members cheer her on at races wearing ski caps bearing the name of one of Ms. Shiffrin's sponsors, Italian pasta maker Barilla.

"Of course that looks really cool if you have 30 people there all wearing the same hat," Mr. Wamsler says.

U.S. skiers do have American fans. Ms. Shiffrin's manager, Kilian Albrecht, noted that thousands turned out to see her race at World Cup events over the previous two years in Killington, Vt.

Yet Mr. Albrecht acknowledged that the German-based fan club appears to be Ms. Shiffrin's largest. He says it's mainly in European skiing hotbeds that Ms. Shiffrin must leave her team jacket at home and pull her collar around her face to avoid being recognized in public.

About 36% of Austrians identify as skiers or snowboarders compared with 8% of Americans, according to an international ski-industry report by consultant Laurent Vanat.

Alpine skiing is broadcast on public-service media in 24 countries across Europe and is increasingly popular, according to a spokeswoman for the European Broadcasting Union. In Austria, Switzerland and Scandinavia, skiing regularly attracts a market share over 20%—about what last season's World Series averaged in the U.S.

Lionel Agoutin and Peter Menke, both pilots and ski fans, print banners and organize fan support at World Cup races, mostly for American skiers.

Mr. Agoutin lives in Paris and Mr. Menke lives outside St. Louis, though he was born in Strasbourg, France, and considers himself half-French, half-German.

Europeans support American skiers in part because they know U.S. athletes receive no government funding, Mr. Menke says. They also love the country.

"They all recognize that the U.S. really is the land of opportunity," Mr. Menke says. "They look at these skiers in awe."

Europeans have long admired outstanding American skiers. Tamara McKinney, who in 1983 became the first American woman to win the alpine skiing overall season World Cup title, recalls a superfan waving a U.S. flag for her at events along with one from his native Switzerland. Ms. McKinney says she still receives about 20 fan letters a year—19 of them from Europe.

Continental fandom of U.S. skiers gathered steam in the early 2000s, when Americans Daron Rahlves and Bode Miller started winning big races, says Tom Kelly, a longtime spokesman for U.S. Ski and Snowboard. In the past two Olympics, U.S. alpine skiers have won 13 medals, up from a total of four in the 2002 and 2006 Games.

Phil McNichol, U.S. men's alpine team head coach from 1997 to 2008, recalled numerous encounters with fans as the team traveled in Austria.

"It wasn't uncommon to roll into, say, a highway McDonald's and Bode and Daron would just get mobbed," Mr. McNichol says. When American skiers returned to the U.S., he says, "It was like Clark Kent coming out of the phone booth. No one even knew who you were."

A fan in Austria who identifies herself only as Marion says she launched a Facebook page for Lindsey Vonn fans in 2010, after Ms. Vonn won Olympic gold in her best event, the downhill, and a bronze in Super G. The page, bedecked with star-spangled fonts and an American-flag background, has more than 21,000 followers as Ms. Vonn approaches her fourth Olympics.

Mr. Ligety's fan club is still going strong with 49 members, says its founder, Lutz Ebert, a 58-year-old intensive-care nurse in Zwickau, Germany.

He recalls fan club members in matching red jackets bumping into Mr. Kelly, the U.S. Ski team spokesman, a few years ago in an alpine restaurant. Mr. Kelly, who "speaks perfect German," Mr. Ebert says, ordered up an Austrian gesture of hospitality: a round of shots.

"We drank the schnapps together!" Mr. Ebert says.

GREATER NEW YORK

Next Feat in Newark: A Wood Tower

By Keiko Morris

In the contest to attract office tenants, many developers stick with the tried-and-true combination of concrete, steel and gleaming glass.

Lotus Equity Group is embracing a more natural material: wood.

The Manhattan developer said it is planning an 11-story Newark office building made with a wood structure for Riverfront Square, its 4.8 million-square-foot mixed-use development proposed on the site of the former Newark Bears and Eagles Riverfront Stadium and the old Lincoln Motel.

PROPERTY

Designed by Michael Green Architecture, the building would rise like steps in three sections, ascending from six to eight and then 11 stories. When completed, the 500,000-square-foot tower would be among the largest buildings with a structure made of modern engineered wood in the U.S., building experts said.

During the past decade or so more architects, engineers and developers have been exploring the use of robust mass-timber products or engineered-wood panels above six stories, the typical limit for wooden structures. The appeals of wood over concrete and steel are numerous, from a lower carbon footprint to a potentially faster construction schedule and less disruptive process.

But perhaps most appealing is wood's ability to create a warm environment by connecting employees to nature and enhancing their well-being and productivity—common buzzwords among companies looking to compete for workers. Companies in the tech sector in particular have been keen on these workplace designs, a factor viewed as a plus as Newark vies for Amazon.com Inc.'s second headquarters.

"The tech sector is recognizing that the future of office buildings has to be significantly different from what it was in the past," said Michael Green, a Vancouver, British Columbia, architect whose firm has designed a number of tall, engineered-wood buildings in North America. "The workplace where you spend a third of your lifetime better be a place where you actually want to be. And it's not going to be generic office tower."

MICHAEL GREEN ARCHITECTURE/LOTUS EQUITY GROUP

A rendering of an 11-story office tower with an engineered-wood frame structure. The building is planned for Newark's Riverfront Square.

How the High-Rise Material Differs

The manufactured wood that will be used for the Newark office building is different from the typical wood-stick construction used in low-rise residential buildings, architect Michael Green said.

Usually the products used for wood towers consist of pieces or layers of wood from managed forests glued together to form massive, solid columns or panels.

Under fire, these engineered-timber products create a char layer, sealing and protecting the main structural components and allowing buildings to remain standing for longer periods, architects and engineers said.

The office building, which would have roof decks, would be built on a concrete foundation, but above that the structural components—including the core containing elevators and stairwells, floor systems, columns and exterior panels—would be mass timber, Mr. Green said. The interiors would have exposed wood, while the facade could be clad with metal panels, brick or wood.

Newark's building code restricts heavy-timber construction to six stories, but a spokeswoman for developer Lotus Equity Group noted that tall-wood building developments in other states have received exemptions to local code limits by demonstrating the safety of this wood-construction technology. The company believes New Jersey also would be open to exemptions, she said.

Wood won't replace traditional concrete and steel structures, but the construction and development industry, typically conservative and slow to adopt new technologies, has been much more open to exploring its use in the past several years.

Michael Green Architecture also worked with design firm DLR Group and developer Hines on T3, a seven-story mass-timber building in Minneapolis. Hines has two other seven-story mass-timber office buildings—one in Atlanta, the other in Chicago—planned as part of separate joint ventures.

In 2017, architects from Perkins+Will, structural engineers from Thornton Tomasetti and researchers from the University of Cambridge published a study and design of an 80-story timber residential building in Chicago. A number of tall wood buildings have been proposed or completed in Europe and Australia.

The trend toward wood "is really growing out of understanding we now have to create environments for businesses to more effectively recruit, engage and retain their talent," said Jon Pickard, principal at architecture firm Pickard Chilton. "All architects at the leading edge are looking for new ways and new rich experiences."

Among potential trade-offs is the newness of the use of modern engineered wood for tall buildings. Concrete can be cost effective because it has been tried and tested, and many contractors know how to work with it, Mr. Pickard said.

Researchers involved in the design and study of the 80-story wood building found that engineered wood consumed a lot of space to achieve the same structural performance of steel and concrete.

"We couldn't skinny it down as much as you could with concrete and steel," said James Giebelhausen, a Perkins+Will senior project architect who worked on the study.

Ben Korman, Lotus's chief executive and founder, envisions the roughly $1.7 billion Riverfront Square as a project that could help push Newark into the next phase of steady and organic growth. Located at the north end of Newark's central district, the project would include about 2,000 apartments, a public square, more than 100,000 square feet of shops and restaurants, 2 million square feet of offices, as well as hotel and entertainment space, all within seven to 10 buildings.

Cuomo Bans Dealings With Firms That Discriminate

By Corinne Ramey

New York Gov. Andrew Cuomo has signed an executive order barring state agencies from doing business with companies that "promote or tolerate discrimination," a move he portrayed as standing up to the federal government.

"Today I'm signing an executive order prohibiting New York state government from doing any business with any entity that discriminates against any New Yorker, period," Mr. Cuomo, a Democrat, said Saturday night at a gala for the Human Rights Campaign, which advocates for people who identify as lesbian, gay, bisexual, transgender or queer.

In an announcement about the order on Sunday, state officials said the federal government has moved to roll back critical civil-rights protections, including banning transgender people from serving in the military. A White House spokeswoman didn't respond to a request for comment.

State officials didn't specify what particular companies or contracts the ban might affect. A spokeswoman for Mr. Cuomo said Sunday it applies to every firm that does business with the state.

The executive order directs the state's Office of General Services and Division of Human Rights to issue guidelines by May 1. The order affects all agencies and departments over which the governor has executive authority, officials said. The Port Authority of New York and New Jersey said the order doesn't apply to it because it is a bistate agency.

However a spokesman said the agency "has zero tolerance for companies that engage in discriminatory practices."

Mr. Cuomo has tied New York state spending to social issues in the past. In March of 2016, he banned nonessential, state-funded travel to North Carolina after that state passed a measure requiring transgender people to use bathrooms corresponding to the gender on their birth certificates. North Carolina's governor at the time called the move "ridiculous."

Panel Faulted System for Promotions

Chris Dunn, assistant legal director for the New York Civil Liberties Union, is representing three black former detectives in a federal lawsuit that contends they were denied promotions because of their race.

The three filed a discrimination complaint in 2011 with the U.S. Equal Employment Opportunity Commission. In 2016, the commission determined the NYPD promotion system was a "wholly subjective and secret process."

Mr. Dunn said the captain's exam, the highest-ranking position requiring an exam and lowest rank among the executive positions, effectively worked as a "race ceiling." He pointed to the fact that the number of minorities in the captain rank outnumber those in the appointed higher ranks 113 to to 87.

"There are lots of ways to test people's ability to be a successful police executive," Mr. Dunn said. "To the extent the city is using the exam to largely screen out everybody except white males, they need to change the exam and they need to change people's perception about pursuing promotion."

The NYPD said in response to the suit that the department's review of a recent 10-year period, including the two years cited by the litigation, showed that black third-grade detectives at the Intelligence Bureau were promoted at a faster rate than their colleagues.

—Zolan Kanno-Youngs

NYPD Boosts Diversity, but Critics Say More Can Be Done

By Zolan Kanno-Youngs

The New York Police Department kicked off 2018 with a flurry of high-profile appointments of minorities, the latest response to a nationwide push for police forces to diversify their ranks.

In January, Commissioner James O'Neill appointed Rodney Harrison, a black man, as chief of patrol, and Nilda Hofmann became the first Hispanic woman in the NYPD to make three-star chief. The department now has more than doubled the number of minorities in executive positions in the last decade.

Police officials say the department, which is now 50.6% minority overall and 26% in its executive ranks, according to NYPD data, more closely resembles the city it polices.

Critics say the NYPD still has long way to go. "In the executive positions there clearly is a lack of diversity, lack of racial diversity and gender diversity," said the city's public advocate, Letitia James.

In nearby East Orange, N.J., minorities make up 90% of the police force.

Ms. James says the NYPD particularly lags when it comes to hiring and promoting women. Women make up 17.8% of the overall force and 9% of its top officials.

First Deputy Commissioner Benjamin Tucker, an African-American and one of the top officials in the NYPD, said two efforts have been particularly helpful: Recruiting in predominantly minority neighborhoods and reaching out to young people.

BESS ADLER FOR THE WALL STREET JOURNAL

Nilda Hofmann last month became the first Hispanic woman in the NYPD to make three-star chief.

Early signs of progress are most recognizable in the NYPD's lower ranks, he noted. "You can't have a conversation about the executive ranks until you get young people there," Mr. Tucker said.

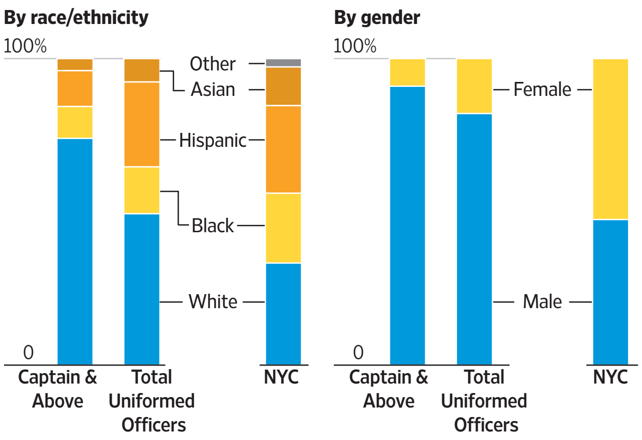
The recruitment used to be as simple as setting up a stand on a street corner and handing out brochures, said a senior police official. Now the department is using social media and stationing officers inside schools to talk to young people.

Police across the country are under pressure to better reflect the demographics of their communities after a spate of police-involved killings in recent years.

But departments nationwide have had difficulties recruiting minorities, said Chuck Wexler, executive director of the Police Executive Research Forum, a police research and policy organization.

Diversity in the Ranks

The New York Police Department says it has made great strides hiring more women and minorities in recent years.



Notes: NYPD data as of Jan. 18, 2018; Census data from 2010
Sources: New York Police Department (captain & above, total); U.S. Census Bureau (NYC)

THE WALL STREET JOURNAL.

In nearby East Orange, N.J., minorities make up 90% of the police department. Director of Public Safety Sheilah Coley said the department achieved that level by first hiring within the community and then recruiting in other towns. They also send supervisors to promotion-exam study sessions to encourage minorities to take the tests.

Mr. Tucker said the NYPD intensified its focus on recruiting in minority neighborhoods after a judge ruled in 2013 the department's use of stop-and-frisk was unconstitutional.

Mr. Wexler said one hurdle to boosting diversity is that multiple departments in the same region often are competing for minorities. Historically, he said, minorities haven't routinely been assigned to the most desirable units in the police force such as investigative units that require appointments.

"The commitment has to be at the top," Mr. Wexler said. "You need the kind of leaders that make it clear to everybody we're really trying to open up opportunities for advancement."

Mr. Tucker said the department encourages everyone to take the promotion exams and data show the department has made "significant progress." In 2007, 11% of the police's executive ranks were minorities compared with 45% of the rest of the department.

Still, Mr. Tucker said the NYPD hasn't made enough progress recruiting black men. He hopes the department's cadet program, which aims to recruit college students, will help those efforts.

The program grew from just over 100 positions in 2014 to 192 in January of 2016. The NYPD has been approved to expand to 637 cadets in coming years. The cadets must be New York residents and have 45 credits in college. If they live in public housing, they only need 15 credits.

"That's been another way to get young people of color as well into the department," Mr. Tucker said.

Another Round for Spot Where Stars Imbibed

By Charles Passy


AGATON STROM FOR THE WALL STREET JOURNAL (2)

The view from the terrace and a place to sit at Ophelia, a bar opening atop the Beekman Tower.

A famed Manhattan rooftop drinking spot has gotten a seven-figure makeover.

Ophelia, a 2,500-square-foot, 100-seat bar, will open mid-February in the former location of Top of the Tower, situated on the 26th floor of the Beekman Tower at 49th Street and First Avenue. The building, considered one of the city's art deco jewels, dates from 1928 and is owned by a group called Beekman Towers Holdings.

With expansive views of the city, Top of the Tower had been a popular spot for decades, with a list of guests that was said to include Frank Sinatra and Miles Davis. But the bar had been closed for the past few years, according to Abraham Merchant, chief executive of Merchants Hospitality Inc., the company that operates Ophelia and owns several other Manhattan bars and restaurants.

The name Ophelia refers to the character from Shakespeare's "Hamlet," but it also is a nod to the Beekman Tower's heritage as a residence for young women starting their careers. The building is currently run as an extended-stay hotel.

In taking over the Top of the Tower space, Mr. Merchant said his company aimed to restore some of its art deco glamour, while offering contemporary and whimsical touches.

Merchants Hospitality also removed equipment that had occupied one of the bar's two terraces, giving patrons more opportunity to enjoy views from the outside.

"When you look at the city without a glass pane in front of you, it's different," he said.

Mr. Merchant declined to reveal the exact amount his company spent on the bar's renovation, but said it was in the seven figures.

The opening of Ophelia comes at a time when rooftop bars are becoming popular spots throughout the city, with many having the same mix of indoor and outdoor spaces so they can welcome crowds year-round. A recently opened example is the Magic Hour Rooftop Bar & Lounge, operated by the Tao Group, at the Moxy Times Square hotel in Midtown Manhattan.

Noah Tepperberg, a partner with Tao Group, which operates other rooftop bars in Manhattan, said the rooftop concept appeals to a new visual-minded generation.

"People want to take a picture of where they are and share it with friends," he said. "It's the Instagram mind-set."

Testimony at Odds in Murder Trial of Police Sergeant

By Zolan Kanno-Youngs

The prosecution's murder case against New York Police Department Sgt. Hugh Barry grew more complicated Friday with the eyewitness testimony of a fellow NYPD officer.

Officer Michael Garces, who was called to the stand by prosecutors, offered testimony in Bronx Supreme Court that differed from the prosecution's previous witness testimonies on details of the 2016 death of a 66-year-old mentally ill Bronx woman.

More of the officers who responded to the incident are expected to testify on Monday.

Earlier, two emergency-medical technicians testified that one of the medics began a dialogue with Deborah Danner before Sgt. Barry entered her apartment and eventually shot her.

Sgt. Barry faces charges of second-degree murder, criminally negligent homicide and manslaughter. He pleaded not guilty and opted for a trial solely in front of a judge.

His attorney, Andrew Quinn, has argued that Sgt. Barry fired his weapon because Ms. Danner threatened his life with a baseball bat.

Officer Garces was one of the four officers to initially go to Ms. Danner's Castle Hill apartment on Oct. 18, 2016, after a neighbor called the police to report that Ms. Danner was screaming in the hallway.

Upon his arrival, Officer Garces, who worked under Sgt. Barry before the killing of Ms. Danner, said Ms. Danner screamed at him and three other officers, none of them Sgt. Barry, to get out of her apartment. Officer Garces said that during this time, Ms. Danner was sitting on her bed holding scissors while the officers—from outside her bedroom—tried to persuade her to drop them.

Officer Garces said the only time he heard an EMT was when a woman behind him said she wouldn't talk to Ms. Danner until she dropped the scissors. Officer Garces said an EMT never walked past him to Ms. Danner until she was shot.

Officer Garces said Sgt. Barry came into the apartment and stood about 12 feet from Ms. Danner outside her bedroom. "Put the scissors down," Sgt. Barry said, according to Officer Garces.

"She responded by yelling, screaming and cursing Sgt. Barry out," Officer Garces said. "She said if we come in here, she's going to use these," referring to the scissors.

The officer then said the police made a "quick shift," and moved as a group to Ms. Danner's bedroom. Officer Garces, in the back of the pack, said he couldn't see over his colleagues but heard someone say "drop it" multiple times and then seconds later heard two gun shots.

GREATER NEW YORK WATCH

CONNECTICUT

Off-Duty Trooper Is Killed in Crash

Connecticut State Police say an off-duty trooper was killed in a traffic accident over the weekend.

Trooper Danielle Miller died from injuries she sustained in the accident Saturday night in Wolcott, when her police cruiser and a pickup truck collided on Route 69, police said Sunday.

Trooper Miller was assigned to Troop L in Litchfield. She graduated from the police academy in 2014.

—*Associated Press*

NEW JERSEY

Nuclear Plant to Close Earlier Than Planned

Exelon Corp. will shut a New Jersey nuclear power plant in October, a year ahead of schedule, as cheaper energy sources continue to challenge the nuclear industry.

Exelon said higher operating costs and low electricity prices prompted it to accelerate the closing of the Oyster Creek plant in Ocean County, about 60 miles east of Philadelphia.

Oyster Creek is one of the nation's oldest operating nuclear plants. Its reactor entered commercial service on Dec. 1, 1969. The average age of U.S. commercial reactors is 36 years, according to the U.S. Energy Information Administration.

—*Austen Hufford*

PETER ACKERMAN/THE ASBURY PARK PRESS/ASSOCIATED PRESS

Exelon Corp.'s Oyster Creek plant will close in October.

LIFE & ARTS

TELEVISION

A Few Beautiful Days Back in His Neighborhood

A documentary, biopic, postage stamp and more are planned to recognize Mister Rogers

BY DON STEINBERG

CLOCKWISE FROM TOP RIGHT: PHOTOFEST; THE FRED ROGERS COMPANY (2); USPS

WON'T YOU BE MY NEIGHBOR? Clockwise from left, a new postage stamp, Fred Rogers on his weekday show, 'Daniel Tiger's Neighborhood,' and Michael Keaton in the PBS special 'Mister Rogers: It's You I Like.'

IN A CLASSIC moment in Senate subcommittee history, Fred Rogers in 1969 helped secure funding for public television by describing his show, "Mister Rogers' Neighborhood," and reciting the lyrics from one of its songs, "What Do You Do With the Mad That You Feel?"

When he finished, Sen. John Pastore, who was leading the hearing and had bristled at earlier testimony mostly consisting of statements being read, was visibly moved.

"I think it's wonderful. I think it's wonderful," he said. "Looks like you just earned the $20 million."

The scene is featured in a new documentary, "Won't You Be My Neighbor?," directed by Morgan Neville, that drew tears from many critics at the Sundance Film Festival in January. The film opens in theaters in June, part of a series of events celebrating the 50th anniversary of "Mister Rogers' Neighborhood," a series that in an unfailingly gentle tone taught children about everything from how to make friends and what factories are like to heavier topics like divorce and war.

"We had a director that once said to me, 'If you take all the elements that make good television, and do the exact opposite, you have "Mister Rogers' Neighborhood,"'" Margaret Whitmer, who worked on the original series, recalls in the documentary. "Low production values, simple sets, an unlikely star—yet it worked because he was saying something important."

Rogers-mania gets rolling on Tuesday when TV quiz show "Jeopardy!" devotes one of its categories to Mr. Rogers, who died of cancer in 2003. Later this month, PBS plans to air classic episodes of "Mister Rogers' Neighborhood," which began in 1968 and ran until 2001. On March 6, PBS stations air their own hourlong documentary special, "Mister Rogers: It's You I Like," featuring interviews with Judd Apatow, Whoopi Goldberg and Sarah Silverman and hosted by Michael Keaton, who worked on the show at Pittsburgh station WQED as a stagehand and young actor.

The example Mr. Rogers set "was the bar of how I would like to behave," says Mr. Apatow, the comedy director whose movies include "Knocked Up" and "The 40-Year-Old Virgin." "He was pure love."

In the spring, the U.S. Postal Service plans to issue a Fred Rogers stamp, and the toy company Funko is adding Mr. Rogers to its universe of collectible vinyl figurines that includes Harry Potter, Wonder Woman, and "Walking Dead" zombies. Tom Hanks is attached to portray Mr. Rogers in the biopic "You Are My Friend," with production scheduled to begin later this year.

Every weekday for decades, Mr. Rogers would enter his TV house, singing "Won't You Be My Neighbor." He swapped his jacket for a zip-up cardigan (his mother made his sweaters), then sat to change his shoes. He might have a guest demonstrate how a machine or a musical instrument worked. He spoke without irony, understanding how children can take words literally.

Soon the trolley would swing by and transport viewers to a world of make-believe, where puppets, voiced by Mr. Rogers, played out scenes reflecting early-childhood dilemmas. There was bossy King Friday XIII, who in an early episode built a wall to prevent things from changing, and timid Daniel Tiger, who often needed to be reassured. Mr. Rogers' songs, released on more than a dozen albums, helped the smallest children process their feelings.

"He turned big ideas into very simple messages," says Ellen Doherty, head of production and creative development for the Fred Rogers Co., which continues to produce programming such as "Daniel Tiger's Neighborhood" for PBS.

Born in Latrobe, Pa., in 1928, Fred Rogers studied music composition and theology and worked with child psychologist Margaret McFarland at the University of Pittsburgh. He was already married with two sons when he was ordained as a Presbyterian minister in 1963. But he was enthralled by the potential of TV and went to work at NBC in New York, not long after FCC chairman Newton Minow had called television a "vast wasteland."

"He never had a church. He had TV," says Ms. Whitmer, now director of video production and special events at the Fred Rogers Co.

Ron Simon, curator of television and radio at the Paley Center for Media in New York, which is planning its own Mr. Rogers events later this year, calls him "one of the great television auteurs."

Without fanfare, Mr. Rogers' program addressed topics like birth (one episode showed a kitten being born), death and physical handicaps. He showed himself struggling to learn and making mistakes. He revealed how he controlled the puppets and told children they could invent their own make-believes.

It is tempting to say that a program like his couldn't thrive in today's culture. But the show had its debut at a turbulent time. In June 1968, Mr. Rogers wrote a special episode in which Daniel Tiger meekly asks Lady Aberlin: "What does assassination mean?"

The addition of a Funko toy seems like an outlier to the heartwarming sentiment, but it reflects Mr. Rogers' multigenerational impact on pop culture.

"We're always looking for licenses that resonate with fans and collectors," says Mark Robben, Funko's director of marketing. "Sometimes they're real people. We just announced a set of RuPaul figures. It's obvious that Mr. Rogers really holds a special place in the heart of just about everybody."

Paul Siefken, chief executive at the Fred Rogers Co., says the company hasn't done many projects like this.

"I think Fred was always a little hesitant to do bobbleheads," Mr. Siefken says. "He thought they might scare children."

MARKETING

CELEBS ARE OUT, REAL PEOPLE ARE IN

BY ANNE MARIE CHAKER

FROM LEFT: CAROL'S DAUGHTER; BOMBAS

Lisa Price, left, features in ads for Carol's Daughter, a line she founded; above, Randy Goldberg and David Heath promote Bombas socks.

THE FACE OF Carol's Daughter, a unit of L'Oreal SA, isn't a singer, actress or model—but its founder, Lisa Price.

The line of beauty products was founded by Ms. Price in her Brooklyn, N.Y., home, where she developed lotions and hair products and sold them in neighborhood markets. L'Oreal promotes this as a point of pride: In video ads Ms. Price, who is still involved with the company, rides an escalator at L'Oreal's New York office. Images show Ms. Price at a kitchen stove, in photographs alongside her mom and finally on Oprah Winfrey's show. The camera then pans to a trophy commemorating L'Oreal's acquisition of Carol's Daughter at the end of 2014. In the video, which runs on social media, Ms. Price says, "I actually got to watch a dream come true."

In the past multinationals acquiring smaller firms quickly replaced owners and absorbed them into the big brand-making machine. Now, in a bid to draw in skeptical consumers weary of celebrity pitches, companies from large conglomerates to smaller upstarts are putting lesser-known founders out front, recognizing the appeal of home-grown brands.

L'Oreal in September launched a social-media ad campaign called Founders Series that highlighted recent brand acquisitions and their entrepreneurial roots. One describes how Ms. Price took Carol's Daughter from a hobby to a business. Others include makeup brands Urban Decay and It Cosmetics, featuring the founders of those brands who are still involved. Those stories are proving to be a more powerful marketing message than just a pretty face, executives say. "She's a real person and how she came up with the idea, her struggles, her doubts. . .these are incredibly compelling stories," says Carol Hamilton, group president for the Luxe division of L'Oreal USA.

The stories, and the goofy charm or underdog appeal of the people in them, make them quick to be shared on social media, giving the pitch some legs. "Having a shareable story is the thing you must do to succeed in marketing today," says Allen Adamson, co-founder of Metaforce, a brand consulting firm.

A growing number of consumers are paying closer attention to people that look more like them and have a compelling story to tell, data show. Only 11% of 1,682 respondents to an early January survey by Pittsburgh, Pa.-based polling firm CivicScience said they were "much more" or "somewhat

Please see PITCH page A12

WHAT'S YOUR WORKOUT? | By Jen Murphy

An Olympic Daredevil's Uphill Battle

U.S. Olympic skeleton hopeful John Daly trains in Lake Placid, N.Y. His sport requires the speed of a sprinter, top right, and the explosive power of a weightlifter, left.

JOHN DALY credits a first date with getting him to return to a sport where you hurl yourself head first down an icy chute on a tiny sled reaching speeds above 80 miles an hour.

Mr. Daly had made a clean split from the sport after a devastating 2014 Winter Olympics where he skidded from medal contention to 15th place on his final run of the men's skeleton competition. "I decided to hang up my spandex and re-enter the real world," he says.

He relocated from the U.S. Olympic Training Center in Lake Placid, N.Y., where he'd lived for eight years, to Arlington, Va., where he got a job selling pediatric medical equipment.

Life as a former Olympian meant he finally had time for happy hours, friends and dating. In the fall of 2016, over tapas and small talk, a woman he met online asked what he was passionate about. "I thought, 'That's a deep question for a first date,'" he says. "But it got me thinking that nothing makes me feel more alive than racing."

Mr. Daly had been "sliding," as the sport is known, since he was 12. He initially competed in luge. When he threw a snowball at his bobsled coach, the coach made him try skeleton. He was hooked. Now 32, he's come out of retirement for his third Olympics, which take place this month in Pyeongchang, South Korea. He began training again in October 2016, while still holding down his full-time job.

Mr. Daly says juggling an intense schedule hasn't been as tough as turning his competitive drive back on and putting himself out there again for potential victory or defeat. To remind himself of why he's coming back, he wears a necklace that reads, "It's not going to be easy, but it's going to be worth it." Mr. Daly is ranked 15th in the world as he heads to the Games.

The Workout

Mr. Daly says skeleton requires the speed of a sprinter and strength of a powerlifter. The start requires athletes to sprint for about 30 yards on the ice, pushing their sleds

with one hand before they dive onto the sleds head first, trying to mold their bodies into the sleds and relax as they endure up to 5Gs of force going around curves. Athletes steer by making small movements with their shoulders and knees pressing into the sled.

Leading up to the Olympics, Mr. Daly had to fit in eight workouts Monday through Friday while juggling a 7 a.m.-to-3 p.m. work schedule. "If I don't wake up at 5 a.m. for one of my workouts, that means I have to double up in the evening," he says. Mondays, Wednesdays and Fridays he would train three hours. "Instead of driving an hour after work to change, I keep a bag in my car and head to the closest track and Gold's Gym," he says.

Tuesdays and Thursdays he did light tempo jogging workouts and hit a pool to do mobility drills with water resistance. "You're in a bent-over position running with the sled, so it's important to stay flexible," he says. Once fall arrived, Mr. Daly had to get on the ice to train. He'd usually drive nine hours to Lake Placid on Fridays so he could train over the weekend, or he would fly to Europe for World Cup competitions.

The Diet

"I eat the same thing for breakfast and lunch six days a week," Mr. Daly says. Breakfast is two eggs and Greek yogurt. On his splurge day he might have Lucky Charms. "I really enjoy unhealthy cereals," he says. Lunch is breaded chicken, a vegetable like kale, broccoli or Brussels sprouts, and an apple or berries. He snacks on almonds. He does a lot of meal prep so he can heat up dinner and alternates between meat- and carb-focused nights. When on the road he always has a water bottle and trail mix. Sour Patch Kids are his guilty pleasure. Peanut butter and jelly with toasted marshmallows is his go-to late night snack.

The Gear

Mr. Daly says footwear is everything in his sport. "Our shoes look like track and field spikes, but with 250 tiny spikes on the bottom so we don't slip," he says. Athletes wear aerodynamic helmets. Sleds are about 3 to 4 feet long and 18 inches wide. Men's sleds cannot exceed 95 pounds. Mr. Daly competes in a speed suit. Sponsors cover his equipment costs.

The Playlist

"I listen to a mix of everything, but my go-to is house music," he says. The English EDM group Above & Beyond and DJs like Tiësto and Avicii are staples of his workout mixes. When he wants to get pumped up he listens to heavy metal from Five Finger Death Punch or Rob Zombie.

What Is Skeleton, Exactly?

If you ever went sledding as a child, you might have found sliding down a snowy hill head first more thrilling than sliding feet first.

The sport of skeleton is an extreme version of the childhood activity. Athletes negotiate a series of twists and turns while sliding head first, face inches from the ice, on a one-person sled that offers little protection. The sled itself is called a skeleton because of its bony shape.

The sport evolved from sledding and most believe it was developed in the Swiss resort town of St. Moritz. The sport made its Olympic debut in 1928. Any Joe Schmo can try out for the skeleton team, says Tuffield Latour, the Lake Placid, N.Y.-based U.S. skeleton national team head coach.

And most athletes, he says, have what it takes to be a bobsledder or skeleton racer.

"To be great in the sport, body awareness is key," he says. "This will allow you to understand what's happening in each curve and be able to feel the curve. Then it comes down to speed, power and natural ability."

Mr. Latour says the course in South Korea is unique.

"Curve Two is somewhat of an old-school corner," he says. "Even the best pilots have issues exiting this corner. Turn Nine is the one corner that most athletes will struggle with over the four heats of the race. The exit of this corner runs into a straightaway will surely cost someone a medal."

JERRY SWOPE FOR THE WALL STREET JOURNAL

PITCH

Continued from page A11

more" likely to buy a brand's product when it collaborates with a celebrity or model. The vast majority—89% of respondents—said they were not likely to be influenced by the famous face.

The use of celebrities and models have declined by at least 50% in the last five years, says Metaforce's Mr. Adamson. "There is an incredible degree of skepticism," he says, particularly among younger consumers. "It's 'I know the celebrity is being paid and isn't really using that product,'" he says. Entrepreneurs, on the other hand, have become a new kind of celebrity, he says, aided by the popularity of TV shows like Shark Tank.

According to a survey by public-relations agency Edelman conducted last fall, 50% of respondents felt that "successful entrepreneurs" were credible company spokespeople versus 20% who felt that way about celebrities.

Video ads on Facebook for Madison Reed, a home-delivery hair color company, feature founder Amy Errett working on her laptop, wearing glasses and hugging her daughter. In radio ads, she explains how she named the company after her daughter. In these, she offers a product pitch designed to get the attention of women accustomed to spending hundreds of dollars and several hours each month in a salon: "Ammonia-free, salon-quality at home hair color for under $25."

Customers fill out online questionnaires and send pictures of themselves to hair colorists at the company who determine what shades they need. Boxes of color, which cost $20 to $25, are delivered at home.

FROM LEFT: BEKKA PALMER; THIRDLOVE

Amy Errett, top, founder of Madison Reed home-delivery hair-color company makes video and radio ads for the brand; Heidi Zak, the creator of ThirdLove bra company, appears in a national TV ad.

Just over a third of the brand's advertising budget is radio ads, Ms. Errett says. Women often hear about the product while in their cars, driving to or home from work. When the company started advertising on the radio in 2016, it tried hiring a voice-over actor for a couple ads. But Ms. Errett's own voice in ads outperformed the professional eight to one, says chief marketing officer Heidi Dorosin.

"It's her authenticity. She's your friend. She's not Cindy Crawford," says Ms. Dorosin. The company increased its advertising budget for radio seven times in 2017. It has amassed over $70 million from investors and doubled in revenues each year since it launched in 2014. It has also begun opening quick-service salons—similar to blowout bars but for hair-color—that cost around $60 and take about an hour.

Randy Goldberg and David Heath, 39- and 34-year old former colleagues at a media startup, founded an online socks business called Bombas in 2013 on a crowdfunding site with the idea to give away a pair of socks to homeless shelters for every pair sold. Videos on social media sites including Facebook, Instagram and Youtube describe the socks (arch support, anti-microbial treatments and stay-up technology) but spend equally as much time on the pair's friendship, the company's relationship with the homeless community and Mr. Heath's goal of getting a tattoo after donating a million pairs of socks. The buzz worked: In 2017 the company grew 200% in revenues. It has donated 6.5 million pairs of socks.

"I don't have a radio voice," says Heidi Zak, the 39-year old founder of ThirdLove, a bra company that makes bras in half sizes for women in between standard sizes. She launched the online business in 2014 with the belief that most women don't enjoy bra shopping and would rather buy comfortable undergarments from home.

In a national TV ad, Ms. Zak says: "I founded ThirdLove because I believed we deserve better bras and an easier way to find them."

The company has found its core consumer to be between 25 and 45 years old. "It's that millennial-to-young mother demographic," says Ms. Zak. "They want to understand the 'why' behind the company."

ART REVIEW

An Art Patron's Forgotten Creativity

BY ERIC GIBSON

West Palm Beach, Fla.

Gertrude Vanderbilt Whitney (1875-1942) is known as the founder of the Whitney Museum of American Art. But she was also a sculptor, and a very good one. Her memorial to the victims of the Titanic, in Washington, is one of the greatest works of commemorative art produced in this country. So why has it taken 75 years for there to be a major survey of her work, which the Norton Museum of Art has now organized?

Whitney worked in a realist style that was innovative for its time—the sculpural equivalent of works by her friends the Ashcan School of painters. That might have been enough to secure posthumous renown had it not been for the 1913 Armory Show and its impact. Artists, like Whitney, who remained unmoved by the language of abstract and semi-abstract forms on view there ultimately fell into obscurity. So while this show will travel, her eponymous museum in New York will not be a venue, a situation that can be most charitably described as odd.

More than an exhibition, then, "Gertrude Vanderbilt Whitney: Sculpture" is an act of cultural reclamation. Organized by the Norton's Ellen E. Roberts and featuring some 45 sculptures and drawings, it restores to view the work of an artist who, while she didn't invent new forms or styles, nonetheless brought something completely individual to American sculpture.

Gertrude Vanderbilt was born into the uppermost reaches of American wealth and society. In 1896 she married Harry Payne Whitney, who, as Ms. Roberts notes in the exhibition catalog, "was heir to only slightly less money than she was." Yet from the beginning she chafed under her emotionally repressed family environment and the limitations imposed by her gender and social class. Women of her day were supposed to stay at home and raise children. Heiresses occupying themselves with anything more serious than teas and charity balls were dismissed as dilettantes. As the label accompanying her 1906 portrait bust of Harry wryly notes, he "considered her interest in art making to be the equivalent of his own interest in polo and horseracing."

Anyone doubting Whitney's talent or seriousness need only look at "Spanish Peasant" (1911) here. A plaster portrait bust of one of her studio assistants, it is bracing in its stripped-down realism, with nothing detracting from the sensitive limning of character and mood of introspection.

In 1914 Whitney was awarded the commission for the Titanic memorial, producing an over-life-size, loosely draped male figure standing with arms outstretched and face tilted slightly upward. In its combination of formal simplicity, rhetorical restraint and subtle symbolism it has few equals in American public sculpture.

But there's a subtle difference in the nearly 3-foot-tall model, included in the show, that has a transformative effect on the statue's meaning. In the finished monument both palms face down. Here the right one faces up, the left down, a position signifying harmony and balance in Chinese cosmology. Thus the overall pose fuses Christian and Buddhist symbolism. Whitney had traveled to Asia on her honeymoon in 1896, and 17 years later sculpted a self-portrait, "Chinoise," also in the show, depicting herself in the pose of a bodhisattva. So Asian iconography was part of her visual lexicon.

Like many American sculptors of her generation, Whitney came under the influence of Auguste Rodin. For Whitney, the Frenchman's free handling of material and frank—sometimes scandalously so—emotionalism represented both a new approach to sculpture and a way of uncorking long bottled-up emotions. This influence is most pronounced in a series of war sculptures.

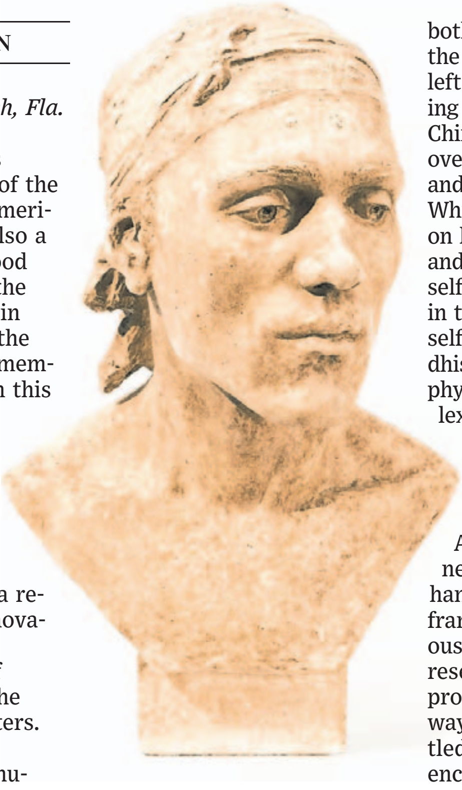
Whitney had volunteered in a hospital outside Paris and had seen firsthand the effects of the carnage. So in contrast to the heroic voice of most other American representations of World War I subjects, Whitney's sculptures articulate a tragic vision. Poignant but unsentimental works, their subjects are the looming shadow of mortality—such as the show's "Orders," of a soldier learning his destination, and "Home Again," where a crutch-toting serviceman is embraced by his wife or girlfriend—or death itself, as in the Washington Heights and Inwood Memorial in upper Manhattan. Here two soldiers support the collapsing figure of a comrade about to expire.

While Whitney remained faithful to her realist vision throughout her career, here and there a modernist impulse makes itself felt. It appears in the subordination of descriptive detail to the play of material in the smaller war sculptures, and in "Daphne" (1933), which we read both as the representation of a mythological subject and pure form in space.

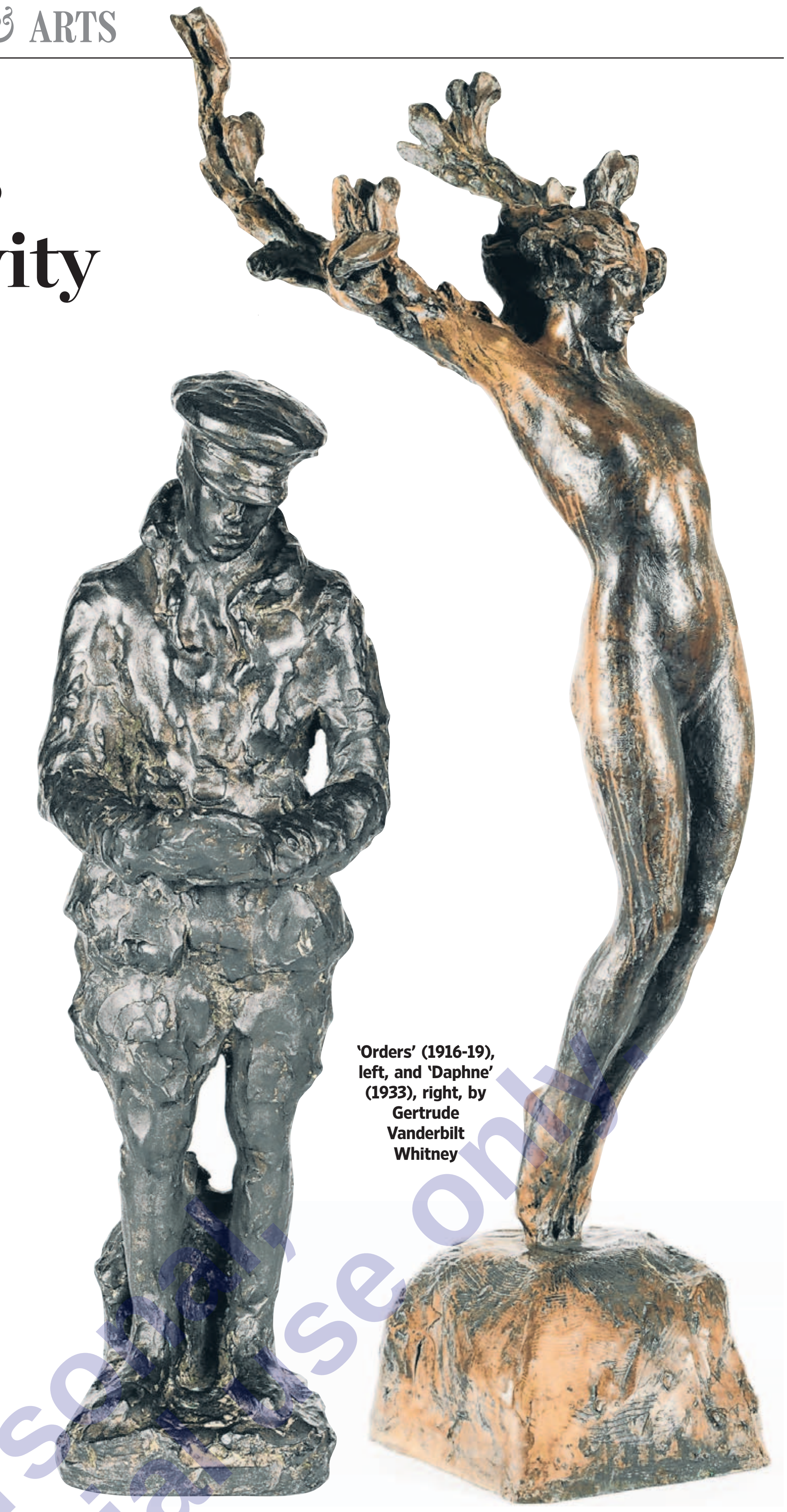
You can be an ardent modernist and still regret the exile of so many talented sculptors from the story of American art on grounds of ideological impurity. Some, like Augustus Saint-Gaudens (1840-1907), have been rehabilitated. But many others, like the brilliant *animalier* Herbert Haseltine (1877-1962), continue to languish in museum storerooms. It would be nice to think that, rather than an isolated event, "Gertrude Vanderbilt Whitney: Sculpture" is the beginning of a broad reconsideration of these figures.

Gertrude Vanderbilt Whitney: Sculpture
Norton Museum of Art, through April 29

Mr. Gibson is the Journal's Arts in Review editor.



From top: 'Spanish Peasant' (1911); Gertrude Vanderbilt Whitney working at her MacDougal Alley studio, c. 1919; and the model for Washington Heights and Inwood Memorial (1921-22)



'Orders' (1916-19), left, and 'Daphne' (1933), right, by Gertrude Vanderbilt Whitney

NORTON MUSEUM OF ART (4); LOC (VANDERBILT)

SPORTS

SUPER BOWL LII

BRAD REMPEL/REUTERS

Nick Foles threw the go-ahead 11-yard touchdown pass to Zach Ertz with 2:21 to go and the Philadelphia Eagles won their first Super Bowl with a 41-33 victory over the New England Patriots.

Fly, Eagles Fly to a Super Bowl Title

BY ANDREW BEATON

MINNEAPOLIS—The Eagles had every reason not to win, or even reach, Super Bowl LII. They lost their star quarterback over a month ago. They were an underdog in every playoff game. Then they had to play the Patriots.

But absolutely nothing about this Super Bowl was reasonable. The elite defenses didn't show up. The kicking was historically awful. The quarterbacks became wide receivers. The Patriots made a comeback—and then lost.

In a nutty barnburner that gave everything football has to offer—offensive fireworks, forehead-smacking miscues, trick plays, a gruesome injury and a debate about the NFL's most arcane rule—the Philadelphia Eagles withstood a trademark New England rally to win the first Super Bowl in franchise history, beating the New England Patriots 41-33 here at U.S. Bank Stadium.

Throughout most of this, the Eagles led—but the crux of this Super Bowl began in earnest with them losing and holding the ball. They trailed by one, 33-32. There was 2:21 left on the clock. This was the moment the NFL's nightmare became reality because its most impenetrable rule entered the limelight in the waning moments of the biggest game of the year.

That's when Nick Foles hit tight end Zach Ertz for an 11-yard touchdown pass. That's how it was ruled on the field, at least. But as Ertz leapt for the end zone, the ball came loose it hit the ground when he landed. It appeared to be the exact call that caused an uproar earlier this season—and that time, after it was reviewed, it was ruled incomplete, favoring New England and sending Pittsburgh fans into a tizzy.

Here it went to review too. Whatever the decision, outrage was guaranteed. Either New England would benefit from yet another controversial call. Or the call would be different this time, adding even more confusion to a baffling rule. The call stood—touchdown. And Philadelphia took a 38-33 lead.

Then Tom Brady, master of the comeback, faltered: On the ensuing drive, he fumbled. Philadelphia recovered, kicking a field goal to go up 41-33. Brady's last-gasp attempt with a minute left fell short at midfield when a Hail Mary dropped to the ground.

And cries of "Fly, Eagles Fly" poured in from the Philadelphia-favoring crowd that crowded this city in the hopes of seeing the improbable feat that came true.

Amid all of this, Nick Foles cemented his status as a Philadelphia hero. The backup-turned-starter did what his counterpart, Brady, has done better than anybody in football. Foles brought his team back late. He threw for 373 yards and three touchdowns. Which was enough to fend off Brady's 505 yards.

Foles's gem was built on the same guts and aggression that carried this team to the final game of the season. Philadelphia, the team that converted on more fourth downs than any team in the NFL during the regular season, did so twice. The second of those came on that fateful drive resulting in the controversial touchdown. On 4th-and-1 at their own 45-yard-line, with 5:39 to go. Foles took the snap and hit Ertz. The two-yard completion was just enough to keep the drive alive for an even more dramatic pass to that same tight end a few minutes later.

This late-game mayhem overshadowed a first half where so much happened that anybody in their right minds could have been thrilled if that much action took place over the course of the entire game. The teams combined for 673 yards in the first 30 minutes. There were three missed kicks, two trick plays and one converted successfully for a touchdown.

The one play that encapsulated it all came with 34 seconds left in the half on fourth down. The Eagles led by three on the New England 1-yard line. The only thing bolder than going for it was the play they called: The snap went directly to running back Corey Clement. He handed it off to tight end Trey Burton. But Burton isn't any ordinary tight end—he was once recruited to play quarterback at Florida. That he could throw the ball competently in a pinch wasn't entirely shocking. The stunning part was the person on the receiving end: Foles, who was wide open for the score.

That made it 22-12 after both offenses hummed against two defenses that had flexed their muscles all season. But the scores looked entirely un-football-like because of a series of kicking miscues: Philadelphia's Jake Elliott missed an extra point; then New England's Stephen Gostkowski missed a chip shot after the hold was botched; later, Gostkowski missed an extra point.

But in the second half, a New England comeback felt inevitable. This was the team that overcame a 28-3 deficit to overcome the Falcons in the Super Bowl a year ago. And they came back to go up 33-32. But it didn't last.

The Super Bowl caps a dramatic season, not just for the entire NFL, but for the Eagles in particular.

New England started the year as the Super Bowl champions and the Super Bowl favorites. Philadelphia was coming off a last-place finish in the NFC East and was considered a long-shot to win it all.

But even quicker than Philadelphia's transformation from predicted mediocrity to Super Bowl favorite, the team's hopes were dealt a crushing blow: Carson Wentz, the most important player for the Eagles' success, went down with a season-ending injury.

But it turned out that Philadelphia was more prepared for this nightmare than any team in the NFL.

The Eagles have one of the most aggressive and innovative front offices in the league, and over the past couple seasons they made a conscious decision to keep acquiring talented quarterbacks—even backups. They didn't want to be the team that saw its season sunk by an injury to a single player, and the quarterback is the only player who can do that to a team.

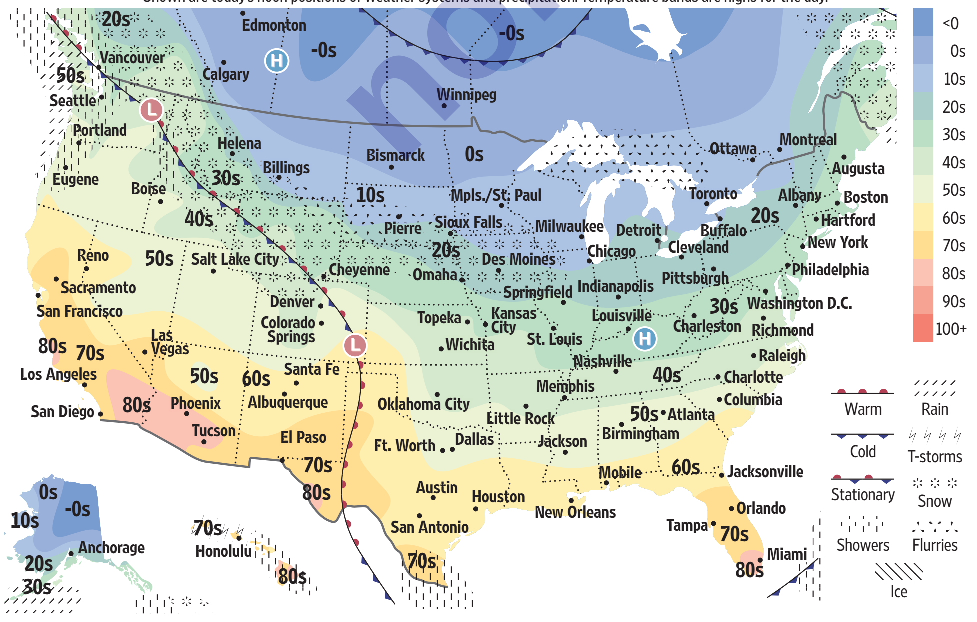
So in March they cut their backup quarterback and signed a better one.

That was Nick Foles, the Super Bowl's MVP.

Weather

AccuWeather DOWNLOAD OUR APP TODAY

Shown are today's noon positions of weather systems and precipitation. Temperature bands are highs for the day.



U.S. Forecasts

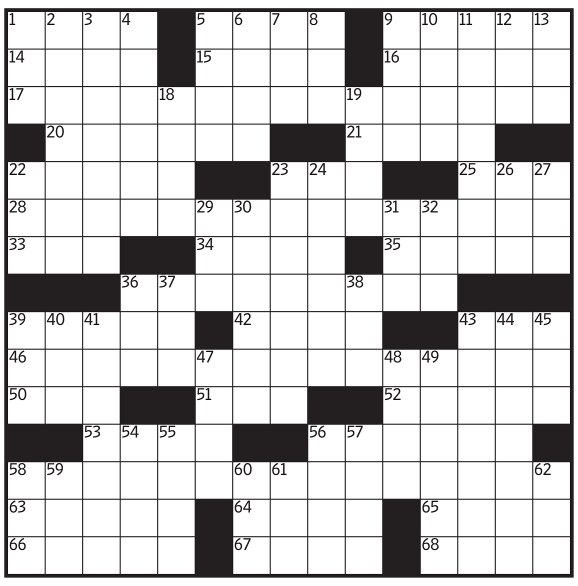
s...sunny; pc... partly cloudy; c...cloudy; sh...showers; t...t'storms; r...rain; sf...snow flurries; sn...snow; i...ice

City	Today Hi	Today Lo	Today W	Tomorrow Hi	Tomorrow Lo	Tomorrow W
Anchorage	24	21	s	31	20	sn
Atlanta	51	36	s	63	52	pc
Austin	62	56	c	69	43	r
Baltimore	35	20	s	44	29	pc
Boise	54	35	pc	51	34	pc
Boston	39	21	s	36	26	c
Burlington	28	12	pc	30	15	c
Charlotte	48	30	s	57	43	pc
Chicago	18	6	sn	21	16	c
Cleveland	26	21	pc	33	28	c
Dallas	56	49	pc	60	35	r
Denver	54	23	pc	43	23	c
Detroit	23	13	pc	26	17	c
Honolulu	79	68	t	78	68	t
Houston	62	55	c	73	58	c
Indianapolis	28	19	pc	34	22	sn
Kansas City	37	16	pc	24	7	sn
Las Vegas	77	50	s	74	44	s
Little Rock	48	37	s	46	35	r
Los Angeles	77	54	pc	76	54	pc
Miami	81	67	c	80	69	pc
Milwaukee	18	8	sn	18	11	c
Minneapolis	18	-5	c	10	5	pc
Nashville	42	32	pc	49	45	r
New Orleans	63	54	pc	70	63	t
New York City	34	25	s	39	33	c
Oklahoma City	48	30	pc	52	18	sh
Omaha	25	7	sn	22	15	c
Orlando	73	52	pc	79	58	pc
Philadelphia	34	24	s	42	30	pc
Phoenix	80	52	s	80	55	s
Pittsburgh	25	19	pc	34	30	c
Portland, Maine	39	14	s	32	19	pc
Portland, Ore.	53	42	c	52	38	c
Sacramento	72	46	s	73	42	s
St. Louis	35	21	pc	34	17	sn
Salt Lake City	54	38	c	48	33	pc
San Francisco	66	50	s	68	48	s
Santa Fe	60	27	s	54	20	pc
Seattle	49	43	c	50	44	c
Sioux Falls	22	-2	sn	16	8	pc
Wash., D.C.	36	26	s	47	33	c

International

City	Today Hi	Today Lo	Today W	Tomorrow Hi	Tomorrow Lo	Tomorrow W
Amsterdam	38	23	c	35	24	pc
Athens	62	46	pc	58	48	pc
Baghdad	73	50	pc	75	47	c
Bangkok	86	66	s	82	65	c
Beijing	33	9	s	38	20	s
Berlin	33	22	pc	31	21	pc
Brussels	38	26	c	35	25	pc
Buenos Aires	91	68	s	93	70	pc
Dubai	75	57	s	74	59	pc
Dublin	39	31	pc	39	27	pc
Edinburgh	39	28	c	38	25	sn
Frankfurt	38	25	pc	37	27	pc
Geneva	38	31	r	43	32	c
Havana	83	66	pc	83	66	s
Hong Kong	56	44	pc	57	50	s
Istanbul	50	43	s	50	43	s
Jakarta	83	74	t	84	74	t
Jerusalem	70	50	c	69	48	pc
Johannesburg	82	60	pc	83	63	pc
London	41	30	pc	39	29	c
Madrid	41	32	sh	41	25	c
Manila	87	71	pc	85	71	pc
Melbourne	80	57	pc	86	62	s
Mexico City	74	49	pc	74	49	pc
Milan	39	36	sn	41	36	r
Moscow	13	3	sf	13	7	c
Mumbai	91	74	pc	91	75	c
Paris	38	32	sf	36	29	sn
Rio de Janeiro	79	72	r	83	73	c
Riyadh	74	50	s	79	56	s
Rome	56	43	pc	56	45	r
San Juan	84	74	pc	84	74	sh
Seoul	22	4	s	20	9	s
Shanghai	40	26	s	37	26	s
Singapore	85	77	pc	86	76	pc
Sydney	80	67	s	78	68	pc
Taipei	51	46	r	55	48	c
Tokyo	46	33	s	44	33	s
Toronto	19	15	pc	24	10	c
Vancouver	48	38	c	46	40	c
Warsaw	27	20	c	32	20	pc
Zurich	39	27	c	41	27	pc

The WSJ Daily Crossword | Edited by Mike Shenk



MOVIE MARATHON | By Greg Johnson

Across

1 Flower's support
5 Muppet with a roommate
9 Length that's a bit more than 39 inches
14 Oscar-winning Ben Affleck movie
15 Conestoga wagon pullers
16 Fragrance
17 1975 bank heist drama
20 Believers' belief
21 Skater's turning jump
22 "If looks ___ kill..."
23 Kennedy in Washington, e.g.: Abbr.
25 Sizable snake
28 1950 Hollywood-based drama
33 Addams family cousin
34 Prepares for war
35 Sign before Libra
36 Bridesmaids' counterparts
39 Nerd's associate
42 Mosaic square
43 Tire track
46 1978 prison escape drama
50 Sharp change of direction
51 Twisty shape
52 "...before it gets cold" urging
53 Greek vowel
56 Had done, as a portrait
58 1986 murder thriller
63 Stop by
64 Cleveland's lake
65 "Doctor Zhivago" heroine
66 Altercation
67 Tune played at twilight
68 Different

Down

1 Down in the dumps
2 Offer for consideration
3 Easter event
4 They're paid to be shot
5 Cub Scouts, traditionally
6 Physical, for one
7 Game caller
8 It's a blast
9 "Revolutions are the locomotives of history" sayer
10 White-tailed sea eagle
11 Row of icons
12 Moody music genre
13 Tried to get elected
18 Staffer on Capitol Hill
19 Viscount's superior
22 CBS premiere of 2000
23 Stops waffling
24 Intense scuffle
26 Alternative to .com, .edu and .gov
27 Busy activity
29 Basic principle of Chinese philosophy
30 Thin soups
31 Serpent's victim
32 Coq au ___
36 ___ Xers (baby boomers' kids)
37 Batting stat
38 U.S.'s southern neighbor
39 Korea divider: Abbr.
40 Nintendo's successor to the GameCube
41 Most antsy
43 Double-check, as a sum
44 There's a lot of interest in their work
45 Sixth of a fluid oz.
47 Equipment
48 Antifur gp.
49 Fundraiser with tickets
54 Leave out
55 He accompanied Dorothy to Oz
56 Barbershop sound
57 A long time
58 DVRs connect to them
59 Go quickly, quaintly
60 Alternative to .com, .edu and .gov
61 Lyricist Gershwin
62 "Norma ___"

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

Previous Puzzle's Solution

The contest answer is SCHEHERAZADE. Each theme answer suggests a number represented in Roman numerals as two letters, the second of which is I: 2 (II) Olsen Twins; 6 (VI) points on a Star of David; 11 (XI) members of a football team on the field; antimony is element #51 (LI); an intro course is traditionally labeled 101 (CI); and Levi's most iconic jeans are 501's (DI). Completing the pattern is 1,001 (MI), suggesting "One Thousand and One Nights" as told by SCHEHERAZADE.

OPINION

What Does Facebook Do Now?

INSIDE VIEW
By Andy Kessler

I have a confession: The day I started on Wall Street, my boss handed me a yellowing copy of Benjamin Graham and David Dodd's 1934 book, "Security Analysis." He told me Warren Buffett swears by it! I read maybe three pages before the section on valuing railroad bonds put me to sleep. I still have the book, which is now a doorstop. What I quickly realized was that only three things matter when investing in technology: growth, growth and growth.

Last week Facebook announced that its quarterly earnings grew 61% year over year, amazing for a company with $40 billion in revenue. The stock is up a similar amount since the start of 2017, but some cracks are showing in user engagement and growth. Is Facebook really worth $553 billion? Has it peaked?

The company certainly is under fire. Too many people falsely believe that fake news on Facebook got Donald Trump elected. Like cockroaches, critics calling for regulation are scurrying out of the woodwork. Salesforce CEO Marc Benioff thinks Facebook is so addictive that it should be controlled like cigarettes. George Soros told the Davos crowd that Facebook and Google are a "menace, and it falls to the regulatory authorities to protect society against them."

Some critics even think Facebook is too successful and should be broken up, though the Federal Trade Commission would have to search far and wide to find consumer harm. Now there is a call, led by News Corp's Rupert Murdoch, for Facebook to pay publishers like this newspaper for their content. (News Corp is the parent company of Dow Jones, which publishes The Wall Street Journal.)

Under pressure last month, founder Mark Zuckerberg announced changes to Facebook's "news feed" that would emphasize posts from family and friends rather than outside publishers. Considered as a business proposition, this is a loser. Will more of grandma's fruitcake recipes keep Facebook users clicking? It almost answers itself. "In total, we made changes that reduced time spent on Facebook by roughly 50 million hours every day," Mr. Zuckerberg said last week. Yet investors yawned, and the stock rose 4%.

The company's biggest threat is simple: Facebook is running out of people. In March 2007, when I sat down with Mr. Zuckerberg for a Journal interview, he bragged about having 16 million users. In its early years, Facebook was limited to college students, and critics suggested he would soon run out of them. They were right! Which is why the requirement to have an email address ending in .edu was soon dropped. Today 2.14 billion people use Facebook at least once a month.

Chew on these numbers: There are about 3.5 billion internet users today—less than half of the world's population. It might seem like that leaves plenty of room for growth, except that about 750 million internet users are in China, where Facebook is blocked.

> **The social network is running out of room for growth, but video remains the wild card.**

Another 110 million or so are in Russia, where most use the homegrown social network VKontakte. That leaves Facebook with only a few hundred million potential recruits, mostly in India, Japan and Africa. Its reach is amazing, but this doesn't leave much room to grow. In the lucrative U.S. and Europe, user growth is basically flat.

Facebook's monetization business—selling ads next to your cat pictures—has been booming. In 2012 mobile was less than a quarter of its revenue. Now it's most of its sales. Just when the ad industry got hungry for smartphone inventory, Facebook arrived with a solid platform to deliver. But too much of the past year's revenue growth came from raising prices. That's dangerous.

Does Mr. Zuckerberg have other levers to pull? Facebook owns Instagram and WhatsApp, each with a billion or so monthly users. But neither is great for mobile ads. Plus, much of their ad growth would come at Facebook's expense.

The growth wild card is video. Did you even know that Facebook has a "Watch" tab? It isn't for user-generated content—what Hollywood calls loser-generated content—but for professionally created clips and shows. Facebook said last year it would spend $1 billion on original video in 2018. The idea is intriguing: Let cord-cutters enjoy streaming content sponsored by advertisers. But Facebook is way behind. Netflix will spend about $8 billion on shows this year, Amazon another $5 billion or so. HBO and Disney are figuring out internet delivery. They don't need Facebook to do it.

When user growth peaks, earnings growth is going to be hard to come by. Facebook's stock, today priced at a rich 14 times revenues, may emulate one of those bungee-jumping videos I just watched. Maybe Facebook could buy Netflix ($116 billion) or even Disney ($164 billion) while its stock is roaring. But don't count on it.

The day Facebook actually peaks will only become clear in a rearview mirror. But investors should note all the signs along the way.

Lula's Conviction Is a Win for Brazil

AMERICAS
By Mary Anastasia O'Grady

Brazil's stock market surged in January after an appellate court upheld the bribery conviction of former President Luiz Inácio Lula da Silva. Investor euphoria pushed the benchmark Ibovespa index to a record close, finishing up 5.3% for the week ending Jan. 26.

The market celebrated because the ruling increases the odds that Mr. da Silva won't be a candidate in the presidential election slated for Oct. 7—and thus won't return to the presidential palace with his pernicious left-wing populism.

But there's another, more profound reason the decision is good news for Brazil: It is a signal that the judiciary is becoming more independent and that the rule of law is maturing. This is a far bigger development for the economy than any deep-water oil discovery or bumper crop in soybeans.

The corruption inquiry that brought Lula down is known as Operation Car Wash. It began when federal police launched an investigation into money laundering at a gas station in Brasília in 2009. Following that thread, prosecutors unraveled a complex web of bribes paid by construction companies to Petrobras executives—appointed and protected by Mr. da Silva—in exchange for contracts. Kickbacks also went to politicians and to Mr. da Silva's Workers' Party (known by its Portuguese initials PT). It is hardly surprising that the party's top honcho got in on the action.

Mr. da Silva's handpicked successor as president, Dilma Rousseff, took office in January 2011 and was impeached in 2016. Had prosecutors been under the thumb of the executive, as the judiciary had been for decades, it is unlikely that they would have followed the trail of evidence. Dozens of politicians from across the political spectrum have been convicted as a result of Operation Car Wash.

Yet the same ideological spinmasters who cheered the destruction of Venezuela under Hugo Chávez now defend Lula with bogus claims that his conviction is purely political. A January op-ed in the New York Times stated, for example, that it was the plea-bargain testimony of a single individual that put Lula away.

That is patently false. Under Brazilian law, testimony given as part of a plea bargain is not enough to convict a defendant. It has to be corroborated by hard evidence. Nevertheless, it is understandable that Lula and his fellow travelers are steamed about plea bargaining. Without it, the socialist demagogue might have skated right past the scandal.

Brazilian lawyer Geanluca Lorenzon explained the role plea bargaining plays in Brazil's 2013 law targeting organized crime in a November 2017 Cato Institute paper, "Corruption and the Rule of Law: How Brazil Strengthened Its Legal System." A key point is that "witness accounts are not sufficient for a conviction." Furthermore, because plea bargaining requires proof, "there are incentives not only to be truthful at trial, but also to effectively collaborate during the investigation phase, when evidence is gathered and presented before a judge."

> **A professional and independent judiciary is essential to the country's future.**

Since Brazil approved the 1988 constitution, reformers have worked to strengthen judicial independence and improve the quality of judges and prosecutors. But as Mr. Lorenzon noted, the plea bargain leading to corroborating evidence via collaboration with witnesses "is the biggest [change] in the system, and it made Operation Car Wash possible."

In Lula's case, witness testimony led prosecutors to a remodeled penthouse apartment on the beach in the city of Guaruja, in São Paulo state. They asserted in court that the construction firm OAS, which owned the building, had promised the apartment to Mr. da Silva and his wife as a kickback. They presented testimony from numerous people familiar with the project. They also presented an agreement with OAS, seized at Lula's home in the city of São Bernardo do Campo, indicating that he was to become the owner of the property once a renovation was complete.

The most damning evidence was electronic messages between OAS executives who conspired to pay the bribes. These communications indicate that the value of the apartment was to be deducted from the total of bribes owed to the PT.

Mr. da Silva faces at least four other corruption charges. Still, he insists he was never the owner of the apartment and that despite his conviction, which bars him from running for office, he will apply to the electoral tribunal to be a presidential candidate. The left will claim it is antidemocratic to refuse him.

Last week the Supreme Court denied Lula's request for an injunction to keep him out of jail during the appeal process. This doesn't mean that the court, under pressure, cannot allow his candidacy, but it lowers the likelihood of its doing so.

The rule of law in Brazil still needs a lot of work. But if the high court adheres to the facts in this case, it will signal a new standard in judicial professionalism and independence that should not be overlooked.

Write to O'Grady@wsj.com.

Don't Avoid Women, Mentor Them

By Rachel Thomas And Stacy Brown-Philpot

Men, we know the #MeToo movement has left a lot of you reeling—horrified by sexual harassment, as you should be. But some of you are also worried about yourselves. You're scared of being accused of something unfairly. Unsure how to act, maybe you're shying away from women at work—avoiding one-on-one meetings, canceling working lunches.

A forthcoming survey by LeanIn.Org and Survey Monkey finds almost half of male managers are uncomfortable participating in basic workplace activities with women, including working alone together. This is a huge step in the wrong direction. Women need support, not isolation. Want to fight sexual harassment? Don't avoid women. Mentor them.

Mentorship advances careers. Studies show that people with mentors are likelier to get promotions. Mentors show women the ropes and help us navigate office politics. They introduce us to decision-makers who help us get high-profile assignments. So much of what gets you noticed at work is who you know and who sings your praises.

> **Worried by #MeToo? Here's how to become part of the solution.**

The problem is that women receive less of the high-quality mentoring that opens doors. Whether this is due to conscious sexism or simply because men gravitate toward other men out of friendship or familiarity, the result is the same: Women miss out on critical opportunities for advancement. And women of color are the most overlooked.

Men, we need you to be a part of the solution. You have power that most women don't. Men far outnumber women as managers and senior leaders. By mentoring women, you can help correct that imbalance—and that's in your interest, because good things happen when more women hold leadership roles. Company profits are higher. Workplace policies are more generous. When companies employ more women, sexual harassment is less prevalent.

If you worry that mentoring women will raise eyebrows, our advice is to use common sense. A workplace that's free from sexual harassment doesn't have to be cold or impersonal. You know the difference between a friendly greeting and one that crosses the line. It all comes down to basic civility.

And remember how important it is to give women equal access. If you're uncomfortable going to dinner with female colleagues, meet everyone for breakfast. The so-called Pence rule—the idea that a man can't eat alone with a woman who isn't his wife—is a double standard. It results in one kind of access for men, another for women. This is not the answer.

Mentoring women benefits men, too. Being able to work well with women, having a professional network that includes women, earning a reputation for advancing women—these are competitive advantages in the 21st-century workplace. Just about every man we know wants his workplace to be one where women—their wives, daughters, sisters, friends and colleagues—are safe and supported.

Sexual harassment has to stop. But that is not enough. Men, if you want to make the workplace safer and more respectful to women, use your status to give someone great the support she deserves. Become a mentor.

Ms. Thomas is president of LeanIn.org. Ms. Brown-Philpot is CEO of TaskRabbit.

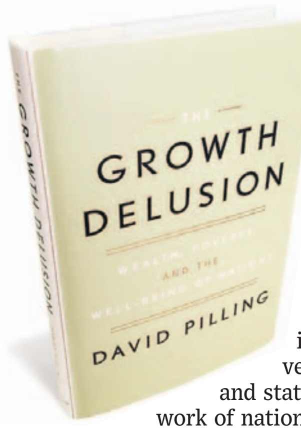
BOOKSHELF | By Diane Coyle

Dismal Statistics

The Growth Delusion

By David Pilling
(Duggan, 291 pages, $26)

Is Gross Domestic Product, GDP, history? Judging by the torrent of recent books proclaiming the end of its usefulness, such as Ehsan Masood's "The Great Invention" (2016) and Eli Cook's "The Pricing of Progress" (2017), its days are surely numbered. Like most other offerings in this genre, David Pilling's "The Growth Delusion" celebrates the predicted demise of our headline measure of how well the economy is doing—and along with it the end of Western capitalism's obsession with "endless" production and consumption. Unlike most of the others, he has some constructive suggestions for replacement measures of economic success, and these are not as naive as the book's swipes at economics and statistics might lead the reader to expect.



The statistical construct of GDP has been the subject of important critiques since its invention, not least by economists and statisticians. GDP, and the framework of national accounts, grew out of the 20th-century imperatives of the Depression and world war, when for the first time governments needed to track the capacity of the economy in the aggregate.

Our contemporary policy focus on GDP growth (rather than the level), meanwhile, is an artifact of the Cold War: President Kennedy first set growth targets in response to aggressive boasting about Soviet growth by Nikita Khrushchev.

From the start, prominent critics underlined the failure of GDP to account for the environmental costs of economic growth, a theme struck most forcefully in the 1972 Club of Rome report "The Limits to Growth." Less prominently, although no less accurately, feminist scholars highlighted GDP's failure to account for economic value created in the home—which meant that post-1950s GDP and productivity growth statistics were flattered by the new tendency of women to take paid work and purchase items such as microwaves and ready meals.

These familiar criticisms are well made by Mr. Pilling, although it is always frustrating to read that economists have ignored them. The people who work with GDP data know, far better than most, how much uncertainty arises from compiling the statistics, seasonally adjusting them and comparing them over time or across countries.

The most intriguing parts of "The Growth Delusion" stem from the author's experiences in Asia as a reporter for the Financial Times. When it turns to China, the book raises the issue of the environmental price that the country is paying for its astonishing increase in GDP. Mr. Pilling describes the cultural effect of a hit TV series, "In the Name of the People," in which the local party chief is obsessed about the GDP figures: The show, he suggests, reinforces the popular demand for growth at all costs. Mr. Pilling also interviews the Chinese creator of a measure called "green GDP," Niu Wenyuan of the Chinese Academy of Sciences, about the failure to get the measure officially adopted.

> **Is Gross Domestic Product—the preferred measure of growth for most economists—still useful for gauging the health of economies?**

Writing about Japan, Mr. Pilling raises questions about the boost to GDP growth created by Prime Minister Shinzo Abe's drive to get women into paid employment, asking whether merely shifting the economic value of production in the home into the marketplace actually creates true economic welfare. He also argues that, although measured productivity in Japan's retail services is low, the quality of those services far exceeds that of comparable experiences in the United States or the United Kingdom.

Despite the book's title, this chapter does not quite get to the more interesting question of *why* stagnant GDP in Japan matters. Is economic welfare better served by a high level of output and consumption or is it necessary for it to grow?

In other words: Why does momentum matter? Portugal and Greece have similar levels of GDP per capita now, but after 2007 Greece had a massive boom and then a bust. Greeks have had the extra interim output, but it is not obvious they have had the better experience. The point about Japan is similar: At its level of prosperity, does it need more growth? Is it terrible to be a rich, contented, safe country, where people have long life expectancy, a magnificent culture and high quality services, simply because the chosen measure of total economic output is static?

The answer lies in the fact that GDP—or any alternative aggregate measure—aims to encapsulate the constant innovation and betterment of life driven by competition in market economies. No single number will do it perfectly. Indeed, a new critique of GDP recently has joined the old ones—namely that it fails to capture the role of new technology in our increasingly digital economies. The concept of GDP, an aggregate measure of output at market prices, does not account for all the value of innovations. Yet over time an increase in GDP is the result of innovation, and so to argue against growth is to argue for an end to innovation. Those who think growth is "delusional" need to explain what they think should be taken away from people when a new product or service they want comes along, to prevent GDP from growing.

It is not obvious what sort of measure will dethrone GDP from its top statistical billing, but to me it seems clear that criticism of the measure, and the way it is used, is reaching a pitch that will prompt change. A new measurement framework will emerge from this generation's experience. Mr. Pilling's lively canter through what's wrong with GDP hardly demonstrates that growth is a "delusion" because of how it is measured. But he ends with some sensible suggestions for alternatives: report GDP per capita, track median income in order to keep track of the distribution of gains, and have a sense not just of income flow but of the national balance sheet, including natural assets. These modest proposals are far from a statistical revolution, but they might have significantly changed the story we told ourselves about the economy in the 21st century so far.

Ms. Coyle is a professor of economics at the University of Manchester and the author of "GDP: A Brief but Affectionate History."

REVIEW & OUTLOOK

Giving Patients One More Shot

The House keeps sitting on 'right to try' legislation.

American medicine is producing new treatments for everything from cancer to blindness, and one question is whether government drug approvals can keep pace. One response is to allow some patients access to drugs still in the pipeline, and a "right to try" bill in Congress is an important moment for personal freedom, with a word or two about the finer details.

President Trump said in his State of the Union address that "patients with terminal conditions, and terminal illness, should have access to experimental treatment immediately that could potentially save their lives." He called on Congress to "give these wonderful, incredible Americans the right to try."

A right-to-try bill sponsored by Wisconsin Senator Ron Johnson passed the Senate last year. The bill essentially says: Government will not get in the way of a patient with a life-threatening disease who wants to take a flyer on a treatment not approved by the Food and Drug Administration. The drug must have cleared a phase of FDA trials for safety but not efficacy.

FDA currently runs a program known as "expanded access," in which a patient's physician can ask FDA to sign off on treatment with investigational drugs. FDA approves 99% of requests, but there are only about 1,000 a year, and some medical experts say an application is filed only if the approval is all but assured.

The process was a bureaucratic nightmare for patients who don't have the luxury of time, and in 2016 the FDA streamlined the application. FDA Commissioner Scott Gottlieb testified last fall that the form now takes about 45 minutes. Only one attachment is required, down from as many as eight. Emergency requests are "usually granted immediately over the phone."

The Johnson bill doesn't change FDA's program but says an agency permission slip isn't required. Mr. Gottlieb has been willing to work with Congress on a right-to-try law and laid out some ideas for technical corrections. This is a notable departure from past FDA leaders who viewed the idea as a threat to agency control.

Another problem is that drug companies are often reluctant to furnish treatments. Companies worry that an adverse outcome—side effects, death—could be used against them in the approval process. The Johnson bill tries to address this by stipulating that results in right-to-try cases cannot delay or adversely influence an FDA review.

Manufacturers also fear siphoning patients from clinical trials, which for rare diseases are hard to enroll. Disease in some patients will have progressed too far, among dozens of other disqualifying criteria. FDA can help by updating its processes that have been hostile toward smaller trials that rely on, say, statistical methods to compare patients against a disease's typical path. Under Mr. Gottlieb the agency has awarded grants for "natural history studies" that will try to understand better how some rare diseases progress.

Still, a right to try does not compel companies to participate. Companies are allowed to charge for the direct costs of providing the treatment, and patients could try to find financing through crowdsourcing or private foundations. For patients and companies, right to try is an insurance policy against a future FDA that could clamp down on innovation.

The House has sat on the bill for months, and House Energy and Commerce Chairman Greg Walden has offered bromides about giving patients "false hope," which is paternalism usually exhibited by the left. Right to try is not a miracle drug. But at minimum it would move the decision over treatment and risk closer to the patient facing a tough diagnosis or death.

Illinois's Magic Pension Trick

Close your eyes, issue 27-year bonds and watch liabilities disappear.

Democratic politicians in left-leaning states have been brainstorming ideas to avoid serious pension and tax reforms. The creative financial geniuses in Illinois have come up with a doozy: a magic bond that would save the state as much as it borrows.

Democrats in the state House have proposed issuing $107 billion in bonds to backfill the state's pension funds, which are short $129 billion. Annual state pension payments are projected to increase to $20 billion in 2045 from $8.5 billion—not including interest on $17 billion in debt the state previously issued to pay for pensions.

At the request of state retirees, a University of Illinois math professor performed a crack analysis showing how the state could use interest-rate arbitrage to shave its pension costs. Under the professor's math, the state could sell 27-year, fixed-rate taxable bonds and invest the proceeds into its pension funds. This would supposedly stabilize the state's pension payments at $8.5 billion annually, save taxpayers $103 billion over three decades and increase the state retirement system's funding level to 90% from 40%. Can the mathemagician make House Speaker Michael Madigan disappear too?

The professor based his analysis on pension obligation bonds issued under former Gov. Rod Blagojevich in 2003 with a 5.05% coupon that have earned on average 7.62% in the pension system. But that period included two bull equity markets, and even the state pension funds project only a 7% long-term return.

Illinois's borrowing costs have also increased as its credit rating has slipped to a notch above junk from double-A. Last year the state's taxable bonds due in 2035 traded at yields up to 7.2%. Investors may demand even higher rates because of the substantial interest-rate and credit risk given rising rates and the length of the 27-year bonds.

These magic bonds wouldn't carry the state's "full faith and credit" protection, for whatever that's worth nowadays in Springfield. In effect, public workers' pensions would be the bond security.

Two relevant precedents are the cities of Detroit and Stockton, California. Both borrowed to finance pensions and then later defaulted. Creditors had no recourse when the cities went bankrupt. States can't file for bankruptcy under federal law, but Illinois lawmakers could seek to extend maturities or reduce interest payments on the bonds. Good luck to creditors in court.

The real goal with these bonds is to shift the pension-liability risk from public workers and retirees to investors and taxpayers. This would liberate politicians to spend more and remove any incentive unions have to reform pensions. After borrowing for pensions in 2003, state lawmakers skipped payments, increased spending and scrapped retirement reforms for new workers.

Republican Gov. Bruce Rauner won't fall for this ruse. But if a Democrat defeats him this fall, unions may pull this magic bond out of their bag of political tricks.

DeVos's New College Try

A revised rule would apply to more than for-profit schools.

Liberals have waged a regulatory and legal campaign against for-profit colleges in the name of helping students. The acid test of their sincerity is Education Secretary Betsy DeVos's proposal last week to apply to nonprofits the gainful employment rules that the Obama Administration used to target for-profits.

Last year Mrs. DeVos convened a committee of higher education stakeholders to re-examine the department's 2014 rules. The Obama regulations punished vocational programs whose graduates' annual debt payments exceeded 8% of their earnings.

Programs that failed this test were at risk of losing access to federal student aid. While the rule technically applied to certificate programs at community colleges and nonprofits, the Obama Administration exempted most ostensibly because their cohorts were too small. The department estimated that 840,000 students attended failing programs, 99% of which were for-profits.

Colleges should have a stake in student outcomes, but the debt-to-earnings ratio is an imperfect measure of a program's quality. Some veterinary and culinary school grads receive low-paying internships upon graduating, but their earnings later increase significantly. Programs that enroll large numbers of low-income students who take out more debt would have been disproportionately punished.

If the rules were evenly applied across all institutions, thousands of nonprofit and public colleges as well as most graduate programs would probably fail. Law schools whose students graduate with $144,000 in debt on average and make less than $186,000 a few years out would not pass.

The Obama Administration refused to release debt-to-earnings data for public and nonprofit colleges. But Monroe College President Marc Jerome analyzed the Education Department's College Scorecard data and calculated that about 1.8 million students at public colleges (15.5% of programs) and 1.1 million at nonprofits (41.5%) would fail. Very few historically black colleges and universities would pass.

Enter Mrs. DeVos, who last week proposed extending the department's debt-to-earnings standard to all programs eligible for federal student aid, with some adjustments. Programs would be classified as "acceptable" or "low-performing" rather than "passing" or "failing." Low-performing programs wouldn't lose access to federal aid but would have to warn students.

Mrs. DeVos also tinkers with disclosure requirements to prospective students by removing default rates, which don't accurately reflect students' ability to repay their debt because of the proliferation in loan forgiveness plans. Instead, colleges would have to post a link to their College Scorecard, which shows student loan repayment rates, average debt and salaries.

These rules would be less punitive than the Obama regulations but improve transparency. We've heard some nonprofits and public colleges aim to resist the DeVos rewrite. If they think the debt-to-earnings metric is flawed, perhaps they could offer some alternatives.

The House and Senate are considering ways to hold colleges accountable for student outcomes in legislation reauthorizing the Higher Education Act this year. They could learn from Mrs. DeVos, who deserves extra credit for providing equal treatment under the law.

LETTERS TO THE EDITOR

Counting Future Cost of Parental Leave Now

"A Simple Plan for Parental Leave" by Kristin A. Shapiro and Andrew G. Biggs (op-ed, Jan. 25) is a great proposal. Payments to support child rearing at Social Security disability levels offset by a delay in retirement benefits later in life is a great trade, particularly if consideration of such a program could open the door to more comprehensive Social Security reform.

The Social Security trust fund can only be stabilized if younger workers delay the age of retirement, and this type of parental-leave program sweetener could politically incentivize that change. Social Security disability fraud and misuse escalated after the 2007-09 recession, and reforms are needed. For example, shouldn't at least some portion of government disability payments before retirement be deducted from the 35 highest years of earnings used to calculate retirement benefits or the duration of such disability payments be considered in determining the start date of higher retirement benefits?

Debra Summers
Redwood City, Calif.

The authors present an unworkable plan for parental leave by allowing employees to collect early Social Security benefits at the expense of lower future benefits. From the perspective of the worker, he or she is still paying for the plan. This is really no better than employers reducing parents' wages. The only difference is that parents are reducing their future earnings, which is exactly what they would have been doing had they been taking time off work to raise their children.

This would put more pressure on Social Security's short- to medium-term payments (the next 15 years), which is around the time the program will go insolvent. Furthermore, it treats the taxes we are forced to pay for Social Security as if they don't go into a common retirement fund but instead are earmarked for each person. If this is true, then why don't we go all the way and instead of subsidizing families and children, allow anyone to collect Social Security money early? Or better yet, why not allow workers to put their tax money in their own private retirement accounts?

Patrick Newman
Florida Southern College
Lakeland, Fla.

The authors' proposal might work with one child. But then what happens when women opt to take a leave for a second or even (gasp) third child? And who pays back Social Security if a woman leaves the workforce before her retirement years? Instead of reinventing the wheel, why not study the models already in place. All the current state-mandated paid family-leave policies (California, New Jersey, New York and Rhode Island) are fully funded by employees through a payroll tax. Let's investigate this already-rolled-out policy before drawing up new models with punitive undertones.

Sima Bernstein
Teaneck, N.J.

Not only could we apply this to parental leave, we could apply it to much of the welfare system and perhaps even student loans. This would eliminate defaults on student loans and eventually take much of the welfare system off the table as a financial burden to the public.

Delaying Social Security to pay for a host of benefits would slowly begin to pay the system back for these benefits, no longer using a significant amount of taxpayer money to fund social programs.

William F. Hineser
Arvada, Colo.

Dry the Starting Tear for PES's Bankruptcy

Your editorial "A Biofuels Bankruptcy" (Jan. 25) blames Philadelphia Energy Solutions' (PES) impending bankruptcy on biofuels policy rather than its own antiquated technology, higher crude costs, poor investments and mismanagement.

Because of its age, geography and technology, PES has been in and out of financial difficulty for decades. Taxpayers have repeatedly bailed it out with subsidies, grants and environmental waivers. But rather than modernize its technology or retool its business plan so it is not captive to higher-priced Brent crude, its latest owners have decided to blame the Renewable Fuel Standard, a highly successful program that reduces our dependence on imported oil, lowers consumer prices at the pump, cleans the air in the nation's cities and revitalizes rural communities where ethanol and biodiesel are produced. Those who steadfastly oppose increasing the use of renewable fuels, like Sen. Ted Cruz, the American Petroleum Institute and apparently the Journal, have adopted PES's cause, no matter how ill-informed.

Most refiners easily met the RFS by increased blending of renewable fuels, as the 2005 law required. PES could have made a one-time investment of roughly $40 million to install the infrastructure needed to store and blend required volumes of renewable fuels under the RFS. Instead, it spent $832 million to buy credits from its competitors who had over-complied.

I don't have sympathy for PES. I don't excuse ineptitude. I see no benefit to further subsidizing a failed fossil-fuel factory when clean, renewable, less-expensive fuels like ethanol represent the best hope for the planet and consumers alike.

Bob Dinneen
President and CEO
Renewable Fuels Association
Washington

Robert Morgenthau on the Armenian Genocide

As a grandson of survivors of the Armenian genocide, I agree with Robert M. Morgenthau's assessment on the need to recognize this dark chapter in our world's history ("Will Trump Tell the Truth About the Armenian Genocide?," op-ed, Jan. 26). And while his argument that President Trump has a unique opportunity to undo what his predecessors failed to do, Armenian-Americans are not holding their breaths. Every election brings new campaign promises from candidates looking for money and votes while promising to recognize the Armenian genocide, but who then succumb to Turkish pressure. What politicians fail to understand is that this is a human-rights, not a political, issue. Political expediency should play no role in this debate. Mr. Morgenthau's grandfather understood that better than anyone.

If President Trump wants to be on the right side of history, he'd be wise to follow in another New Yorker's footsteps.

Stephan Pechdimaldji
San Ramon, Calif.

The Armenian genocide was both real and ghastly. That said, no living Turk participated. Do we predicate our relations with Spain on a mea culpa from its current government regarding atrocities in South America, with China regarding the Great Leap Forward, or with Russia about the Ukrainian Holodomor?

James Rumbaugh
Chicago

Here's a Way to Limit Costs And Losses in a Bear Market

Prof. Burton G. Malkiel is correct to emphasize that "minimizing costs is a winning strategy" ("How to Invest in an Overpriced World," op-ed, Jan. 23). This portfolio strategy was developed at the University of Chicago by Harry Markowitz, Merton Miller and Eugene Fama (each a Nobel laureate in economic sciences) beginning in the 1950s. What is usually omitted from the popular discussion, however, is the easiest low-cost and most straightforward approach to assure "gentler losses during bear markets." For most investors the Chicago professors would suggest a no-load S&P 500 mimic fund insured against material loss with out-of-the-money S&P 500 puts. Proper use of derivatives with an S&P 500 mimic fund is a better and less expensive strategy than Mr. Malkiel's for protecting yourself in a bear market.

Robert de Porres-Ras
Oak Brook, Ill.

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Pepper ... And Salt

THE WALL STREET JOURNAL

"Thanks for coming on such notice."

The Memo and the Mueller Probe

By Michael B. Mukasey

J. SCOTT APPLEWHITE/ASSOCIATED PRESS

Special counsel Robert Mueller leaves a Capitol Hill meeting, June 21, 2017.

The memo released Friday by the House Permanent Select Committee on Intelligence was the product of necessity, not choice. Even before its release, the debate over its provenance, motive and effect was obscuring the crucial point that it is the underlying facts the memo alleges that present the real issues.

The committee's memo says that yet another memo, which goes by the cloak-and-dagger title "Steele dossier," provided at least part of the basis for a wiretap of Carter Page, a U.S. citizen who had volunteered as a foreign policy-consultant to the Trump campaign. The Foreign Intelligence Surveillance Court granted the wiretap application from the FBI and Justice Department two weeks before the 2016 election. In order to obtain the warrant, the government had to show probable cause that Mr. Page was acting as the agent of a foreign power *and* that in so doing he had committed a crime.

If the investigation arose from partisan opposition research, what specific crime is he looking into?

The Steele dossier is 35 pages of opposition research on Donald Trump, described by former FBI Director James Comey as "salacious and unverified." It was paid for by Hillary Clinton's campaign and the Democratic National Committee, and compiled by Christopher Steele, a former British intelligence agent who had a luminous dislike for Mr. Trump and was also an informant for the FBI.

The House memo reports that the FBI and Justice Department did not advise the FISA court that the dossier was funded by the Clinton campaign and the DNC. It also reports that the government's cited support for the accuracy of contentions in the wiretap application—statements in a news article—had originated in a leak from Mr. Steele himself. Mr. Steele was fired by the FBI for a later unauthorized disclosure to the press, a cardinal offense by an informant. But the FBI continued to receive information from him through a Justice Department employee whose wife worked for the opposition-research firm that employed Mr. Steele and was paid by the DNC and Clinton campaign through a law firm, which acted as a cutout to conceal the source of the payments.

All that and more was known by the FBI and the Justice Department, according to the House memo, but not disclosed to the FISA court. That is certainly scandalous, but how consequential it is would seem to depend at least in part on what role the Steele dossier played in the application for the warrant.

According to the House memo, the FBI's then deputy director testified in December that there would have been no application for the warrant but for the dossier. The committee's Democrats deny he said that. In any case, it appears the Steele dossier played some role in the FISA application. The dossier, thanks to a long-ago leak, is publicly available; if you'd enjoy a swan dive into a cesspool, go read it. The FISA application is not available. How come?

Such applications are at the highest level of classification. They often contain sensitive intelligence information that can betray confidential sources and methods; disclosure can severely damage national security. But notice that the FBI's only objection to the House memo at the time of its release was that it was incomplete, not that it disclosed sources and methods. Thus it is possible to summarize parts of a classified document to disclose information relevant to a public issue without disclosing secrets.

It is also possible to redact a classified document to the same end. It should be possible to disclose the parts of the FISA application that are alleged to come from the Steele dossier to see if there is any there there. That was not done because the FBI and the Justice Department resisted, and the committee had to make do with a summary. That is why the memo was a product of necessity, not choice.

Those critical of its release say it is intended to damage special counsel Robert Mueller's investigation. How does possible misconduct by senior FBI officials, which is certainly bad enough, intersect with the Mueller investigation? As follows: The Justice Department regulation that authorizes the appointment of special counsels requires a determination that a "criminal investigation" is warranted, and that there is a conflict or other good reason that prevents ordinary Justice Department staff from conducting it.

The regulation that governs the jurisdiction of the special counsel requires that he be "provided with a specific statement of the matter to be investigated." The letter from Deputy Attorney General Rod Rosenstein appointing Mr. Mueller says he is to "conduct the investigation confirmed by then-Director James Comey before the House Intelligence Committee on March 20, 2017," which covers "any links and/or coordination between the Russian government and individuals associated with the campaign of President Donald Trump," and any matters that may arise "directly" from that investigation.

But the investigation then disclosed by Mr. Comey was not a criminal investigation; it was a national-security investigation. Possible Russian meddling in the 2016 election is certainly a worthy subject for a national-security investigation, but "links" or "coordination"—or "collusion," a word that does not appear in the letter of appointment but has been used as a synonym for coordination—does not define or constitute a crime. The information, and misinformation, in the Steele dossier relates to that subject.

If partisan opposition research was used to fuel a national-security investigation that has morphed into a series of criminal investigations, and the special counsel has no tether that identifies a specific crime, or "a specific statement of the matter" he is to investigate, that is at least unsettling. By contrast, the Watergate, Iran-Contra and Whitewater investigations, whatever you think of how they were conducted, identified specific crimes. The public knew what was being investigated.

Here, none of the charges Mr. Mueller has brought thus far involved "coordination" or "collusion" with the Russians. Mike Flynn and George Papadopoulos both pleaded guilty to lying to the FBI, the latter over the timing of conversations with Russians in which he was allegedly offered but never received "dirt" on Mrs. Clinton, including her emails. He also attempted to set up a meeting between the Russians and Mr. Trump, but the campaign blew off that effort. Notably, Mr. Papadopoulos did not plead guilty to participating in any plot that involved "coordination." The Paul Manafort and Rick Gates indictments charge fraud on the government through receipt of and failure to disclose payments from a pro-Russian Ukraine politician.

What to do? I believe that at a minimum, the public should get access to a carefully redacted copy of the FISA application and renewals, so we can see whether officials behaved unlawfully by misleading a court; and Mr. Mueller's mandate should be defined in a way that conforms with the legal standard of his office. Both would go a long way toward assuring that we do more than talk about a "government of laws."

Mr. Mukasey served as U.S. attorney general (2007-09) and a U.S. district judge (1988-2006).

Did Steele Really Snooker The FBI?

By Kimberley A. Strassel

The House Intelligence Committee memo about 2016 surveillance abuses, released Friday, lays out grave evidence that the FBI wasn't fully forthcoming with the Foreign Intelligence Surveillance Court as it sought an order to wiretap former Trump adviser Carter Page. It's possible the FBI's lack of candor was even worse than the memo describes.

Democrats are disputing the memo on lots of grounds, but they've said little about the FBI's failure to inform the court that the bureau had itself decided one of its main sources, dossier author Christopher Steele, was unreliable. Mr. Steele in October 2016 gave Mother Jones an unauthorized interview about the dossier. As a former British intelligence officer, Mr. Steele would have known that sources are not supposed to blab to the press. The interview appeared but a few days before the election, was at the direction of his paymaster, the opposition-research firm Fusion GPS, and was clearly designed to help the ultimate client: the Hillary Clinton campaign.

The bureau should have known he was talking to the press—but it told the FISA court he wasn't.

Stuck with a source now brazenly using the FBI for political purposes, the bureau suspended and then terminated Mr. Steele. Only nine days before the Mother Jones interview, the bureau had filed its application for the Page wiretap order, which rested on the Steele dossier. Yet the FBI did not immediately go back to tell the court it no longer trusted Mr. Steele, the author of a crucial piece of evidence.

And the Mother Jones interview wasn't the first time Mr. Steele went to the press. A month earlier he had sat down with an array of media outlets to brief them on the dossier that he'd given the FBI in July. Out of this came a Sept. 23, 2016, article by Michael Isikoff in Yahoo News, published under the headline "U.S. intel officials probe ties between Trump adviser and Kremlin." The story was a bombshell, blowing the FBI investigation into the public sphere.

The FBI and Justice Department intimately knew this article, as they relied on it as part of their wiretap application. And while Mr. Isikoff did not name Mr. Steele as his source, the FBI should have been able to figure out his identity. The Isikoff article relates specific dossier details, though the dossier wasn't public at the time. It explains that the "intelligence reports" the FBI was reviewing—the dossier—came from a "well-placed Western intelligence source." Sen. Chuck Grassley last month referred Mr. Steele to the Justice Department for a criminal investigation of whether he lied to the feds about his contacts with the press. From this we can assume that the FBI's FISA court application claimed Mr. Steele had not worked with the press.

The House memo gives the FBI the benefit of the doubt, stating that Mr. Steele "improperly concealed from and lied to the FBI about those contacts." Then again, what was the date of this claim? If Mr. Steele told the FBI when he first met with them in July that he'd not briefed media, that would have been accurate as far as we know. Did the FBI ask him again after the Isikoff article?

Even if it did and if he denied talking to reporters, the FBI would have had every reason to believe he was lying. The provenance of the Isikoff article is exceptionally clear. And the FBI could easily have checked Mr. Steele's recent whereabouts (Britain or the U.S.) or even asked Mr. Isikoff, though he might not have answered. While Mr. Steele might have proved unreliable, there's reason to wonder if he'd lie outright to the FBI.

The Grassley referral needs be fully declassified, just as the House memo was. The FBI needs to answer straightforward questions about Mr. Steele's claims, and he needs to provide his version.

The FBI got fooled by a source, or it knew its source was lying, or it didn't bother to check, or it was too incompetent to see the obvious. Take your pick. None of the possibilities look good, especially if you're a FISA judge.

Ms. Strassel writes the Journal's Potomac Watch column.

Saudi Reforms Get a Boost From Google

By Karen Elliott House

Riyadh, Saudi Arabia

Since Crown Prince Mohammed bin Salman announced his intention to transform this country nearly two years ago, Saudis and foreigners alike have questioned whether he is serious or merely enjoying power. The time for doubt is over. Last week's news that Alphabet, Google's parent company, is in talks to build a tech hub in the kingdom is only the latest sign. Look for more such initiatives when the crown prince visits the U.S. in early March.

Whatever one may think about Saudi Arabia or its new young strongman, there is no longer any dispute as to his resolve. Prince Mohammed is determined not just to reform the country but to wrench Saudis out of a 30-year torpor that he rightly sees as inexorably leading them toward poverty and instability. The radical change he is imposing isn't a choice: It is the only choice.

He has inherited a nation of 22 million spoiled children, each of whom wants a cushy life in the national nursery that oil-rich Saudi Arabia used to be. But with crude oil crashing to $26 a barrel in 2016—and even now at almost $70 a barrel—Riyadh can no longer afford the pacifiers to tranquilize its population, not to mention the 10 million foreign workers who have tended to Saudi citizens' every need.

Prince Mohammed's Saudi Vision 2030 is a push away from dependence on government and toward self-reliance. To jump-start the transformation, he has instituted social changes no one could have imagined only a few years ago: Saudis are now free to attend concerts and cinemas, and in June women will be driving, all of which were previously forbidden by religious authorities backed by royal rulers.

More significantly, Prince Mohammed has rounded up prominent people accused of financial corruption—royal cousins, cabinet ministers, businessmen—and forced them to turn over what the government says will be $106 billion in exchange for their freedom.

These are shocking tactics in a country accustomed to royal rule through laborious consensus-building among the senior princes. But the truth is that most of these senior princes are now dead. More to the point, that unwieldy method of governance failed for 30 years to wean the country off oil dependence, despite repeated commitments to that end. Prince Mohammed knows the folly of doing the same thing over and over and expecting a different result.

Almost since the founding of modern Saudi Arabia in 1932, its stability has rested on three pillars: unity among the royals, their symbiotic cooperation with the Wahhabi religious establishment, and oil wealth. The new crown prince has upended each of these pillars—arresting and humiliating his royal relatives, insisting on moderate Islam and a more open society, and imposing high taxes on the cheap oil that Saudis regard as their birthright.

During my January visit, Saudis were in shock at the social, political and economic changes. In a single week last month, electricity prices tripled, gasoline prices doubled (to roughly $2 a gallon), and the first-ever value added tax, of 5%, was imposed. If asked Ronald Reagan's famous 1980 debate question—"Are you better off than four years ago?"—almost all Saudis over 30 would say "no."

Alphabet's interest in the kingdom is a signal that Crown Prince Mohammad is serious about change.

The arrests of elite princes and businessmen, as well as conservative religious sheikhs, have chilled older Saudis. During my visit, more than one old acquaintance declined to meet me for "health" reasons and other polite excuses. But Prince Mohammed's constituency is not the royal family or the religious sheikhs. It's the 70% of Saudis who are under 30. He essentially is playing generational Robin Hood—taking from the elite who for decades helped themselves to the nation's oil revenues, while freeing the young from the smothering hand of Wahhabi sheikhs who sapped Saudi initiative by controlling every aspect of daily life. The crown prince clearly hopes that if citizens are allowed to manage their lives, they will take responsibility for their livelihoods.

This is a brave gamble, but without significant change Saudi Arabia's future looks dark. The economy is growing more slowly than the population. Domestic oil consumption is rising nearly 6% a year, a trend that would leave Saudis consuming all the Kingdom's oil production—with none left for export—by 2030. The economy shrank 0.5% last year and is estimated to grow only 1.6% in 2018, according to the International Monetary Fund, though the Saudi government projects faster growth of 2.7%. The official unemployment figure is 12.7% nationally, but it's nearly double that for men between 20 and 29 and 33% for young women in that age group.

Prince Mohammad's economic transformation represents a huge task. If that isn't enough, he also confronts a hegemonic and meddling Iran, a feud with Qatar, and a war in Yemen. Knowing the price Saudi Arabia has paid for decades of dithering, the crown prince has dared to impose rapid top-down change. Inevitably he will make some mistakes. Those he can repair. More troublesome is that some Westerners whose investment and support he seeks may insist on seeing Saudi Arabia as stuck like a fossil in its past Wahhabism and limited personal freedoms. While the Saudis are far from perfect on human rights, the West should acknowledge that the recent progress is real.

The biggest risk remains the economy: It is far from clear that Prince Mohammed can transform the country fast enough to meet the pent-up ambitions of young Saudis. The West has a stake in doing what it can to assure his success. A collapse that turns Saudi Arabia into another chaotic Iraq or theocratic Iran would be a disaster for the region and the world. Right now, the young prince with his agenda for radical change is Saudi Arabia's best, and probably only, shot at moderate—and modernizing—reform.

Ms. House, a former publisher of The Wall Street Journal, is author of "On Saudi Arabia: Its People, Past, Religion, Fault Lines—and Future" (Knopf, 2012).

Notable & Quotable

Columbia Journalism Review editor Kyle Pope writing at CJR.com, Jan. 22:

The political press corps lost its steam. Narrative has become a maligned word of late, but we find ourselves today in a news environment where the narratives are established, and the days' Trump coverage seems largely in service of reinforcing (for the left) or debunking (the right) that narrative. We say this, the president says that, we're at an impasse. Donald Trump called developing nations a [vulgarity], unless he didn't, but he probably did. What do we learn? Probably that he's a racist who lies, both of which we already knew. But that doesn't stop us from repeating the exercise day after day; maybe *this* will be the thing that finally does him in.

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Last Week:	S&P 2762.13 ▼3.85%	S&P FIN ▼2.81%	S&P IT ▼4.12%	DJ TRANS ▼3.94%	WSJ $ IDX ▲0.62%	LIBOR 3M 1.789	NIKKEI 23274.53 ▼1.51%	See more at WSJMarkets.com

Investors Fear Broader Asset Fall

As other markets perform in unison, traders fear slide in stocks may spread

By Amrith Ramkumar And Ira Iosebashvili

U.S. stocks last week suffered their largest weekly drop in two years.

But some investors worry that falling prices for things like oil futures, gold and bitcoin are offering a more ominous signal that could presage deeper declines.

The broad selloff that featured Friday's 666-point tumble in the Dow Industrials marked a sharp reversal from the broad-based advance of the past year.

Many stock-market indexes have hit records or recent highs.

The Dow is still up 27% over the past year, while emerging-market currencies, high-yield bond prices and commodities like copper and gold have risen as well.

Signs that global growth is picking up while interest rates remain below historical norms have helped propel a broad gain in so-called risky assets. That widespread rally resulted in the average correlation between oil, stocks, bond yields and the euro reaching its highest level in 5½ years, a Deutsche Bank analysis showed.

Even before Friday's stock rout, many global investors had grown uneasy about various assets moving in lockstep—especially because trading in many of these markets isn't typically tied to share prices.

Such closely correlated movements are often associated with turning points in the markets.

"The market...had lost respect for the downside," said Christopher Stanton, chief investment officer of Sunrise Capital LLC. "The idea was that markets could just grind

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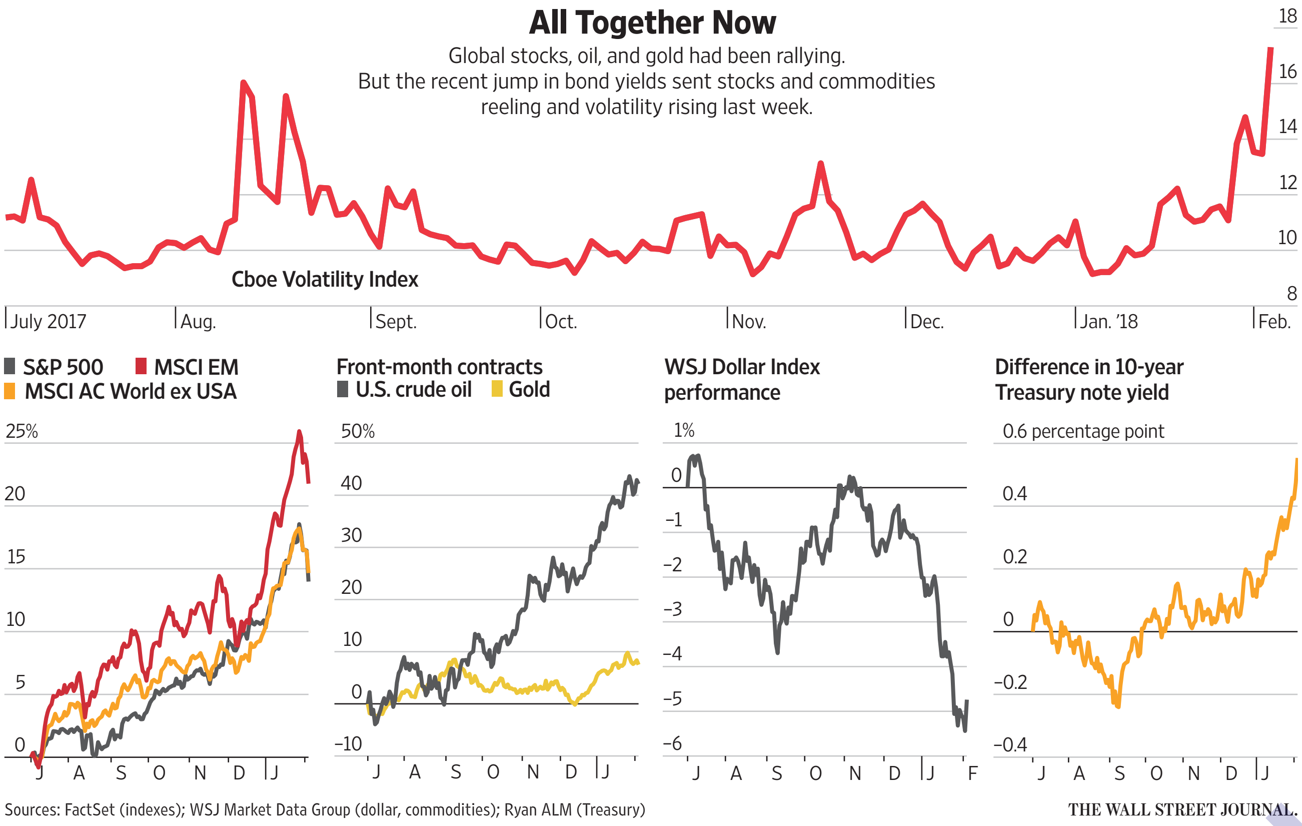

Sources: FactSet (indexes); WSJ Market Data Group (dollar, commodities); Ryan ALM (Treasury)

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Broadcom To Raise Offer for Qualcomm

By Ted Greenwald

Broadcom Ltd. plans Monday to raise its offer for **Qualcomm** Inc. to around $120 billion, a person familiar with the matter said, a move aimed at increasing pressure on the takeover target in what would be the largest-ever technology deal.

Broadcom was expected to announce a new offer around 7 a.m. ET. It will be "in the ballpark" of $120 billion, though the terms aren't final yet, the person said.

Based on Qualcomm's share count in its latest Securities and Exchange Commission filing, the new offer would be in the vicinity of $80 to $82 a share.

Investors and Wall Street analysts have expected Broadcom to submit a higher bid. Qualcomm shares Friday finished New York trading at $66.07, up 5.7% from their close on Nov. 6, when Broadcom made its first offer.

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Arbitrage Smooths Bitcoin's Rough Ride

By Alexander Osipovich And Eun-Young Jeong

One of the oldest tactics on Wall Street is going viral in the world of digital currencies.

The strategy, called arbitrage, is simple: If something trades at different prices in multiple places, buy it where it is cheap and sell where it is dear. Traders call that "capturing the arb."

It is tough to find arbitrages in regulated securities markets these days, but not in the world of cryptocurrencies, where bitcoin trades on more than 100 exchanges around the globe and hundreds of other currencies trade in venues few people have heard of.

Stefan Qin, a 21-year-old Australian based in California, has built a business out of that. In 2016, he founded **Virgil Capital**, a hedge fund specializing in cryptocurrency arbitrage. He put his studies at San Francisco's Minerva Schools on hold to run the fund, which returned about 500% last year after fees and now manages $23.5 million.

Its secret sauce: an algorithm called Tenjin that monitors prices on around 40 exchanges world-wide and swoops in to trade when it sees an opportunity. The fund was up nearly 12% after fees in January, Mr. Qin said, even as bitcoin sank 28%, according to Coindesk.

Mr. Qin expects to keep making money even if bitcoin tumbles further. "The market is incredibly irrational right now, and it's poised for a correction," he said by phone from Davos, Switzerland, which he visited last month to meet with prospective investors. A former high-school math whiz, Mr. Qin hopes to finish his college degree eventually but has no immediate plans to resume his studies.

It is difficult to estimate how much money cryptocurrency ar-

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BILLY H.C. KWOK FOR THE WALL STREET JOURNAL

Stefan Qin's hedge fund specializes in cryptocurrency arbitrage.

Fed Sends Message To Boards Via Wells

By Ryan Tracy And Emily Glazer

The Federal Reserve's unprecedented move to handcuff growth at **Wells Fargo** & Co. sent a message that boards of directors, not just management, will be held accountable when big banks fail to manage risks.

The Fed on Friday said Wells Fargo would be replacing four board directors in 2018 and announced an enforcement action that limits the size of the third-largest U.S. bank by assets, potentially crimping revenue and profit growth.

While directed at Wells Fargo, which has struggled to overcome the sales-practices scandal that engulfed the bank in September 2016, the Fed's action has wider ramifications.

"The Fed just put the fear of God into bank boardrooms across the country," Ian Katz, an analyst at Capital Alpha Partners, said in a note on Sunday. "And that's exactly what it wants to do."

The Fed, which cited "wide-

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KEYWORDS | By Christopher Mims

Apps and Music Can Buoy Apple

Contrary to popular belief, **Apple** isn't a hardware company. Nor is it a software company. Apple is, fundamentally, an *ecosystem* company—one that, with the help of millions of developers world-wide, has created a vast web of software and services that run on its 1.3 billion active devices.

Apple revenue has been dominated by the iPhone, but thanks to the services side of its business, the company is proving to be more durable than any single iPhone generation.

The trouble is, as Apple increasingly emphasizes device prices over volumes for revenue gains, it confronts a fundamental tension—between charging people more for hardware and, simultaneously, more for services to access through it.

The former puts profit margins ahead of prevalence, while the latter emphasizes maximizing the number of gadgets in customers' hands.

The iPhone's average selling price rose in the most recent quarter, but unit sales were down. Meanwhile, evidence mounted that more people are holding on to their older iPhones. If any company can figure out how to continue increasing reve-

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BUSINESS & FINANCE

JPMorgan Plan Frets Some

Health-care clients wary of venture with Amazon, Berkshire; CEO seeks to soothe

By Anna Wilde Mathews, Dana Cimilluca and Emily Glazer

ANDREW HARRER/BLOOMBERG NEWS

James Dimon assured clients that the initiative is designed only to serve employees of the three companies in the partnership.

Some health-care companies have complained to **JPMorgan Chase** & Co. about the bank's new health-care partnership with **Amazon.com** Inc. and **Berkshire Hathaway** Inc., worried that it could cut into their business.

JPMorgan Chief Executive James Dimon got involved personally, speaking with some health-care executives to allay fears that the bank would become their rival, people familiar with the matter said.

The new initiative, which was announced last Tuesday, aims to overhaul health care for the three companies' legions of employees. It sent shock waves through a number of health-care stocks. Shares of health insurers **UnitedHealth Group** Inc., **Cigna** Corp., **Humana** Inc., **Anthem** Inc. and **Aetna** Inc. all dropped. Other sectors of the health-care industry also felt the sting.

At least two of the industry's five biggest insurers voiced concern to JPMorgan officials following the announcement, some of the people said.

Mr. Dimon assured clients that the initiative is designed only to serve the employees of the three firms in the partnership. So did some of the firm's health-care bankers, who get paid handsomely to help clients with mergers and other deals and worry the move could cost them business.

JPMorgan's health-care bankers learned of the plan only at around 9 p.m. the evening before it was announced, according to people familiar with the matter. After the plan became public, some of these bankers fielded calls from clients concerned and confused about the impact.

The bankers reiterated Mr. Dimon's message to clients. They explained that the initiative is akin to a group-purchasing organization, a type of setup used by hospitals to buy supplies, so the companies can get better deals for their employees, some of these people said.

JPMorgan, the largest U.S. bank by assets, is eager to avoid even a small disruption to its health-care investment-banking franchise, a powerhouse on Wall Street that took in $682 million in revenue in the U.S. last year. Its leading market share of 14% was trailed by that of **Goldman Sachs Group** Inc. at 10.6% and **Morgan Stanley** at 7%, according to Dealogic.

JPMorgan spokesman Brian Marchiony said feedback from the health-care industry has been "overwhelmingly positive." The bank has "had hundreds of phone calls and emails from client CEOs, doctors and health-care administrators looking to see how they can get involved." He added: "We see this as an opportunity to work with the industry to tackle the issues facing our country."

On a Thursday conference call with industry analysts to discuss earnings, Cigna CEO David Cordani said such employer moves create "more opportunity versus less for us, because we seek to be an integrated partner from a services standpoint."

Though details of the project are scant, the idea is for the three companies to launch a not-for-profit company to reduce costs and improve the health-care experience for hundreds of thousands of U.S. employees.

A small team largely including members of JPMorgan's corporate-strategy group, which delves into big-impact projects across the firm, quietly worked on the plan for several months with Mr. Dimon and counterparts from Amazon and Berkshire, people familiar with the process said. Marvelle Sullivan Berchtold, a managing director in the strategy group, is JPMorgan's point person. She joined the bank in August after stints as global head of mergers and acquisitions for pharmaceutical company **Novartis** AG and as a senior official at GSK Consumer Healthcare, a division of drugmaker **GlaxoSmithKline** PLC.

The bank isn't getting into business with Amazon, which earlier jolted health-care companies with moves like adding health-care supply options to its business-to-business marketplace. Worries about a potential Amazon entry into the pharmacy-services business were a factor in **CVS Health** Corp.'s $69 billion proposed acquisition of insurance giant Aetna.

ASSETS

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higher."

A sharp rise across asset classes can lead to an increase in leverage, or the use of borrowed money, before a turn in sentiment prompts a decline in prices that spurs forced selling as borrowers scramble to repay obligations.

That has some investors worried that even if some sort of market correction is inevitable, the number of markets that are moving in tandem raises the prospect of a more severe selloff than what the still-positive fundamentals would warrant.

"You're seeing exacerbated moves simply because of crowded positioning," said Michael Hans, chief investment officer of Clarfeld Financial Advisors.

U.S. corporate earnings continue to rise. With nearly half the S&P 500 companies having reported fourth-quarter results, more than 80% of them have beaten analyst revenue expectations, the highest percentage since at least the third quarter of 2008 when FactSet started tracking the metric. The new tax law is expected to boost profits in the quarters ahead.

Many investors had been hoping for a shakeout that would bring down sky-high valuations.

But others are less sanguine, especially after a volatile period for much of the week intensified in a powerful selloff on Friday that wiped out much of January's big gains.

The S&P 500 closed the week down 3.9% as the Dow Jones Industrial Average lost nearly 1,100 points, while U.S. crude and gold also declined. The Stoxx Europe 600 had its worst week in nearly two years, and emerging-markets assets also fell.

"I don't like it," said Mr. Stanton. "I think we're going to see more pressure."

Before last week, the S&P 500 was up 19% and the MSCI All-Country World Index ex-U.S. was up 18% from the start of July.

The MSCI Emerging Markets Index was up 26%, and major stock indexes around the world were either at or near their highs following one of the broadest January stock-market rallies on record.

Stock Descent Continues in Asia

By Kenan Machado And Kevin Kingsbury

WORLD STOCKS

The global stock-market rout continued early Monday in Asia, with indexes in Japan and Taiwan down more than 2% following the heavy selling seen on Friday in the U.S. and Europe.

The Nikkei Stock Average dropped 2.4% to move below 23000 for the first time this year, a drop if maintained will mark the biggest decline since late 2016. The yen rebounded some in Asian trading, with the dollar pulling back to ¥109.90 from ¥110.15 in late New York trading on Friday.

Taiwan's Taiex fell 2% in early trading, with benchmarks in Hong Kong off slightly less. Australia, New Zealand, South Korea and Singapore saw declines of about 1.5%.

S&P 500 futures were down 0.4% Sunday night.

The selling in Asia surprised some seasoned market watchers, like Hisao Matsuura, chief strategist at Nomura Japan. He is advising clients to buy stocks at the moment as earnings continue to remain robust across the region.

Mr. Matsuura went on to say that the Bank of Japan's bond-buying efforts will be key for near-term market sentiment. The central bank on Friday offered to buy an unlimited amount of government bonds with remaining maturities of five to 10 years to keep yields low. Any let-up on that front could extend market apprehension about rising yields, he said.

Commodities extended Friday's selling. Oil futures were down about 0.8% in Asia, while gold was off 0.3%.

WELLS

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spread consumer abuses" at Wells Fargo, has never before imposed such a broad restriction as part of an enforcement action. Wells Fargo is barred from growing past the $1.95 trillion in assets it had at the end of 2017, unless it gets regulators' permission. Fed officials did say the company can continue to lend and take deposits.

Wells Fargo said it was "confident it will satisfy the requirements of the consent order."

Chief Executive Officer Timothy Sloan, also a director, said on a call with analysts Friday evening that the bank within 60 days will submit plans to the Fed "that leverage existing plans and efforts already underway to further enhance the board's effectiveness in carrying out its oversight and governance of the company and further improve the firm-wide compliance and operational risk management program."

A letter Friday from departing Fed Chairwoman Janet Yellen to Sen. Elizabeth Warren (D., Mass.), showed that the central bank is thinking more broadly than just Wells Fargo. Ms. Yellen wrote that the Fed is raising expectations for boards across the banking industry.

The letter cited guidance for boards the Fed proposed in August, which Mrs. Yellen wrote "marks the first time that the Federal Reserve has issued stand-alone expectations for boards of directors as distinct from management."

"That distinction allows us to spotlight the core responsibilities of effective boards, one of which is to ensure the independence and stature of the risk management and internal audit function," the letter said.

Ms. Yellen handed over leadership of the central bank this weekend to Jerome Powell. He was appointed by President Donald Trump, who has pushed a deregulatory agenda for banks and other industries.

But banks shouldn't necessarily think Mr. Powell will change course. As a Fed governor, he took a leading role in pushing the Fed to adopt the new regulatory guidance for board members.

Fed officials concluded Wells Fargo had grown and taken on more risk.

"Across a range of responsibilities, we simply expect much more of boards of directors than ever before," Mr. Powell said in an August 2017 speech, the month the draft guidance was published. "There is no reason to expect that to change."

The Fed guidance, which applies to all banks, seeks to reduce the number of regulatory requirements for which boards are directly accountable. Fed officials said the goal wasn't to make boards' lives easier but to push the board to focus on big-picture issues, such as firmwide risk management.

The restriction on Wells Fargo's asset growth also took the Fed into uncharted territory, and the harsh penalty reflected a judgment that the bank's board failed to ensure "that senior management had established and maintained an adequate risk management framework commensurate with the size and complexity of the firm," as the Fed's enforcement order put it.

During the financial crisis, the Fed and other banking regulators indirectly pushed banks to add directors with more financial experience.

Wells Fargo had been an outlier in recent years among big banks, expanding its footprint when peers such as **Citigroup** Inc. and **Bank of America** Corp. were largely retrenching as they recovered from the 2008 financial crisis.

More recently, as the bank's problems in different corners of the firm unfolded, Fed officials concluded Wells Fargo had grown and taken on more risk, without adequately updating its ability to manage that risk. The firm's problems were so broad that officials decided a broad punishment was warranted.

In September 2016, the bank settled allegations that it had engaged in years of improper sales practices that resulted in potentially 3.5 million accounts being opened without customers' knowledge. Elsewhere, more than 550,000 auto-loan and mortgage customers were possibly overcharged for products for years as well.

Rocket Is Major Bet for SpaceX

Falcon Heavy is scheduled to make maiden flight in face of weakening demand

By Andy Pasztor

SpaceX's long-delayed Falcon Heavy rocket, slated for its maiden flight on Tuesday, faces uncertain commercial prospects and lacks a clear role in efforts to send U.S. astronauts back to the moon or deeper into the solar system.

The company conceived the rocket at the beginning of the decade, when SpaceX was an underdog fighting to increase its share of launches and needed a beefed-up alternative to a fleet of underpowered boosters. But after spending some $1 billion and grappling with five years of delays and huge technical challenges related to reliably harnessing power from 27 engines, the company is contending with significantly eroded commercial demand for such a potent heavy-lift booster.

The primary reason for the weakened demand is that national-security and corporate satellites continue to get smaller and lighter. So now, even if it performs as advertised, the Falcon Heavy might be Elon Musk's biggest contrarian bet since he founded SpaceX over 15 years ago.

Since Mr. Musk announced the Falcon Heavy in 2011, his closely held company has become a dominant force, relying on a Falcon 9 rocket that is able to fly more frequently than vehicles used by rivals.

The website for **Space Exploration Technologies** Corp., the company's formal name, lists four future Falcon Heavy launches carrying customer payloads, versus over two dozen for its smaller predecessor, the workhorse Falcon 9. Less than two years ago, internal company documents projected a total of as many as 17 Falcon Heavy launches from 2017 to the end of 2019.

When it comes to prospective manned missions, the outlook also seems uncertain. Mr. Musk faces escalating competition—with formidable rivals ranging from **Boeing** Co. to fellow billionaire and **Amazon.com** Inc. founder Jeff Bezos—for a prominent role in the National Aeronautics and Space Administration's proposed return of astronauts to the moon. Potential Falcon Heavy participation is murkier in longer-term NASA efforts to send humans farther into the solar system, largely because Mr. Musk already has unveiled plans for a substantially larger rocket, dubbed the Big Falcon Rocket, targeting eventual voyages to Mars.

Separately, NASA is pursuing its own multibillion-dollar Mars rocket. It is unknown how, or even if, Mr. Musk's privately financed vehicles might mesh with those plans.

The heavy-lift booster arrives as satellites become smaller and lighter.

Given the high personal and corporate stakes riding on Tuesday's test flight, Mr. Musk hopes to demonstrate convincingly to naysayers as well as future customers that his team achieved something never done before: Using private funding, it developed and successfully launched a rocket featuring 5 million pounds of thrust, the most power since the Apollo era's Saturn V.

The launch in Florida illustrates a trend in the rocket business toward "a lot of private investment without clarity about what the market will look like," according to James Maser, president of the American Institute of Aeronautics and Astronautics. "It's not obvious what the return on investment will be," he said.

Yet the sheer engineering audacity, once scoffed at by many of Mr. Musk's critics, is impressive to many in the industry. Since U.S. astronauts landed on the moon in the late 1960s, scientists have pondered the advantages of such a large, reusable rocket, said Howard McCurdy, a space historian who teaches public policy at American University. "It's something we've dreamed about for half a century."

Mr. Musk's latest rocket, advertised at under $100 million per mission, boasts roughly twice the lift capacity and one-fourth the cost of its closest heavy-lift competitor. "A launch vehicle in the price range of the Falcon Heavy could make a lunar base economically feasible," Mr. McCurdy said. "That is huge."

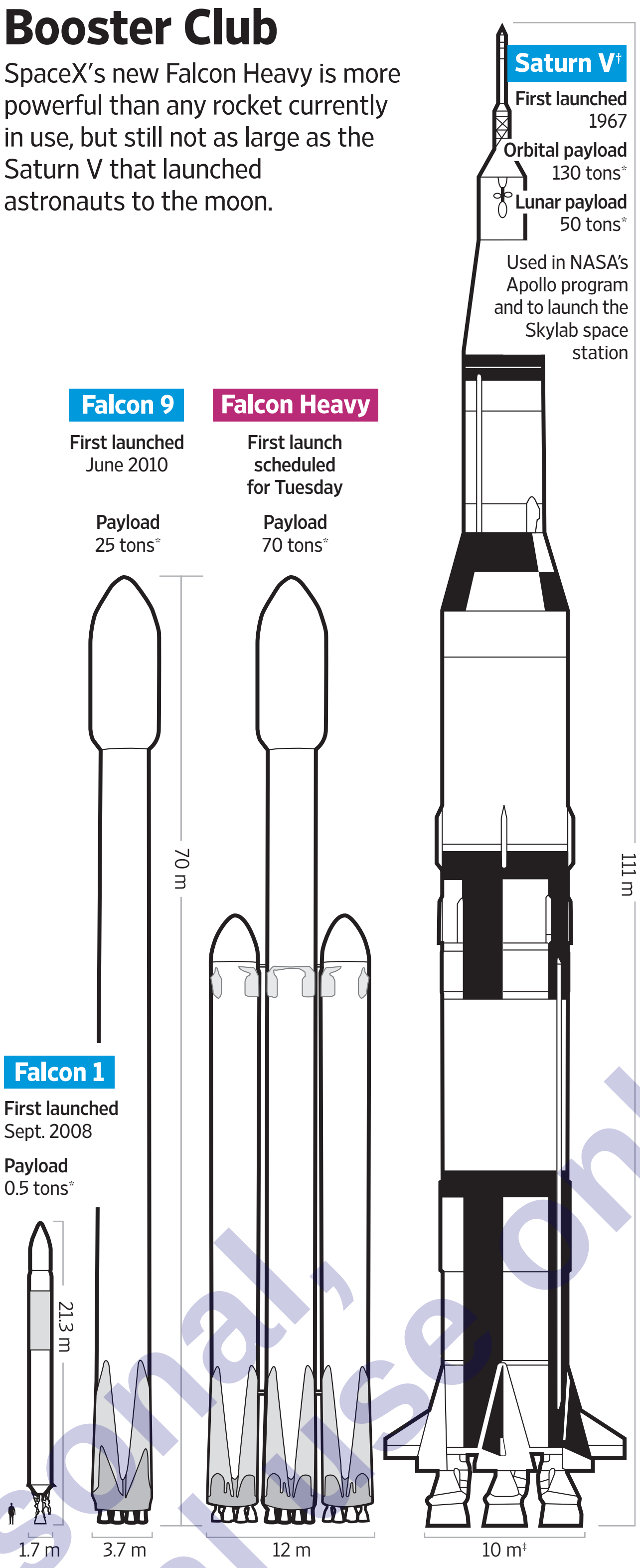
NASA's own deep-space rocket, called Space Launch System and expected to cost $1 billion per mission, isn't set to fly until the end of next year at the earliest. An operational Falcon Heavy is bound to stoke debate over whether SpaceX can implement plans to reach Mars that will turn out to be faster and cheaper than those being developed by the agency or its international partners.

But space experts aren't actually rooting for a flawless mission. Instead, they said the optimum scenario is for the engines and navigation systems to basically work as designed, but for some small glitches to surface. That would allow engineers to identify and fix incipient problems before they spread and result in serious or possibly catastrophic failures during later flights.

In addition to structural stresses, company engineers will be closely monitoring tricky coordination between engines that requires the central cluster to increase thrust once the side boosters are released. The flight also will answer questions about how those boosters maneuver during their return without the usual nose cones.

Booster Club

SpaceX's new Falcon Heavy is more powerful than any rocket currently in use, but still not as large as the Saturn V that launched astronauts to the moon.



*Estimated, at low-earth orbit †Apollo configuration shown ‡Without fins
Sources: SpaceX; NASA
THE WALL STREET JOURNAL.

Bon-Ton Files for Chapter 11 Protection

By Lillian Rizzo

Bon-Ton Stores Inc., one of the largest regional department store chains in the U.S., sought bankruptcy protection on Sunday as discussions with its debt holders have yet to come to a conclusion.

The Pennsylvania-based retailer filed for chapter 11 in U.S. Bankruptcy Court in Wilmington, Del., in a bid to deal with a crushing debt load and declining sales.

While under bankruptcy protection, Bon-Ton will explore strategic alternatives, including a sale of the company or certain assets as a part of the reorganization plan, according to a news release.

Several smaller retailers like A'Gaci LLC and Italian-owned cosmetics merchant KIKO USA Inc. filed for chapter 11 protection in January, but Bon-Ton is the largest retailer to seek bankruptcy protection so far in 2018.

Like its bigger peers—**Sears Holdings** Corp., **Kohl's** Corp., and **J.C. Penney** Co.—Bon-Ton has faced challenges as consumers have shifted from brick-and-mortar shopping to online retailers. More than 20 retailers sought chapter 11 protection in 2017, and more than 4,000 stores were closed last year, according to BDO USA data.

The company, which owns 260 stores, has announced it would be closing 42 of its stores across the Northeast and Midwest.

Bon-Ton hired AlixPartners LLP and PJT Partners Inc. to deal with its $987 million debt load last year. During the fall, the company said it obtained an amendment from lenders on its $880 million loan, which gave it access to more cash ahead of the crucial holiday season.

—Soma Biswas contributed to this article.

Uber, Waymo Head to Trial

By Greg Bensinger

Technology companies are pouring billions of dollars into developing robot cars they hope will save lives, make human drivers obsolete and one day reap riches.

The future of the technology might hinge on the outcome of a blockbuster trial between two leading lights in the development of driverless vehicles—**Uber Technologies** Inc. and **Alphabet** Inc.'s Waymo, an offshoot of Google—set to start Monday in a San Francisco court.

The biggest Silicon Valley legal battle in years pits a highflying startup against a tech behemoth in a case that has already yielded a year of drama and legal wrangling. Waymo's lawsuit, filed in U.S. District Court for the Northern District of California, alleges Uber ransacked the tech giant's driverless-car design secrets after paying about $680 million in 2016 to buy autonomous-truck company Otto, founded by a former star engineer at Google, Anthony Levandowski.

Uber denies the allegations, though court filings indicate it knew before buying Otto that Mr. Levandowski had possession of sensitive Google files. The San Francisco startup has said it is using its own technology to create autonomous vehicles. Last May, it fired Mr. Levandowski, in part due to what it said was his unwillingness to cooperate with its own investigation. His attorney didn't respond to a request for comment.

Waymo has "accumulated significant and compelling evidence of Uber's theft and use of Waymo's trade secrets," a spokesman said.

"We're pleased to finally be able to focus on what this case is really about: the technology," said an Uber spokesman. "We're very confident in our technical case."

The case has captivated Silicon Valley, with allegations of corporate espionage, a Who's Who of technology executives expected to testify and tough talk from a fiery federal judge, William Alsup, who has scolded both sides for what he said are failures to disclose pivotal information.

ANGELO MERENDINO/AGENCE FRANCE-PRESSE/GETTY IMAGES

Pilot models of Uber self-driving car in 2016. A trade-secrets trial begins Monday in San Francisco.

Anthony Levandowski, a former Google engineer, founded autonomous-truck firm Otto.

Waymo will seek an injunction to prevent Uber from further developing aspects of its driverless-car technology and possible damages that could reach into the billions. If Waymo wins, the ruling could hamstring a direct rival, as it eyes building out its own ride-hailing networks in coming years.

Uber has called the development of self-driving vehicles "existential" in its drive for more efficiency and eventual profitability. A ruling in its favor would deliver Uber an important moral victory, while allowing it to continue working on autonomous vehicles unabated.

With billions of dollars on the line and the future of personal transportation up for grabs, the case is expected to become a touchstone for intellectual-property law.

Waymo alleges Uber executives carefully orchestrated the acquisition to obtain the intellectual property and know-how Mr. Levandowski could bring from his time as a Google employee.

Waymo's allegations center on Uber's development of a technology used to guide self-driving vehicles known as lidar, or light detection and ranging systems. Waymo claims Mr. Levandowski downloaded some 14,000 sensitive files to his personal computer before quitting Google, imperiling eight patents.

But Judge Alsup has challenged Waymo attorneys to prove not just that Uber arranged for the trade secrets to be stolen but also that it used them inappropriately in its development of lidar. That may mean convincing the jury of technical subtleties in software code and sensors.

The case took an unexpected turn late last year when a 37-page letter from a former Uber security official emerged, alleging the company had formed a covert team dedicated to stealing trade secrets and helping employees dodge regulators' scrutiny. Uber said in court the letter was an extortionist move designed to extract millions of dollars from the company and that many of its allegations were false. The judge last month said much of the letter won't be admissible unless the former executive testifies.

Mr. Levandowski, for his part, has indicated he will invoke his Fifth Amendment right protecting himself from self-incrimination, though he isn't a named defendant in the case. Other boldface names likely to testify are former Uber CEO Travis Kalanick, Google co-founder Larry Page and Benchmark venture capitalist Bill Gurley, previously on Uber's board.

—Jack Nicas contributed to this article.

'Jumanji' Reclaims Top Box-Office Spot

Associated Press

NEW YORK—The heir to "Titanic" is..."Jumanji: Welcome to the Jungle"?

For the first time since James Cameron's disaster epic, a December release has topped the weekend box office in February. Seven weeks after first opening in theaters, Sony Pictures' "Jumanji" again took the top spot at the North American box office with an estimated $11 million in ticket sales, according to studio estimates Sunday.

On a sluggish Super Bowl weekend, that was good enough to surpass last week's no. 1 film, "Maze Runner: The Death Cure." The third installment in the trilogy slid 58% in its second week with $10.2 million in ticket sales. Though "The Death Cure" is behind the pace of the first two "Maze Runner" films, it has made $142.9 million overseas, including an international-best $35.2 million this weekend.

But it is the fourth weekend out of seven in which the "Jumanji" reboot, starring Dwayne Johnson and Kevin Hart, has led all films domestically. It has carved an unlikely path on route to its record-setting run. Met with little initial fanfare, "Jumanji" played second fiddle for its first two weeks of release to "Star Wars: The Last Jedi."

But riding good word-of-mouth and relatively little family-film competition, "Jumanji" has become one of Sony's biggest hits ever, ranking behind only its "Spider-Man" films. It has now grossed $352.6 million in the U.S. and Canada.

The Helen Mirren-led haunted-house horror film "Winchester" was the sole new wide release on a weekend that Hollywood typically cedes to football. The poorly reviewed Lions Gate release opened with $9.3 million.

Total ticket sales were $92 million, according to comScore, a sum that falls behind recent Super Bowl weekends—always among the quietest movie weekends of the year—but above the lowest-grossing ever.

Hollywood will instead be largely focused on the trailers debuting during Sunday's NFL broadcast. About a dozen films will hope to capitalize on the largest U.S. broadcast of the year with high-price commercial spots intended to raise the awareness of upcoming spring releases and some of the summer's biggest would-be blockbusters.

Disney hasn't announced plans, but "Star Wars" fans are hoping to see a spot for the Han Solo spinoff. More likely on tap are ads for "Jurassic World: Fallen Kingdom," Jennifer Lawrence's "Red Sparrow," Tom Cruise's "Mission: Impossible—Fallout" and another potential hit for Dwayne Johnson: "Skyscraper."

Estimated Box-Office Figures, Through Sunday

FILM	DISTRIBUTOR	WEEKEND* (SALES, IN MILLIONS)	CUMULATIVE (SALES, IN MILLIONS)	% CHANGE
1. Jumanji: Welcome to the Jungle	Sony	$11	$352.6	-32
2. Maze Runner: The Death Cure	Twentieth Century Fox	$10.2	$39.8	-58
3. Winchester	Lions Gate	$9.3	$9.3	--
4. The Greatest Showman	Twentieth Century Fox	$7.8	$137.5	-18
5. Hostiles	ESMP	$5.5	$21.2	-45

*Friday, Saturday and Sunday Source: comScore

MIMS

Continued from page B1

nue while selling fewer phones, it is the Colossus of Cupertino—but it might require a fundamental rethinking of how Apple charges for its goods and services.

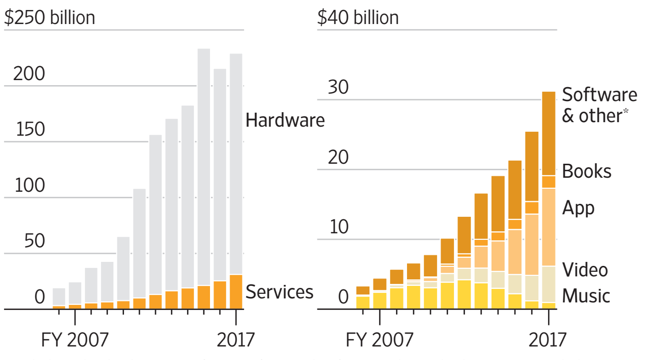
Just as Chief Executive Tim Cook predicted in 2016, Apple has increased revenue from its intangible services into a Fortune 100-size business. In the 2017 calendar year, Apple reported $31.15 billion in revenue from services including Apple's music, video sales and rentals, books, apps, iCloud storage and money Google pays Apple to be the iPhone's default search engine.

Another way to think of it: Apple is on track to take in about $26 a year in revenue from each of its 1.3 billion active devices. By contrast, **Facebook** brings in advertising revenue of about $25 a year for each of its more than two billion users.

Mr. Cook says by 2020 he wants Apple's services revenue to double from its 2016 level. Between now and then, if revenue from iPhone sales holds steady or declines, which would be a natural consequence of people holding on to their devices longer, then growth in services could become the primary driver of Apple's overall revenue growth—or even the one thing that keeps it from declining. Services, and the millions of developers and thousands of companies behind them, are the reason

From Hardware to Services

As iPhone sales peak, Apple's revenue from nonhardware sources continues to grow.



*Includes iCloud subscription fees, professional software sales and other income, including Google's payment to be the default iPhone search engine. Note: Apple's fiscal year ends Sept. 30

Sources: the company (total revenue); analyst Horace Dediu (Apple services revenue)

THE WALL STREET JOURNAL.

the iPhone is so sticky, says Horace Dediu, an Apple analyst and fellow at the Clayton Christensen Institute for Disruptive Innovation.

While Apple counts only its share of app-store purchases and subscriptions in its services revenue, the totality of the "iOS economy" is much bigger, Mr. Dediu says. World-wide, people now spend $40 billion a year on apps for Apple devices. As of this year, that is more than they spend on movies at the theater, he adds.

As Apple rolls out more gadgets, its services revenue will continue to diversify. Take the example of AirPods: People who own them are more likely to subscribe to a music service, including Apple's, because AirPods make it easier to consume audio content, says Ben Bajarin, an analyst at market-research firm Creative Strategies.

The remarkable thing about Apple's services revenue is that in general it goes up, quarter after quarter.

Contrast that with Apple's hardware revenue, which is highly seasonal and dependent on whether Apple is releasing a new iPhone that quarter. Without services—which represented a record 16% of Apple's fiscal fourth-quarter revenue in 2017, when hardware sales were relatively low, and 9.6% of revenue in its most recent quarter, which included the launch of the new iPhones 8 and X—Apple's money machine would be a good deal more erratic than it is.

Recent declines in the number of iPhones sold reflect how global demand for high-end smartphones appears to be saturated.

In a market where everyone is battling for existing customers, Apple is contending with competitors like Google, which gives away its Android OS to earn money on ad-supported services, and Amazon, which ropes in customers with low-cost electronics and Prime memberships. To keep expanding its services revenue, Apple will have to continue to sell (and care for) older models of iPhones, which could eventually mean lower margins on hardware.

One way for Apple to resolve the hardware-versus-services tension would be to roll them into one giant subscription, Mr. Dediu says.

Imagine a service where you subscribe to a regularly updated iPhone, Apple Watch, AirPods or some subset of these devices. Mr. Dediu estimates that for every Mac or iPhone, the average Apple customer spends on average a dollar a day on hardware plus services. A customer would spend more for a premium version—say, for a new MacBook Pro and an iPhone X—but calculating the annual value of such a customer should be straightforward for a company like Apple.

Throw in health monitoring, an iCloud subscription, Apple Music, Apple's original programming and more into a cable-television-like bundle, or a la carte, and Apple could go from being a hit-driven company to one that throws off consistent, subscription-based revenue. Think of it as Apple Prime.

OFFER

Continued from page B1

News of the revised offer was first reported by Reuters.

Broadcom launched its bid for the San Diego chip maker in November, offering $105 billion, or $70 a share, in a mix of cash and stock. Combined, they would form the No. 3 chip maker by revenue behind Intel Corp. and Samsung Electronics Co.

Qualcomm's directors promptly rejected the bid.

The new bid ratchets up the stakes in a hostile standoff that could affect wide swaths of the markets for chips used in data centers and smartphones. Broadcom is a market leader in a variety of chips for wired and wireless devices, including Wi-Fi and Bluetooth chips for smartphones. Qualcomm is a leader in chips that manage cellular communications in smartphones.

Qualcomm, in an effort to persuade shareholders to resist Broadcom's initial bid, released a presentation mid-January outlining a path to grow adjusted per-share earnings from $4.28 in fiscal 2017 to between $6.75 and $7.50 in fiscal 2019.

It promised that in the event it doesn't complete its proposed acquisition of **NXP Semiconductors** NV, which has been held up in regulatory reviews, it would create an equivalent boost to earnings by buying back shares. Qualcomm also promised to shed $1 billion in costs.

Broadcom and Qualcomm discussed a potential deal as early as 2016, according to regulatory filings. Since launching its offer, Broadcom management has said Qualcomm's directors refuse to engage. Broadcom responded by nominating its own slate of directors for Qualcomm shareholders vote on at the company's annual shareholder meeting, which is slated for early March.

Qualcomm in recent years has been under attack from customers and antitrust regulators who allege the company's business practices aren't fair. **Apple** Inc. is suing the chip maker in multiple countries, and Qualcomm has faced regulatory fines in China, South Korea, Taiwan and the European Union. Qualcomm is appealing some regulatory decisions and fighting Apple in court.

Tax Law Goes Tough on Strapped Firms

Lawmakers removed a tool that ailing firms have long depended on to free up cash

By Katy Stech Ferek And Theo Francis

The new tax law is a boon to most U.S. businesses, but it will make life harder for one type of company: those that are struggling financially or at risk of filing for bankruptcy.

Federal lawmakers killed a key tax benefit that troubled companies have long relied on to raise cash in a pinch. Coupled with a limit on interest deductions, which makes borrowing costlier, the changes will leave strapped firms with fewer options, according to bankruptcy lawyers and advisers.

Financially troubled companies "need the cash to be able to reorganize, pay down creditors and come up with a plan," said David Agler, principal at **Crowe Horwath** LLP, an accounting firm.

The law eliminated a provision that gave money-losing companies a cash infusion in the form of a retroactive federal tax refund by applying current losses to past tax bills. Experts say these tax breaks, called net operating loss carry-backs, gave companies access to money at a critical time, helping blunt the effect of unexpected slowdowns in the business cycle.

The provision allowed "businesses to ride through short downturns without laying off employees or otherwise harming their operations," said Connecticut-based bankruptcy lawyer Jeffrey Sklarz.

As Congress considered its tax overhaul, some bankruptcy experts for the National Bankruptcy Conference, a nonprofit policy-monitoring group, warned lawmakers that cutting the carry-backs benefit could hurt employment and economic growth by making it harder for struggling companies to restructure and leading them to lay off more workers.

MESFIN FEKADU/ASSOCIATED PRESS

True Religion Apparel got a boost from the carry-backs provision.

A spokeswoman for the House Ways and Means Committee said lawmakers considered it important to change the rules for net operating losses to make sure companies couldn't use them to entirely eliminate a tax bill in a given year.

The change will save taxpayer dollars, raising $201 billion over a decade, according to the Joint Committee on Taxation.

Recently, the carry-backs provision gave a boost to struggling jeans maker **True Religion Apparel** Inc., which filed for bankruptcy protection in July. The Los Angeles-based retailer requested federal tax refunds for prior years using $21.7 million of the $26.7 million of net operating losses on its books before its bankruptcy filing, according to court documents. Company officials declined to comment.

Bankruptcy lawyer Cathy Hershcopf, who represented some of the retailer's creditors, said True Religion's ability to generate that cash helped convince other creditors that the chain should get "a chance for another day." It emerged from bankruptcy-court protection in October.

"It doesn't fix the business, but it fixed the balance sheet," she said of the tax benefits. In its fiscal year ending in January 2017, True Religion reported a net loss of about $78.5 million; court filings in October indicated it had generated positive cash flow over the preceding four months.

Under the new law, companies no longer can carry back net operating losses to get refunds for taxes paid in prior years. Previously, they could seek refunds for federal taxes paid in the previous two years.

Companies still can use losses to offset future tax bills, though with new limits on the amount that can be used each year. Companies can, however, as a new benefit, carry the losses forward to use indefinitely, as opposed to 20 years previously.

Comprehensive data on companies using operating-loss carry-backs aren't available.

In court documents, lawyers for 34 companies filing for bankruptcy since March 2015 reported having more than $14 billion in combined net operating losses that could be used for past or future tax savings, according to a Wall Street Journal analysis.

PRICE

Continued from page B1

bitrageurs might be making. But hedge funds, high-frequency traders such as Chicago-based **DRW Holdings** LLC and even amateur enthusiasts are all giving it a shot, traders say.

The price of bitcoin can diverge between exchanges due to glitches or network traffic jams that slow transfers between users. Even national holidays can cause price gaps, by preventing exchanges from receiving wire transfers of dollars.

At times of heavy bitcoin trading in recent months, price differences between exchanges have widened to 10% or more, or thousands of dollars, and in some cases persisted for days, market observers say.

By comparison, studies have shown price gaps in U.S. stocks last a fraction of a second and are typically just a penny per share.

Far-flung factors including local legal regimes can affect bitcoin's price. One of the best-known arbitrage opportunities in cryptocurrency circles is the "kimchi premium," in which South Korean exchanges tend to have abnormally high prices due to Korean investors' enthusiasm for bitcoin and capital controls that limit the movement of money out of the country. The nickname refers to a popular Korean pickled-cabbage dish.

In early January, bitcoin and ether, the second-largest cryptocurrency, were trading more than 50% higher in South Korea than in the U.S., although by last week, the gap had narrowed to less than 5%, according to CryptoCompare.com.

Kang Ha-min, a recent college graduate in Columbus, Ohio, made several hundred dollars last year by buying ether in the U.S. and transferring it to his brother in South Korea, who sold it on a local exchange and sent him the cash. Mr. Kang used the profits to help pay for rent.

But he didn't repeat the trade. "It's cumbersome to exchange won to dollars each time, and it takes [a long time]," Mr. Kang said.

Rules require additional scrutiny by the South Korean government if a person seeks to transfer more than $50,000 overseas in a year.

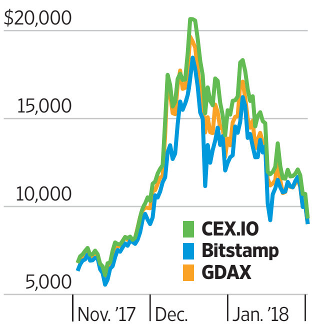
Traders say it can be hard to cash in on arbitrage opportunities. Even if there is a huge premium at one exchange, it may prove impossible to move bitcoin there quickly enough to capture that arb. Fees eat further into profits.

But the era of easy arbitrage may be coming to an end, as the digital-currency markets attract more hedge funds and high-speed firms, some traders say.

The presence of well-capitalized arbitrageurs should reduce opportunities, because any price disparities will swiftly get traded away. "It's closing because more and more people are entering the space," said Ari Lewis, co-founder of Grasshopper Capital, another cryptocurrency hedge fund. "If the market was efficient, these arbitrage opportunities and price gaps wouldn't exist."

Out of Line

Bitcoin's price can vary across different exchanges. At times, such spreads have widened into the thousands of dollars.



Note: Based on daily prices at midnight U.K. time.
Source: Cryptoquote.io
THE WALL STREET JOURNAL.

Card Issuers Put Kibosh on Bitcoin

More credit-card issuers are ditching bitcoin.

Three of the largest U.S. banks said Friday that they would no longer permit credit-card customers to buy bitcoin with their credit cards.

The decisions were announced after a brutal week for bitcoin prices, which have plummeted more than 50% from their peak in December.

Citigroup Inc. said that it has decided to no longer permit its credit-card customers to buy bitcoin with their Citi credit cards. The bank is in the process of implementing the block, which will apply to Citi credit-card holders globally. "We will continue to review our policy as this market evolves," said a bank spokeswoman.

JPMorgan Chase & Co. and **Bank of America** Corp. also said they won't allow credit-card customers to use credit cards to buy bitcoin.

The Wall Street Journal reported on Jan. 25 that banks were becoming concerned about the risks associated with credit cards being used to purchase bitcoin. **Capital One Financial** Corp. prohibited credit-card purchases of bitcoin in January, and **Discover Financial Services** banned them in 2015.

With the latest announcements, most top credit-card issuers by volume won't allow bitcoin purchases. One of the biggest concerns for banks is that bitcoin purchases will push up their card losses. That includes cardholders who don't pay their bills when the price of bitcoin falls below what they paid to buy it with the card.

Overall credit-card charge-offs are rising because of several factors, including looser underwriting standards in recent years. That has investors concerned because losses are up during a relatively strong economy with low unemployment.

—AnnaMaria Andriotis

Closed-End Funds | WSJ.com/funds

Listed are the 300 largest closed-end funds as measured by assets. 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. **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, February 2, 2018

Fund (SYM)	NAV	Close	Prem /Disc	52 wk Ttl Ret
General Equity Funds				
Adams Divers Equity Fd **ADX**	18.23	15.54	-14.8	28.4
Boulder Growth & Income **BIF**	13.41	11.45	-14.6	30.9
Central Securities **CET**	33.12	27.50	-17.0	26.9
CohSteer Opprtnty Fd **FOF**	13.91	12.91	-7.2	13.3
Cornerstone Strategic **CLM**	13.81	15.93	+15.4	28.7
Cornerstone TR Fd **CRF**	13.47	15.73	+16.8	27.8
EtnVnc TaxAdvDiv **EVT**	24.08	22.93	-4.8	13.8
Gabelli Dividend & Incm **GDV**	25.75	23.81	-7.5	23.1
Gabelli Equity Trust **GAB**	6.70	6.37	-4.9	22.1
Genl American Investors **GAM**	41.38	34.89	-15.7	16.6
Guggenheim Enh Fd **GPM**	9.11	8.97	-1.5	20.6
HnckJohn TxAdv **HTD**	23.91	22.35	-6.5	0.0
Liberty All-Star Equity **USA**	6.96	6.41	-7.9	33.7
Royce Micro-Cap **RMT**	10.57	9.46	-10.5	21.9
Royce Value Trust **RVT**	17.68	16.21	-8.3	25.2
Source Capital **SOR**	46.51	41.15	-11.5	15.2
Tri-Continental **TY**	30.65	27.23	-11.2	25.7
Specialized Equity Funds				
Adams Natural Rscs Fd **PEO**	23.25	19.85	-14.6	4.0
AllnzGI NFJ Div Interest **NFJ**	15.07	13.35	-11.4	9.7
AlpnGlblPrProp **AWP**	7.32	6.38	-12.8	28.5
BlkRk Enh Cap Inco **CII**	17.77	16.40	-7.7	25.4
BlkRk Engy Res Tr **BGR**	16.06	14.37	-10.5	5.4
BlackRock Enh Eq Div Tr **BDJ**	10.29	9.33	-9.3	19.6
BlackRock Enh Gl Div Tr **BOE**	13.52	12.47	-7.8	21.1
BlkRk Intl Grwth&Inco **BGY**	7.24	6.49	-10.4	21.1
BlkRk Health Sci **BME**	37.43	35.51	-5.1	13.7
BlackRck Rscs Comm Str Tr **BCX**	10.87	9.68	-10.9	16.7
BlackRock Science & Tech **BST**	29.92	28.49	-4.8	53.6
BlackRock Utilities Infr **BUI**	21.03	20.90	-0.6	15.0
CBREClarionGlblRlEstIncm **IGR**	8.70	7.60	-12.6	9.4
Sprott Physical Gold **CEF**		13.30	NA	8.3
ClearBridge Amer Engy **CBA**		9.02	NA	-4.7
ClearBridge Engy MLP Fd **CEM**		16.81	NA	6.0
Clearbridge Engy MLP Opp **EMO**		12.55	NA	-1.6
Clearbridge Engy MLP TR **CTR**		12.55	NA	-1.6
Cohen & Steers Infr Fd **UTF**	24.86	22.76	-8.4	19.1
C&S MLP Incm & Engy Opp **MIE**	11.10	10.67	-3.9	-1.4
Cohen & Steers Qual Inc **RQI**	12.49	11.15	-10.7	-5.4
CohnStrsPfdInco **RNP**	21.53	18.63	-13.5	1.1
Cohen & Steers TR **RFI**	12.57	11.87	-5.6	0.7
CLSeligmn Prem Tech Gr Fd **STK**	21.39	21.65	+1.2	27.2
Duff & Phelps **DNP**	9.13	10.20	+11.7	4.1
Duff&PhelpsGblUtilIncFd **DPG**	17.18	15.43	-10.2	1.0
Eaton Vance Eqty Inco Fd **EOI**	15.39	14.41	-6.4	20.9
Eaton Vance Eqty Inco II **EOS**	16.46	15.86	-3.6	26.6
EtnVncRskMngd **ETJ**	10.05	9.25	-8.0	7.2
Etn Vnc Tax Mgd Buy-Write **ETB**	16.21	16.44	+1.4	4.6
Eaton Vance BuyWrite Opp **ETV**	15.05	15.23	+1.2	8.7
Eaton Vance Tax-Mng Div **ETY**	12.45	12.07	-3.1	22.4
Eaton Vance Tax-Mngd Opp **ETW**	11.76	12.00	+2.0	22.2
EtnVncTxMngGlDvEqInc **EXG**	9.56	9.39	-1.8	20.7
Fiduciary/Clymr Opp Fd **FMO**	13.95	14.19	+1.7	-6.6
FT Energy Inc & Growth Fd **FEN**	24.84	24.95	+0.4	-2.5
FstTrEnhEqtIncFd **FFA**	16.64	15.69	-5.7	20.5
First Tr Engy Infr Fd **FIF**	17.99	18.09	+0.6	0.6
First Tr MLP & Engy Incm **FEI**		14.99	NA	-3.0
Gabelli Hlthcr & Well **GRX**	12.03	10.38	-13.7	11.4
Gabelli Utility Tr **GUT**	5.05	7.07	+40.0	18.6
GAMCOGlblGoldNatRscs&Inc **GGN**	5.33	5.25	-1.5	9.8
Goldman Sachs MLP Inc Opp **GMZ**		9.47	NA	-9.3
Goldman Sachs MLP Energy **GER**		6.70	NA	-14.9
John Hancock Finl Opps Fd **BTO**	38.97	39.30	+0.8	9.99
Macquarie Glbl Infrstrctr **MGU**	26.85	24.62	-8.3	22.2
Neuberger Berman MLP Incm **NML**	10.20	9.70	-4.9	0.1
Neubrgr Brm Rl Est Sec Fd **NRO**	5.20	4.75	-8.7	-1.4
Nuveen Dow 30 Dynamic **DIAX**	19.30	18.58	-3.7	26.6
Nuveen Core Eq Alpha **JCE**	15.28	14.90	-2.5	27.8
Nuveen Diversified Div **JDD**	12.65	12.25	-3.2	13.9
Nuveen Engy MLP Fd **JMF**	11.98	11.87	-0.9	-7.6
Nuv NASDAQ 100 Dyn Over **QQQX**	23.54	24.20	+2.8	29.0
Nuveen Real Est Incm Fd **JRS**	10.49	10.06	-4.1	-3.1
Nuveen Real Asset Income **JRI**	19.25	17.05	-11.4	9.7
Nuv S&P 500 Dyn Overwrite **SPXX**		18.18	NA	29.4
Nuveen S&P 500 Buy-Write **BXMX**	14.36	13.85	-3.6	12.3
Reaves Utility Fund **UTG**	32.73	29.83	-8.9	-4.6
Tekla Hlthcr Investors **HQH**	25.27	23.40	-7.4	8.7
Tekla Healthcare Opps Fd **THQ**	19.77	17.65	-10.7	11.8
Tekla Life Sciences **HQL**	21.12	20.22	-4.3	20.1
Tekla World Hlthcr Fd **THW**	14.92	13.66	-8.4	7.4
Tortoise Energy **TYG**	29.16	30.77	+5.5	-2.3
Tortoise MLP Fund **NTG**	18.68	19.67	+5.3	0.7
Voya Gl Equity Div **IGD**	8.24	7.64	-7.3	19.3
Income Preferred Stock Funds				
Calamos Strat Fd **CSQ**	13.42	12.27	-8.6	21.2
Cohen & Steers Dur Pfd **LDP**	27.08	25.58	-5.5	9.1
Cohen & Strs Sel Prf Inco **PSF**	27.41	26.38	-3.8	6.6
FT Interm Duration Pfd **FPF**	24.59	23.21	-5.6	7.6
Flaherty & Crumrine Dyn **DFP**	25.77	24.72	-4.1	7.2
Flaherty & Crumrine Pfd **FFC**	19.92	19.04	-4.4	3.0
John Hancock Pfd Income **HPI**	20.89	20.26	-3.0	4.1
John Hancock Pfd II **HPF**	20.57	19.99	-2.8	3.0
John Hancock Pfd Inc III **HPS**	18.31	17.44	-4.8	2.8
JHancock Pr Div **PDT**	14.66	15.30	+4.4	6.6
LMP Cap & Inco Fd **SCD**		13.92	NA	9.0
Nuveen Pfd & Incm Opps Fd **JPC**	10.61	9.81	-7.5	5.5
Nuveen Pfd & Incm Secs Fd **JPS**	10.28	9.45	-8.1	6.3
Nuveen Preferred & Incm **JPI**	25.67	23.82	-7.2	7.2
Nuv Tax-Adv Div Gr **JTD**	18.51	17.73	-4.2	33.1
TCW Strategic Income Fund **TSI**		5.40	NA	4.4
Virtus Global Dividend **ZTR**	12.29	12.80	+4.1	25.6
Convertible Sec's. Funds				
AdvntClymrFd **AVK**	17.55	15.69	-10.6	7.6
AllianzGI Conv & Incm **NCV**	6.63	7.04	+6.2	16.6
AllianzGI Conv & Incm II **NCZ**	5.96	6.17	+3.5	13.5
AllianzGI Equity & Conv **NIE**	24.01	21.47	-10.6	20.2
Calamos Conv Hi Inco Fd **CHY**	11.85	11.84	-0.1	17.2
Calamos **CHI**	11.22	11.03	-1.7	12.1
World Equity Funds				
Alpine Tot Dyn Div **AOD**	10.46	9.69	-7.4	30.2
Calamos Glbl Dyn Inc **CHW**	9.50	9.30	-2.1	36.5
Cdn Genl Inv **CGI**	32.97	23.39	-29.1	26.4
China Fund **CHN**	25.96	23.23	-10.5	51.1
Clough Global Opp Fd **GLO**		11.21	NA	27.3
EtnVncTxAdvGblDiv **ETG**	19.02	17.47	-8.1	24.5
EatonVance TxAdv Opport **ETO**	25.38	25.02	-1.4	22.8
First Trust Dynamic Eur **FDEU**	19.87	19.39	-2.4	29.6
Gabelli Glbl Multimedia **GGT**	9.80	9.53	-2.8	35.2
GDL Fund **GDL**	11.72	9.69	-17.3	3.2
India Fund **IFN**	29.88	26.41	-11.6	30.0
Japan Sml Cap **JOF**	13.99	12.20	-12.8	38.0
Korea Fund **KF**		42.05	NA	32.3
Mexico Fund **MXF**	19.29	16.86	-12.6	18.7
Morgan-Stanley Asia-Pac **APF**	21.80	18.95	-13.1	32.7
MS China a Shr Fd **CAF**	30.49	26.07	-14.5	51.9
MS Emerging Fund **MSF**	21.44	19.21	-10.4	37.5
MS India Invest **IIF**	36.03	32.08	-11.0	27.3
New Germany Fund **GF**	22.34	20.28	-9.2	52.0
Swiss Helvetia Fund **SWZ**	14.57	12.99	-10.8	20.7
Templeton Dragon **TDF**	26.58	23.17	-12.8	42.0
Templeton Emerging **EMF**	19.17	17.03	-11.2	39.9
Virtus Total Return Fund **ZF**	12.28	11.48	-6.5	10.0
Voya Infr Indls & Matls **IDE**	16.89	16.49	-2.4	28.7
Wells Fargo Gl Div Opp **EOD**		5.91	NA	16.0

Fund (SYM)	NAV	Close	Prem /Disc	12 Mo Yld
U.S. Mortgage Bond Funds				
BlackRock Income Trust **BKT**	6.47	5.87	-9.3	5.3
Nuveen Mtg Opp Term Fd **JLS**	24.73	23.95	-3.2	7.6
Investment Grade Bond Funds				
Blackrock Core Bond Tr **BHK**	14.64	13.42	-8.3	5.7
BlkRk Credit Alloc Incm **BTZ**	14.71	12.84	-12.7	6.4
John Hancock Income Secs **JHS**	15.09	14.74	-2.3	5.4
MFS Inc Tr **MIN**	4.31	3.97	-7.9	9.7
WstAstClymr InfLnkd Fd **WIW**	NA	11.57	NA	3.6
WstAssetClymr InflLnk Sec **WIA**	NA	11.75	NA	3.4
Loan Participation Funds				
Apollo Sr Fltg Rate Fd **AFT**	18.04	16.33	-9.5	6.6
BlkRk Debt Strat Fd **DSU**	12.78	11.65	-8.8	6.9
BlackRock FR Incm Strat **FRA**	15.07	14.24	-5.5	5.1
Blkrk FltRt InTr **BGT**	14.54	13.93	-4.2	5.0
BlackstoneGSO Strat Cred **BGB**	NA	15.88	NA	7.9
Blackstone GSO Sr Float **BSL**	NA	17.95	NA	6.4
Eagle Point Credit **ECC**	NA	18.24	NA	5.4
Eaton Vance FR Incm Tr **EFT**	15.68	14.51	-7.5	5.6
EatonVnc SrFltRate **EFR**	15.35	14.38	-6.3	5.9
Eaton Vance Sr Incm Tr **EVF**	7.24	6.53	-9.8	5.5
First Trust Sr FR Fd II **FCT**	14.11	12.88	-8.7	6.1
FT Sr Floating Rate 2022 **FIV**	9.74	9.35	-4.0	4.8
Highland FR Opps Fd **HFRO**	15.24	NA	NA	NA
Invesco Credit Opps Fund **VTA**	13.22	11.70	-11.5	7.1
Invesco Senior Income Tr **VVR**	4.93	4.42	-10.3	5.8
Nuveen Credit Strt Inc Fd **JQC**	9.10	8.12	-10.8	7.4
NuvFloatRteInco Fd **JFR**	11.54	10.97	-4.9	7.3
Nuv Float Rte Opp Fd **JRO**	11.43	11.02	-3.6	7.6
Nuveen Senior Income Fund **NSL**	6.85	6.48	-5.4	7.3

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Insider-Trading Spotlight

Trading by 'insiders' of a corporation, such as a company's CEO, vice president or director, potentially conveys new information about the prospects of a company. Insiders are required to report large trades to the SEC within two business days. Here's a look at the biggest individual trades by insiders, based on data received by Thomson Financial on February 2, and year-to-date stock performance of the company

KEY: B: beneficial owner of more than 10% of a security class **CB:** chairman **CEO:** chief executive officer **CFO:** chief financial officer **CO:** chief operating officer **D:** director **DO:** director and beneficial owner **GC:** general counsel **H:** officer, director and beneficial owner **I:** indirect transaction filed through a trust, insider spouse, minor child or other **O:** officer **OD:** officer and director **P:** president **UT:** unknown **VP:** vice president Excludes pure options transactions

Biggest weekly individual trades

Based on reports filed with regulators this past week

Date(s)	Company	Symbol	Insider	Title	No. of shrs in trans (000s)	Price range ($) in transaction	$ Value (000s)	Close ($)	Ytd (%)
Buyers									
Jan. 29	**Revolution Lighting Technologies**	**RVLT**	R. Lapenta	**CEO**	850	3.60	**3,060**	4.37	32.8
Jan. 29			J. Depalma	**CFO**	150	3.60	**540**		
Jan. 25			R. Lapenta	**CEO**	25	3.88	**97**		
Jan. 19	**Americold Realty Trust**	**COLD**	B. Gross	**DI**	125	17.40	**2,175**	18.18	2.3
Jan. 25-29	**Biglari Holdings**	**BH**	S. Biglari	**DOI**	3	414.00-418.93	**1,182**	404.00	-2.5
Jan. 30-Feb. 1			S. Biglari	**DOI**	3	414.64-416.43	**1,143**		
Jan. 30	**Range Resources**	**RRC**	S. Palko	**D**	34	14.72	**501**	13.55	-20.6
Jan. 25	**IHS Markit**	**INFO**	R. Kelly	**D**	10	48.69	**487**	47.02	4.1
Jan. 26-30	**Aegean Marine Petroleum Network**	**ANW**	J. Moore	**B**	56	4.65-4.80	**265**	4.90	14.0
Jan. 26	**Chemical Financial**	**CHFC**	D. Provost	**CEO**	3	58.50	**196**	58.09	8.6
Jan. 25	**Boston Private Financial Holdings**	**BPFH**	W. Macdonald	**O**	12	15.23-15.35	**191**	15.10	-2.3
Jan. 29			M. Furlong	**D**	6	15.23-15.25	**87**		
Jan. 30	**Matthews International**	**MATW**	R. Marsh	**OT**	3	55.50	**167**	54.40	3.0
Jan. 25	**Simmons First National**	**SFNC**	G. Makris	**CEO**	3	58.10	**145**	59.35	3.9
Jan. 30	**TCP Capital**	**TCPC**	H. Levkowitz	**CEO**	9*	15.22-15.29	**137**	15.04	-1.6
Jan. 22-26	**Century Bancorp**	**CNBKA**	J. Filler	**B**	2	80.67-81.30	**133**	80.30	2.6
Jan. 29	**Great Southern Bancorp**	**GSBC**	D. Pitt	**D**	2	51.58	**103**	51.50	-0.3
Jan. 31	**International Business Machines**	**IBM**	F. Waddell	**DI**	x	163.38	**100**	159.03	3.7
Sellers									
Jan. 23	**Americold Realty Trust**	**COLD**	B. Gross	**DI**	5,164	17.64	**91,088**	18.18	2.3
Jan. 24-25	**Capital One Financial**	**COF**	R. Fairbank	**CEO**	485	104.22-106.09	**50,990**	101.57	2.0
Jan. 30	**Rapid7**	**RPD**	T. Mcadam	**DOI**	2,000	21.01	**42,020**	23.45	25.7
Jan. 30			J. Nye	**DOI**	2,000	21.01	**42,020**		
Jan. 25	**Adobe Systems**	**ADBE**	S. Narayen	**CEOI**	165	196.75-198.62	**32,657**	195.64	11.6
Jan. 26			M. Thompson	**OI**	51	200.08	**10,159**		
Jan. 25-29	**Texas Instruments**	**TXN**	B. Crutcher	**CO**	267	110.19-111.87	**29,681**	107.69	3.1
Jan. 26			S. Anderson	**O**	142	111.12	**15,738**		
Jan. 24	**MSC Industrial Direct**	**MSM**	M. Jacobson	**DO**	192	98.00-99.28	**18,961**	91.37	-5.5
Jan. 30-31	**Seagate Technology**	**STX**	S. Luczo	**CB**	342*	54.76-55.57	**18,795**	51.77	23.7
Jan. 29	**TE Connectivity**	**TEL**	T. Curtin	**CEO**	142	104.15-104.67	**14,849**	102.18	7.5
Jan. 30-31	**Abbott Laboratories**	**ABT**	S. Fussell	**O**	227	62.65-62.78	**14,270**	61.69	8.1
Jan. 30			S. Fussell	**O**	158	62.79-62.94	**9,919**		
Jan. 26	**Travelers**	**TRV**	B. Maclean	**P**	89	149.07-149.54	**13,228**	147.95	9.1
Jan. 29	**Charles Schwab**	**SCHW**	C. Schwab	**CBI**	240	54.03	**12,966**	53.34	3.8
Jan. 25-26	**Twitter**	**TWTR**	E. Williams	**D**	546*	22.11-24.31	**12,548**	25.92	8.0
Jan. 29	**Quest Diagnostics**	**DGX**	S. Rusckowski	**CEO**	107	107.00	**11,432**	103.11	4.7
Jan. 23	**Nutanix**	**NTNX**	J. Parks	**DI**	286	37.51-37.55	**10,737**	31.26	-11.4

* Half the transactions were indirect ** Two day transaction
p - Pink Sheets

Buying and selling by sector

Based on actual transaction dates in reports received this past week

Sector	Buying	Selling	Sector	Buying	Selling
Basic Industries	0	8,600,054	**Finance**	1,599,468	109,361,887
Business services	0	3,899,042	**Health care**	26,564	80,246,540
Capital goods	0	0	**Industrial**	3,668,747	68,347,448
Consumer durables	0	6,727,815	**Media**	0	2,873,780
Consumer nondurables	0	30,847,927	**Technology**	158,329	230,924,574
Consumer services	2,491,541	28,603,639	**Transportation**	0	5,494,256
Energy	794,859	6,570,386	**Utilities**	0	382,142

Sources: Thomson Financial; WSJ Market Data Group

Closed-End Funds | WSJ.com/funds

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Fund (SYM)	NAV	Close	Prem/Disc	12 Mo Yld
Pioneer Floating Rate Tr **PHD**	12.48	11.56	-7.4	6.2
Voya Prime Rate Trust **PPR**	5.71	5.14	-10.0	5.7
High Yield Bond Funds				
AllianceBernstein Glbl **AWF**	NA	12.37	NA	6.7
Barings Glbl Short Dur HY **BGH**	20.78	18.85	-9.3	9.7
BlackRock Corp Hi Yd Fd **HYT**	12.26	10.79	-12.0	7.7
BlackRockDurInco Tr **BLW**	17.08	15.68	-8.2	6.2
Brookfield Real Assets **RA**	NA	23.24	NA	10.1
Credit Suisse High Yld **DHY**	2.77	2.77	0.0	9.5
DoubleLine Incm Solutions **DSL**	NA	20.14	NA	8.8
Dreyfus Hi Yd Strat Fd **DHF**	3.52	3.26	-7.4	9.1
Fst Tr Hi Inc Lg/Shrt Fd **FSD**	17.79	16.56	-6.9	8.8
Guggenheim Strat Opps Fd **GOF**	19.61	20.12	+2.6	10.5
Ivy High Income Opps Fund **IVH**	16.19	14.41	-11.0	9.8
Neuberger Berman HYS **NHS**	13.16	11.43	-13.1	7.7
NexPoint Credit Strat Fd **NHF**	25.91	24.02	-7.3	9.95
Nuveen Credit Opps 2022 **JCO**	9.93	9.43	-5.0	NS
Nuveen Gl Hi Incm Fd **JGH**	18.64	16.64	-10.7	8.6
Nuveen High Incm Dec18 **JHA**	10.03	9.83	-2.0	4.7
Nuveen High Incm Dec19 **JHD**	10.15	9.89	-2.6	5.7
Nuveen Hi Incm Nov 2021 **JHB**	10.11	9.66	-4.5	6.1
Pioneer High Income Trust **PHT**	10.85	9.64	-11.2	8.0
Prud Gl Shrt Dur Hi Yd **GHY**	16.35	14.15	-13.5	7.8
Prudentl Sh Dur Hi Yd Fd **ISD**	16.51	14.54	-11.9	7.8
Wells Fargo Incm Opps Fd **EAD**	NA	8.33	NA	8.5
Wstrn Asset Glbl Hi Inco **EHI**	NA	9.93	NA	8.4
Wstrn Asset High Inco II **HIX**	NA	6.84	NA	8.7
Wstrn Asset Opp Fd **HIO**	NA	4.96	NA	7.0
West Asst HY Def Opp Fd **HYI**	NA	14.94	NA	7.7
Other Domestic Taxable Bond Funds				
Ares Dynamic Credit Alloc **ARDC**	NA	16.36	NA	7.0
Barings Corp Investors **MCI**	NA	15.01	NA	6.0
BlackRock Multi-Sector IT **BIT**	19.89	17.72	-10.9	8.6
BlackRock Taxable Mun Bd **BBN**	23.41	22.09	-5.6	7.1
Doubleline Oppor Credit **DBL**	20.97	21.67	+3.3	9.3
Duff & Phelps Utl & Cp Bd **DUC**	9.48	8.73	-7.9	6.6
EtnVncLtdFd **EVV**	NA	13.33	NA	7.3
Franklin Ltd Duration IT **FTF**	12.21	11.61	-4.9	12.8
Guggenheim Taxable Muni **GBAB**	22.84	21.37	-6.4	7.0
Invesco High Incm 2023 **IHIT**	10.00	9.84	-1.6	6.0
KKR Income Opps Fund **KIO**	NA	15.77	NA	9.7
MFS Charter **MCR**	9.12	8.23	-9.8	8.9
MFS Multimkt **MMT**	6.51	5.89	-9.5	9.0
Nuveen Build Am Bd Fd **NBB**	21.85	20.87	-4.5	5.8
PIMCO Corporate & Incm **PTY**	NA	16.46	NA	9.4
PIMCO Corporate & Incm **PCN**	NA	17.09	NA	8.0
PIMCO HiInco **PHK**	NA	7.57	NA	12.7
PIMCO Inco Str Fd **PFL**	NA	11.67	NA	9.3
PIMCO Incm Strategy Fd II **PFN**	NA	10.31	NA	9.3
Putnam Mas Inco **PIM**	5.07	4.78	-5.7	6.5
Putnam Premier Income Tr **PPT**	5.66	5.14	-9.2	6.0
Wells Fargo Multi-Sector **ERC**	NA	13.09	NA	9.7
World Income Funds				
Abeerden Asia-Pacific **FAX**	5.46	4.89	-10.4	8.4
Brandywine Global Incm **BWG**	NA	12.96	NA	7.9
Etn Vnc Short Dur Fd **EVG**	NA	13.72	NA	6.8
MS EmMktDomDebt **EDD**	9.30	8.06	-13.3	7.7
PIMCO Dynamic Credit **PCI**	NA	22.29	NA	8.7
PIMCO Dynamic Income Fund **PDI**	NA	30.07	NA	8.7
PIMCO Income Opportunity **PKO**	NA	25.55	NA	8.7
PIMCO Strat Income Fund **RCS**	NA	9.09	NA	9.4
Templeton Emerging **TEI**	13.05	11.72	-10.2	5.3
Templeton Global **GIM**	7.36	6.44	-12.5	6.7
Wstrn Asset Emerg Mkts **EMD**	NA	15.31	NA	7.7
Wstrn Asset Gl Def Opp Fd **GDO**	NA	17.38	NA	7.7
National Muni Bond Funds				
AllianceBrnstn NtlMun **AFB**	14.45	12.77	-11.6	4.8
Blackrock Invest **BKN**	15.50	13.81	-10.9	5.3
BlackRock Mun 2030 Target **BTT**	23.70	21.54	-9.1	4.2
BlackRock Municipal Trust **BFK**	14.25	13.33	-6.5	5.8
BlackRockMuni **BLE**	14.83	13.60	-8.3	6.2
BlackRockMuni Tr **BYM**	14.93	13.39	-10.3	5.5
BlkRk MuniAssets Fd **MUA**	14.11	13.91	-1.4	4.8
BlkRk Munienhanced **MEN**	11.70	10.74	-8.2	6.1
BlkRk MuniHldgs Inv **MFL**	14.41	13.83	-4.0	6.1
BlkRk MuniHldgs Qlty II **MUE**	13.81	12.83	-7.1	5.9
BlkRk MuniVest **MVF**	9.50	9.30	-2.1	5.9
BlkRk MuniVest II **MVT**	15.02	14.90	-0.8	5.9
BlkRk MuniYield **MYD**	14.64	13.82	-5.6	6.1
BlkRk MuniYld Quality **MQY**	15.55	14.25	-8.4	5.9
BlkRk MuniYld Qlty II **MQT**	13.65	12.18	-10.8	5.7
BlRkMunyldQltyIII **MYI**	14.16	12.74	-10.0	6.2
Deutsche Mun Income Tr **KTF**	12.28	11.25	-8.4	6.4
Dreyfus Mun Bd Infr Fd **DMB**	14.02	12.39	-11.6	5.1
Dreyfus Strat Muni Bond **DSM**	8.20	7.72	-5.9	6.3
Dreyfus Strategic Munis **LEO**	8.41	7.88	-6.3	6.4
Eaton Vance Mun Bd Fd **EIM**	13.31	11.89	-10.7	5.2
Eaton Vance Mun Income **EVN**	13.02	11.60	-10.9	5.6
EV National Municipal Opp **EOT**	21.42	21.18	-1.1	4.7
Invesco Adv Mun Incm II **VKI**	11.88	10.86	-8.6	6.0
Invesco Mun Incm Opps Tr **OIA**	7.45	7.65	+2.7	5.3
Invesco Mun Opportunity **VMO**	13.25	11.77	-11.2	6.1
Invesco Municipal Trust **VKQ**	13.22	11.83	-10.5	6.0
Invesco Qlty Mun Inco **IQI**	13.32	11.87	-10.9	5.5
Invesco Inv Grade Muni **VGM**	13.71	12.45	-9.2	6.0
Invesco Value Mun Incm Tr **IIM**	15.89	14.05	-11.6	5.2
MainStay DefinedTerm **MMD**	19.92	18.99	-4.7	5.6
MFS Munl Inco **MFM**	7.26	6.70	-7.7	5.7
Nuveen AMT-Free Mun Value **NUW**	16.44	16.34	-0.6	4.3
Nuveen AMT-Free Quality **NEA**	14.76	12.94	-12.3	5.5
Nuveen AMT-Free Mun **NVG**	16.08	14.48	-10.0	5.9
Nuveen Mun Credit Incm Fd **NZF**	15.63	14.15	-9.5	6.1
Nuveen Enhncd Mun Val Fd **NEV**	14.69	13.53	-7.9	5.9
Nuveen Intermed Dur Mun **NID**	13.53	12.43	-8.1	5.0
NuveenMuniIncoOpp Fd **NMZ**	13.28	12.89	-2.9	6.0
Nuveen Muni Value Fund **NUV**	10.09	9.54	-5.5	4.0
Nuveen Qual Mun Incm Fd **NAD**	15.06	13.28	-11.8	5.5
Nuveen Sel TF **NXQ**	14.55	13.62	-6.4	3.7
PIMCO MuniFd **PMF**	NA	12.72	NA	5.6
Pimco Muni Inc II **PML**	NA	12.47	NA	6.1
PIMCO Muni Inc III **PMX**	NA	10.94	NA	6.0
Pioneer Mun Hi Inc Adv Tr **MAV**	11.57	10.72	-7.3	5.5
Pioneer Mun Hi Incm Tr **MHI**	12.57	11.33	-9.9	5.3
Putnam Tr **PMM**	7.84	7.00	-10.7	5.6

Fund (SYM)	NAV	Close	Prem/Disc	12 Mo Yld
Putnam Muni Opportunities **PMO**	13.04	11.62	-10.9	5.5
Wstrn Asset Mngd Muni **MMU**	NA	13.19	NA	5.6
Western Asset Mun Tr Fund **MTT**	NA	20.78	NA	4.8
Single State Muni Bond				
BlackRock CA Municipal Tr **BFZ**	14.96	13.29	-11.2	5.3
BlkRk MuniHldgs CA Qlty **MUC**	15.21	13.46	-11.5	5.3
Blkrck MunHI NJ Qlty **MUJ**	15.35	13.56	-11.7	5.8
BlRk MuHldg NY Qlty **MHN**	14.55	12.90	-11.3	5.2
BlkRk MuniYld CA Fd **MYC**	15.20	14.05	-7.6	5.2
BlkRk MuniYld CA Quality **MCA**	15.42	13.89	-9.9	5.3
BlkRk MuniYld MI Qlty **MIY**	15.20	13.29	-12.6	5.6
BlRk Muyld NY Qlty **MYN**	13.95	12.41	-11.0	5.1
Eaton Vance CA Mun Bd **EVM**	11.99	10.83	-9.7	5.2
Invesco CA Value Mun Incm **VCV**	13.08	12.02	-8.1	5.3
Invesco PA Value Mun Incm **VPV**	13.73	11.84	-13.8	5.2
Invesco Inv Grade NY Muni **VTN**	14.22	13.25	-6.8	5.1
Nuveen CA AMT-Free Qual **NKX**	15.37	14.29	-7.0	5.3
Nuveen CA Muni Value **NCA**	10.23	9.68	-5.4	4.1
Nuveen CA Quality Muni **NAC**	15.26	13.63	-10.7	5.7
Nuveen MD Qual Muni **NMY**	14.20	12.21	-14.0	5.0
Nuveen MI Qual Muni **NUM**	15.02	12.82	-14.6	4.9
Nuveen NJ Qual Muni **NXJ**	15.44	13.20	-14.5	5.2
Nuveen NY AMT-Free **NRK**	14.07	12.36	-12.2	5.0
Nuveen NY Qual Muni **NAN**	14.71	13.29	-9.7	5.2
Nuveen OH Qual Muni **NUO**	16.21	14.16	-12.6	5.0
Nuveen PA Qual Muni **NQP**	14.80	12.65	-14.5	5.4
Nuveen VA Qual Muni **NPV**	14.10	12.31	-12.7	4.4
PIMCO California Muni **PCQ**	NA	15.89	NA	5.7
PIMCO California Mun II **PCK**	NA	8.29	NA	6.6

Fund (SYM)	NAV	Close	Prem/Disc	52 wk Ttl Ret
General Equity Funds				
Specialized Equity Funds				
Griffin Inst Access RE:A	26.67	NA	NA	5.4
Griffin Inst Access RE:C	26.20	NA	NA	4.7
Griffin Inst Access RE:I	26.84	NA	NA	5.7
Griffin Inst Access RE:L	26.64	NA	NA	NS
Griffin Inst Access RE:M	26.51	NA	NA	4.9
NexPointRlEstStrat;A	20.12	NA	NA	3.1
NexPointRlEstStrat;C	20.19	NA	NA	2.9
NexPointRlEstStrat;Z	20.20	NA	NA	4.0
NorthStar RE Cap Inc:Adv	NA	NA	NA	NS
Resource RE Div Inc:L	NA	NA	NA	NS
SharesPost 100;A	26.90	NA	NA	-0.7
SharesPost 100:I	26.91	NA	NA	NS
Tot Inc+ RE:L	NA	NA	NA	NS
USQ Core Real Estate:I **USQIX**	25.13	NA	NA	NS
USQ Core Real Estate:IS **USQSX**	25.13	NA	NA	NS
Versus Cap MMgr RE Inc:I	27.49	NA	NA	5.2
Versus Capital Real Asst **VCRRX**	25.23	NA	NA	NS
Wildermuth Endwmnt Str	13.19	NA	NA	11.9
Wildermuth Endwmnt S:C	12.99	NA	NA	11.1
Wildermuth Endwmnt S:I	13.26	NA	NA	NS
Income Preferred Stock Funds				
MultiStrat Gro & Inc:A	14.72	NA	NA	-0.3
MultiStrat Gro & Inc:C	14.38	NA	NA	-1.0
MultiStrat Gro & Inc:I	14.91	NA	NA	-0.1
MultiStrat Gro & Inc:L	14.49	NA	NA	-0.9
The Relative Value:CIA **VFLEX**	25.50	NA	NA	NS
Convertible Sec's. Funds				
Calmos Dyn Conv and Inc **CCD**	20.83	19.79	-5.0	13.0
World Equity Funds				
BMO LGM Front ME	11.37	NA	NA	23.7
CalamosGlbTotRet **CGO**	13.96	14.83	+6.2	24.3

Fund (SYM)	NAV	Close	Prem/Disc	12 Mo Yld
U.S. Mortgage Bond Funds				
Vertical Capital Inc:A	12.15	NA	NA	3.2
Loan Participation Funds				
504 Fund	9.69	NA	NA	3.9
Angel Oak Strategic Crdt **ASCIX**	25.19	NA	NA	NS
FedProj&TrFinanceTender	10.04	NA	NA	2.2
FS Global Crdt Opptys D	NA	NA	NA	4.4
Invesco Sr Loan A	6.75	NA	NA	4.0
Invesco Sr Loan C	6.76	NA	NA	3.3
Invesco Sr Loan IB	6.75	NA	NA	4.3
Invesco Sr Loan IC	6.75	NA	NA	4.1
Invesco Sr Loan Y	6.75	NA	NA	4.3
RiverNorth MP Lending **RMPLX**	24.39	NA	NA	9.1
Sierra Total Return:T **SRNTX**	24.96	NA	NA	NS
Voya Senior Income:A	12.65	NA	NA	5.1
Voya Senior Income:C	12.63	NA	NA	4.6
Voya Senior Income:I	12.61	NA	NA	5.3
Voya Senior Income:W	12.66	NA	NA	5.3
High Yield Bond Funds				
Griffin Inst Access Cd:A	NA	NA	NA	NS
Griffin Inst Access Cd:C	NA	NA	NA	NS
Griffin Inst Access Cd:F	NA	NA	NA	NS
Griffin Inst Access Cd:I	NA	NA	NA	NS
Griffin Inst Access Cd:L	NA	NA	NA	NS
PIMCO Flexible Cr I;Inst	NA	NA	NA	NS
PionrILSInterval	NA	NA	NA	1.4
WA Middle Mkt Dbt	NA	NA	NA	10.7
WA Middle Mkt Inc **WMF**	NA	NA	NA	10.6
Other Domestic Taxable Bond Funds				
Capstone Church Capital	11.65	NA	NA	3.4
CION Ares Dvsfd Crdt;A	NA	NA	NA	5.0
CION Ares Dvsfd Crdt;C	NA	NA	NA	NS
CION Ares Dvsfd Crdt;I	NA	NA	NA	NS
CION Ares Dvsfd Crdt;L	NA	NA	NA	NS
CNR Select Strategies	9.61	NA	NA	NS
GL Beyond Income	3.19	NA	NA	NE
Palmer Square Opp Income	19.62	NA	NA	4.7
Resource Credit Inc:A	11.11	NA	NA	6.4
Resource Credit Inc:C	11.22	NA	NA	5.7
Resource Credit Inc:I	11.13	NA	NA	6.7
Resource Credit Inc:L	11.10	NA	NA	NS
Resource Credit Inc:W	11.10	NA	NA	6.4

Borrowing Benchmarks | WSJ.com/bonds

Money Rates

February 2, 2018

Key annual interest rates paid to borrow or lend money in U.S. and international markets. Rates below are a guide to general levels but don't always represent actual transactions.

Inflation

	Dec. index level	Chg From (%) Nov. '17	Dec. '16
U.S. consumer price index			
All items	**246.524**	−0.06	2.1
Core	**253.558**	0.03	1.8

International rates

	Latest	Week ago	52-Week High	52-Week Low
Prime rates				
U.S.	**4.50**	4.50	4.50	3.75
Canada	**3.45**	3.45	3.45	2.70
Japan	**1.475**	1.475	1.475	1.475
Policy Rates				
Euro zone	**0.00**	0.00	0.00	0.00
Switzerland	**0.50**	0.50	0.50	0.50
Britain	**0.50**	0.50	0.50	0.25
Australia	**1.50**	1.50	1.50	1.50
Overnight repurchase				
U.S.	**1.44**	1.43	1.62	0.48

U.S. government rates

	Latest	Week ago	52-Week High	52-Week Low
Discount				
	2.00	2.00	2.00	1.25
Federal funds				
Effective rate	**1.4200**	1.4300	1.4400	0.6000
High	**1.5625**	1.5625	1.6500	0.8125
Low	**1.3000**	1.4000	1.4100	0.4500
Bid	**1.4100**	1.4300	1.4300	0.5600
Offer	**1.4300**	1.4400	1.4400	0.6700
Treasury bill auction				
4 weeks	**1.440**	1.230	1.440	0.400
13 weeks	**1.425**	1.430	1.445	0.515
26 weeks	**1.625**	1.615	1.625	0.620

Secondary market

Fannie Mae 30-year mortgage yields	Latest	Week ago	52-Week High	52-Week Low
30 days	**3.915**	3.748	3.915	3.253
60 days	**3.936**	3.776	3.936	3.281

Other short-term rates

	Latest	Week ago	52-Week high	52-Week low
Call money				
	3.25	3.25	3.25	2.50
Commercial paper (AA financial)				
90 days	**1.69**	1.70	1.71	0.72
Libor				
One month	**1.57957**	1.56777	1.57970	0.77000
Three month	**1.78902**	1.76690	1.78902	1.03372
Six month	**1.99214**	1.95965	1.99214	1.33489
One year	**2.29051**	2.24594	2.29278	1.69400
Euro Libor				
One month	**-0.406**	-0.406	-0.383	-0.420
Three month	**-0.380**	-0.383	-0.344	-0.387
Six month	**-0.339**	-0.336	-0.240	-0.339
One year	**-0.263**	-0.262	-0.106	-0.263
Euro interbank offered rate (Euribor)				
One month	**-0.371**	-0.369	-0.366	-0.375
Three month	**-0.329**	-0.328	-0.325	-0.332
Six month	**-0.278**	-0.278	-0.237	-0.279
One year	**-0.191**	-0.191	-0.101	-0.194

DTCC GCF Repo Index	Latest	Value Traded	52-Week High	52-Week Low
Treasury	**1.397**	23.450	1.836	0.489
MBS	**1.436**	87.750	1.852	0.496

DTCC GCF Repo Index Futures	Settle	Change	Open Interest	Implied Rate
Treasury Feb	**98.570**	0.010	4131	1.430
Treasury Mar	**98.445**	unch.	521	1.555
Treasury Apr	**98.270**	unch.	346	1.730

Notes on data:

U.S. prime rate is the base rate on corporate loans posted by at least 70% of the 10 largest U.S. banks, and is effective December 14, 2017. **Other prime rates** aren't directly comparable; lending practices vary widely by location; **Discount rate** is effective December 14, 2017. **DTCC GCF Repo Index** is Depository Trust & Clearing Corp.'s weighted average for overnight trades in applicable CUSIPs. Value traded is in billions of U.S. dollars. **Federal-funds rates** are Tullett Prebon rates as of 5:30 p.m. ET. **Futures on the DTCC GCF Repo Index** are traded on NYSE Liffe US.

Sources: Federal Reserve; Bureau of Labor Statistics; DTCC; SIX Financial Information; Tullett Prebon Information, Ltd.

This announcement is neither an offer to purchase nor a solicitation of an offer to sell shares of common stock of Amgen Inc. The Offer (as defined below) is made solely by the Offer to Purchase, dated February 5, 2018, and the related Letter of Transmittal, and any amendments or supplements thereto. The Offer is not being made to, nor will tenders be accepted from or on behalf of, holders of shares of common stock in any jurisdiction in which the making or acceptance of offers to sell shares of common stock would not be in compliance with the laws of that jurisdiction. In any jurisdiction where the securities, blue sky, or other laws require the Offer to be made by a licensed broker or dealer, the Offer shall be deemed made on behalf of Amgen Inc. by the Dealer Managers (as defined below) or one or more brokers or dealers registered under the laws of such jurisdiction.

AMGEN®

Notice of Offer to Purchase for Cash

by

Amgen Inc.

of

Up to $10 Billion in Value of Shares of its Common Stock

At a Purchase Price

Not Greater Than $200 per Share

Nor Less Than $175 per Share

Amgen Inc., a Delaware corporation (the "Company"), is offering to purchase up to $10 billion in value of shares of its common stock, $0.0001 par value per share (the "Shares"), at a price not greater than $200 nor less than $175 per Share, to the seller in cash, less any applicable withholding taxes and without interest, upon the terms and subject to the conditions described in the Offer to Purchase, dated February 5, 2018 (the "Offer to Purchase"), and the related Letter of Transmittal (the "Letter of Transmittal") (which together, as they may be amended and supplemented from time to time, constitute the "Offer").

THE OFFER, PRORATION PERIOD, AND WITHDRAWAL RIGHTS WILL EXPIRE AT 12:00 MIDNIGHT, NEW YORK CITY TIME, AT THE END OF MONDAY, MARCH 5, 2018, UNLESS THE OFFER IS EXTENDED (SUCH DATE AND TIME, AS THEY MAY BE EXTENDED, THE "EXPIRATION DATE").

The Offer is not conditioned on the receipt of financing or any minimum number of Shares being tendered. The Offer is, however, subject to other conditions as set forth in the Offer to Purchase.

Upon the terms and subject to the conditions of the Offer, which will be conducted through a modified "Dutch auction" process, the Company will determine a single per Share purchase price, not greater than $200 nor less than $175 per Share, to the seller in cash, less any applicable withholding taxes and without interest, that the Company will pay for Shares properly tendered and not properly withdrawn in the Offer, taking into account the total number of Shares tendered and the prices specified, or deemed specified, by tendering stockholders. The Company will select the single lowest purchase price (in multiples of $1.00) within the price range specified above that will allow it to purchase up to $10 billion in value of Shares. Upon the terms and subject to the conditions of the Offer, if, based on the purchase price determined by the Company, Shares having an aggregate value of less than $10 billion are properly tendered and not properly withdrawn, the Company will select the lowest price that will allow the Company to buy all the Shares that are properly tendered and not properly withdrawn before the Offer expires. All Shares the Company purchases in the Offer will be acquired at the same purchase price regardless of whether any stockholder tenders at a lower price. Only Shares properly tendered at prices at or below the purchase price selected by the Company and not properly withdrawn will be purchased. However, because of proration and conditional tender provisions described in the Offer to Purchase, the Company may not purchase all of the Shares tendered at or below the purchase price if, based on the purchase price determined by the Company, more than $10 billion in value of Shares are properly tendered and not properly withdrawn. Shares not purchased in the Offer will be returned to the tendering stockholders at the Company's expense promptly after the Expiration Date of the Offer. The Company reserves the right, in its sole discretion, to change the per Share purchase price range and to increase or decrease the value of Shares sought in the Offer, subject to applicable law. In accordance with the rules of the Securities and Exchange Commission, the Company may increase the number of Shares accepted for payment in the Offer by no more than 2% of the outstanding Shares without extending the Offer.

As of February 1, 2018, there were 721,329,547 Shares issued and outstanding. At the maximum purchase price of $200 per Share, the Company could purchase 50,000,000 Shares if the Offer is fully subscribed, which would represent approximately 6.93% of the issued and outstanding Shares as of February 1, 2018. At the minimum purchase price of $175 per Share, the Company could purchase 57,142,857 Shares if the Offer is fully subscribed, which would represent approximately 7.92% of the issued and outstanding Shares as of February 1, 2018. The Shares are listed and traded on the NASDAQ Stock Market under the symbol "AMGN." **Stockholders are urged to obtain current market quotations for the Shares before deciding whether and at what purchase price or purchase prices to tender their Shares.**

The Company expressly reserves the right, in its sole discretion, at any time and from time to time, to extend the period of time during which the Offer is open and thereby delay acceptance for payment of, and payment for, any Shares by giving oral or written notice of such extension to American Stock Transfer & Trust Company, LLC, the depositary for the Offer (the "Depositary"), and making a public announcement of such extension not later than 9:00 a.m., New York City time, on the first business day after the previously scheduled Expiration Date.

The Offer will expire at 12:00 Midnight, New York City time, at the end of Monday, March 5, 2018, unless the Company exercises its right, in its sole discretion, to extend the period of time during which the Offer will remain open. Beneficial owners should be aware that their broker, dealer, commercial bank, trust company or other nominee may establish its own earlier deadlines for participation in the Offer. Accordingly, beneficial owners wishing to participate in the Offer should contact their broker, dealer, commercial bank, trust company or other nominee as soon as possible in order to determine the times by which such owner must take action in order to participate in the Offer.

In accordance with the instructions to the Letter of Transmittal, stockholders wishing to tender Shares must specify the price or prices, not greater than $200 nor less than $175 per Share, at which they are willing to sell their Shares to the Company in the Offer. Alternatively, stockholders desiring to tender Shares can choose not to specify a price and, instead, elect to tender their Shares at the purchase price ultimately paid for Shares properly tendered and not properly withdrawn in the Offer. If a stockholder agrees to accept the purchase price determined in the Offer, its Shares will be deemed to be tendered at the minimum price of $175 per Share, which could result in the tendering stockholder receiving the minimum price of $175 per Share. See the Offer to Purchase for recent market prices for the Shares.

Stockholders wishing to tender Shares must follow the procedures set forth in the Offer to Purchase and in the related Letter of Transmittal. Generally, for Shares to be properly tendered pursuant to the Offer, the certificates for such Shares (or confirmation of receipt of such Shares pursuant to the procedure for book-entry transfer set forth in the Offer to Purchase), together with a properly completed and duly executed Letter of Transmittal (or a manually signed facsimile of the Letter of Transmittal), including any required signature guarantees, or an "Agent's Message" (as defined in the Offer to Purchase), and any other documents required by the Letter of Transmittal, must be received before 12:00 Midnight, New York City time, at the end of Monday, March 5, 2018 (or the earlier deadline with respect to Shares held within either the 401(k) Plan (as defined in the Offer to Purchase) or the AML Retirement Plan (as defined in the Offer to Purchase)) by the Depositary at one of its addresses set forth on the back cover of the Offer to Purchase.

Upon the terms and subject to the conditions of the Offer, if, based on the purchase price determined by the Company, Shares having an aggregate value in excess of $10 billion (or such greater amount as the Company may elect to pay, subject to applicable law) are properly tendered at or below the purchase price and not properly withdrawn prior to the Expiration Date, the Company will purchase Shares as follows:

- *first*, from all stockholders who properly tender Shares at or below the purchase price determined in the Offer and who do not properly withdraw them before the Expiration Date, on a pro rata basis (except for stockholders who tendered Shares conditionally for which the condition was not satisfied); and
- *second*, only if necessary to permit the Company to purchase $10 billion in value of Shares (or such greater amount as the Company may elect to pay, subject to applicable law), the Company will purchase Shares conditionally tendered (for which the condition was not initially satisfied) at or below the purchase price, by random lot, to the extent feasible. To be eligible for purchase by random lot, stockholders whose Shares are conditionally tendered must have tendered all of their Shares.

For purposes of the Offer, the Company will be deemed to have accepted for payment (and therefore purchased), subject to proration, and conditional tender provisions of the Offer, Shares that are properly tendered at or below the purchase price selected by the Company and not properly withdrawn only when, as and if the Company gives oral or written notice to the Depositary of the Company's acceptance of the Shares for payment pursuant to the Offer.

Upon the terms and subject to the conditions of the Offer, the Company will accept for payment and pay the per Share purchase price for all of the Shares accepted for payment pursuant to the Offer promptly after the Expiration Date. In all cases, payment for Shares tendered and accepted for payment pursuant to the Offer will be made promptly, subject to possible delay in the event of proration, but only after timely receipt by the Depositary of: (i) certificates for Shares or a timely book-entry confirmation of the deposit of Shares into the Depositary's account at the Book-Entry Transfer Facility (as defined in the Offer to Purchase); (ii) a properly completed and duly executed Letter of Transmittal (or manually signed facsimile of the Letter of Transmittal), including any required signature guarantee (or, in the case of a book-entry transfer, an Agent's Message (as defined in the Offer to Purchase)); and (iii) any other required documents.

Because of the difficulty in determining the number of Shares properly tendered and not properly withdrawn, and because of the proration and conditional tender provisions described in the Offer to Purchase, the Company expects that it will not be able to announce the final proration factor or commence payment for any Shares purchased pursuant to the Offer until at least three business days after the Expiration Date. The preliminary results of any proration will be announced by press release as promptly as practicable after the Expiration Date.

Tenders of Shares are irrevocable, except that such Shares may be withdrawn at any time prior to the Expiration Date and, unless such Shares have been accepted for payment as provided in the Offer, stockholders may also withdraw their previously tendered Shares at any time after 12:00 Midnight, New York City time, at the end of April 2, 2018. For a withdrawal to be effective, a written notice of withdrawal must be received in a timely manner by the Depositary at one of its addresses listed on the back cover of the Offer to Purchase. Any such notice of withdrawal must specify the name of the person having tendered the Shares to be withdrawn, the number of Shares to be withdrawn and the name of the registered holder of the Shares to be withdrawn, if different from the name of the person who tendered the Shares. If certificates for Shares have been delivered or otherwise identified to the Depositary, then, prior to the physical release of those certificates, the serial numbers shown on those certificates must be submitted to the Depositary and, unless an Eligible Institution (as defined in the Offer to Purchase) has tendered those Shares, an Eligible Institution must guarantee the signatures on the notice of withdrawal. If a stockholder has used more than one Letter of Transmittal or has otherwise tendered Shares in more than one group of Shares, the stockholder may withdraw Shares using either separate notices of withdrawal or a combined notice of withdrawal, so long as the information specified above is included. If Shares have been delivered in accordance with the procedures for book-entry transfer described in the Offer to Purchase, any notice of withdrawal must also specify the name and number of the account at the Book-Entry Transfer Facility to be credited with the withdrawn Shares and otherwise comply with the Book-Entry Transfer Facility's procedures.

The Company will decide, in its sole discretion, all questions as to the form and validity, including time of receipt, of notices of withdrawal, and each such decision will be final and binding on all parties absent a finding to the contrary by a court of competent jurisdiction. None of the Company, its Board of Directors, Merrill Lynch, Pierce, Fenner & Smith Incorporated and Morgan Stanley & Co. LLC, as dealer managers (the "Dealer Managers"), American Stock Transfer & Trust Company, LLC, as the Depositary, D.F. King & Co., Inc., as the information agent (the "Information Agent"), or any other person will be under any duty to give notification of any defects or irregularities in any notice of withdrawal or incur any liability for failure to give any such notification.

On December 22, 2017, the U.S. enacted major tax reform legislation, commonly referred to as the Tax Cuts and Jobs Act (the "2017 Tax Act"), which made significant changes to the Internal Revenue Code of 1986. One of the major changes of the 2017 Tax Act that impacts us is the imposition of a repatriation tax on accumulated earnings of foreign subsidiaries, which we previously deferred from U.S. income taxes. As a result, we now have immediate, global access to our entire $41.7 billion balance of cash, cash equivalents and marketable securities as of December 31, 2017. Based on our confidence in the long-term outlook for our business, enhanced by the 2017 Tax Act, and consistent with our ongoing objective to return capital to our stockholders, we have determined to use up to $10 billion of cash to repurchase Shares in this Offer. In addition to this Offer, we are evaluating other ways to deploy our balance of cash, cash equivalents and marketable securities and invest in our business.

The Company is making the Offer because we believe that the modified Dutch auction tender offer set forth in the Offer to Purchase represents an efficient mechanism to provide all of the Company's stockholders with the opportunity to tender all or a portion of their Shares and, thereby, receive a return of some or all of their investment if they so elect. In addition, if the Company completes the Offer, stockholders who do not participate in the Offer will automatically increase their relative percentage ownership interest in the Company and its future operations.

The Offer also provides stockholders with an efficient way to sell their Shares without incurring broker's fees or commissions associated with open market sales.

Generally, if you are a U.S. Holder (as defined in the Offer to Purchase), your receipt of cash from us in exchange for the Shares you tender will be a taxable transaction for United States federal income tax purposes. The cash you receive for your tendered Shares will generally be treated for United States federal income tax purposes either as consideration received in respect of a sale or exchange of the Shares purchased by us or as a distribution from us in respect of Shares. We urge you to consult your own tax advisor as to the particular tax consequences to you of the Offer. If you are a non-U.S. Holder (as defined in the Offer to Purchase), because it is unclear whether the cash you receive in connection with the Offer will be treated (i) as proceeds of a sale or exchange or (ii) as a distribution, the Depositary or other applicable withholding agent may treat such payment as a dividend distribution for withholding purposes. Accordingly, if you are a non-U.S. Holder, you may be subject to withholding on payments to you at a rate of 30% of the gross proceeds paid, unless you establish an entitlement to a reduced rate of withholding by timely completing, under penalties of perjury, the applicable Form W-8. Non-U.S. Holders are urged to consult their tax advisors regarding the application of United States federal income tax withholding and backup withholding, including eligibility for a withholding tax reduction or exemption and the refund procedure. All stockholders should read carefully the Offer to Purchase, in particular Section 3 and Section 14, for additional information regarding the United States federal income tax consequences of participating the Offer and should consult their financial and tax advisors.

The Company's Board of Directors has authorized us to make the Offer. However, none of the Company, the members of its Board of Directors, the Dealer Managers, the Depositary or the Information Agent makes any recommendation to any stockholder as to whether to tender or refrain from tendering any Shares or as to the price or prices at which stockholders may choose to tender their Shares. None of the Company, the members of its Board of Directors, the Dealer Managers, the Depositary or the Information Agent has authorized any person to make any recommendation with respect to the Offer. Stockholders should carefully evaluate all information in the Offer to Purchase and in the related Letter of Transmittal and should consult their own financial and tax advisors. Stockholders must decide whether to tender their Shares and, if so, how many Shares to tender and the price or prices at which a stockholder will tender. In doing so, a stockholder should read carefully the information in the Offer to Purchase and in the related Letter of Transmittal before making any decision with respect to the Offer.

On December 12, 2017, the Board of Directors declared a quarterly cash dividend of $1.32 per Share, to be paid on March 8, 2018 to each stockholder of record as of the close of business on February 15, 2018. The dividend will be paid regardless of whether such stockholder tenders its Shares in the Offer.

The information required to be disclosed by Rule 13e-4(d)(1) of the Securities Exchange Act of 1934, as amended, is contained in the Offer to Purchase and is incorporated herein by reference. The Company is also filing with the Securities and Exchange Commission an Issuer Tender Offer Statement on Schedule TO, which includes certain additional information relating to the Offer.

Copies of the Offer to Purchase and the related Letter of Transmittal are being mailed to all holders of the Shares, including brokers, dealers, commercial banks and trust companies whose names, or the names of whose nominees, appear on the Company's stockholder list or, if applicable, who are listed as participants in a clearing agency's security position listing for subsequent transmittal to beneficial owners of Shares, as reflected on the records of the transfer agent as of February 2, 2018. The Offer is explained in detail in those materials.

Questions or requests for assistance may be directed to the Information Agent or the Dealer Managers, at their respective addresses and telephone numbers set forth below. Copies of the Offer to Purchase, the Letter of Transmittal and other related materials will be furnished promptly by the Information Agent at the Company's expense. Stockholders may also contact their broker, dealer, commercial bank, trust company or other nominee for assistance concerning the Offer.

The Information Agent for the Offer is:

D.F. King & Co., Inc.

48 Wall Street, 22nd Floor
New York, New York 10005
Banks & Brokers Call: (212) 269-5550
All Others Call Toll-Free: (877) 864-5059
Email: AMGN@dfking.com

The Dealer Managers for the Offer are:

BofA Merrill Lynch

Merrill Lynch, Pierce, Fenner & Smith
Incorporated
Bank of America Tower
One Bryant Park
New York, New York 10036
Call toll-free: (888) 803-9655

Morgan Stanley

Morgan Stanley & Co. LLC
1585 Broadway
New York, New York 10036
Call toll-free: (855) 483-0952

February 5, 2018

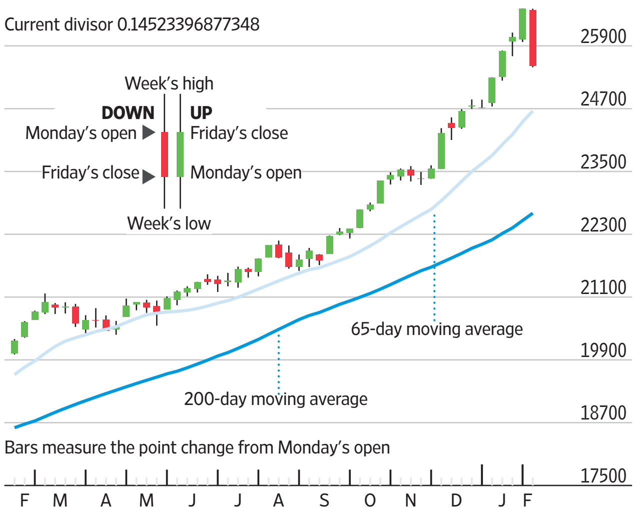
MARKETS DIGEST

Dow Jones Industrial Average

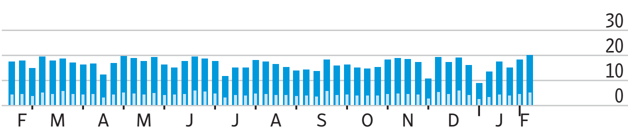
25520.96 ▼1095.75, or 4.12% last week

High, low, open and close for each of the past 52 weeks

	Last	Year ago
Trailing P/E ratio	26.85	20.33
P/E estimate *	17.70	17.24
Dividend yield	2.05	2.39
All-time high 26616.71, 01/26/18		



NYSE weekly volume, in billions of shares



Weekly P/E data based on as-reported earnings from Birinyi Associates Inc.

S&P 500 Index

2762.13 ▼110.74, or 3.85% last week

High, low, open and close for each of the past 52 weeks

	Last	Year ago
Trailing P/E ratio	21.71	24.18
P/E estimate *	18.05	17.59
Dividend yield	1.81	2.08
All-time high: 2872.87, 01/26/18		

Financial Flashback

The Wall Street Journal, February 5, 2007

Nutritional-supplement maker Herbalife Ltd. received a buyout proposal from a private-equity group led by its chairman, valuing the company at about $2.7 billion.

Major U.S. Stock-Market Indexes

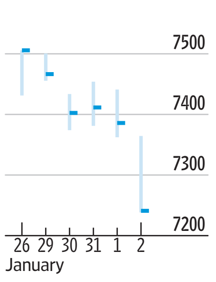
	Latest Week High	Low	Close	Net chg	% chg	52-Week Low	Close (●)	High	% chg	% chg YTD	3-yr. ann.
Dow Jones											
Industrial Average	26608.90	25490.66	**25520.96**	-1095.75	**-4.12**	20052.42		26616.71	**27.2**	3.2	**13.7**
Transportation Avg	11206.86	10674.28	**10687.18**	-438.57	**-3.94**	8783.74		11373.38	**15.6**	0.7	**6.8**
Utility Average	703.46	683.59	**684.48**	-14.62	**-2.09**	661.50		774.47	**3.4**	-5.4	**2.3**
Total Stock Market	29607.76	28481.95	**28500.29**	-1130.18	**-3.81**	23838.00		29630.47	**19.2**	3.0	**10.6**
Barron's 400	757.13	725.37	**726.06**	-31.31	**-4.13**	608.59		757.37	**18.3**	2.1	**11.0**
Nasdaq Stock Market											
Nasdaq Composite	7500.61	7238.18	**7240.95**	-264.83	**-3.53**	5663.55		7505.77	**27.8**	4.9	**15.7**
Nasdaq 100	7020.64	6756.54	**6760.29**	-262.68	**-3.74**	5161.60		7022.97	**31.0**	5.7	**17.3**
S&P											
500 Index	2870.62	2759.97	**2762.13**	-110.74	**-3.85**	2292.56		2872.87	**20.2**	3.3	**11.0**
MidCap 400	1993.53	1916.29	**1917.74**	-77.49	**-3.88**	1681.04		1995.23	**12.4**	0.9	**9.8**
SmallCap 600	980.19	942.76	**943.49**	-36.08	**-3.68**	815.62		979.57	**12.1**	0.8	**11.6**
Other Indexes											
Russell 2000	1607.95	1547.06	**1547.27**	-60.79	**-3.78**	1345.24		1610.71	**12.3**	0.8	**9.6**
NYSE Composite	13605.91	13075.88	**13085.35**	-551.67	**-4.05**	11243.38		13637.02	**15.7**	2.2	**7.0**
Value Line	589.69	564.06	**564.28**	-25.41	**-4.31**	503.24		589.69	**9.1**	0.4	**4.7**
NYSE Arca Biotech	4989.66	4712.67	**4715.08**	-211.66	**-4.30**	3293.77		4939.86	**42.8**	11.7	**8.6**
NYSE Arca Pharma	591.16	558.47	**558.88**	-34.23	**-5.77**	484.49		593.12	**15.3**	2.6	**0.9**
KBW Bank	117.14	114.16	**114.39**	-2.02	**-1.74**	88.02		116.52	**22.8**	7.2	**18.8**
PHLX§ Gold/Silver	89.91	83.71	**83.88**	-6.43	**-7.12**	76.42		96.72	**-9.7**	-1.6	**1.4**
PHLX§ Oil Service	162.34	150.27	**150.69**	-12.15	**-7.46**	117.79		183.12	**-17.7**	0.8	**-8.2**
PHLX§ Semiconductor	1388.29	1317.79	**1317.98**	-63.29	**-4.58**	960.01		1392.86	**36.7**	5.2	**26.2**
CBOE Volatility	17.86	11.68	**17.31**	6.23	**56.23**	9.14		17.31	**57.8**	56.8	**-3.8**

§Nasdaq PHLX

Sources: SIX Financial Information; WSJ Market Data Group

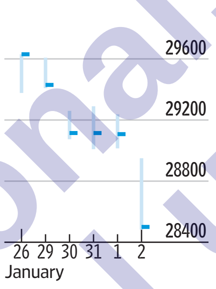
Nasdaq Composite

▼ 264.83, or -3.53% last week



DJ US TSM

▼ 1130.18, or -3.81% last week



International Stock Indexes

Region/Country	Index	Latest Week Close	% chg	52-Week Range Low	Close	High	YTD % chg
World	**The Global Dow**	3213.26	**-3.32**	2598.38		3323.74	4.1
	DJ Global Index	411.09	**-3.37**	336.25		425.41	3.5
	DJ Global ex U.S.	276.97	**-2.93**	221.95		285.34	3.8
Americas	**DJ Americas**	661.53	**-3.81**	555.11		687.75	3.0
Brazil	**Sao Paulo Bovespa**	84041.34	**-1.74**	60761.74		85530.84	10.0
Canada	**S&P/TSX Comp**	15606.03	**-3.90**	14951.88		16412.94	-3.7
Mexico	**S&P/BMV IPC**	50395.83	**-1.31**	46728.95		51713.38	2.1
Chile	**Santiago IPSA**	4401.39	**-0.51**	3287.17		4442.56	4.5
EMEA	**Stoxx Europe 600**	388.07	**-3.12**	361.60		402.81	-0.3
	Stoxx Europe 50	3143.90	**-3.53**	2993.91		3276.11	-1.1
Eurozone	**Euro Stoxx**	389.63	**-3.07**	347.49		404.86	1.1
	Euro Stoxx 50	3523.28	**-3.40**	3235.71		3697.40	0.6
Austria	**ATX**	3538.13	**-3.23**	2706.11		3688.78	3.4
Belgium	**Bel-20**	4053.59	**-2.60**	3575.46		4176.88	1.9
France	**CAC 40**	5364.98	**-2.97**	4754.47		5541.99	1.0
Germany	**DAX**	12785.16	**-4.16**	11509.84		13559.60	-1.0
Greece	**Athex Composite**	875.38	**-0.31**	608.79		886.54	9.1
Israel	**Tel Aviv**	1540.28	**-0.18**	1363.50		1549.87	2.0
Italy	**FTSE MIB**	23202.66	**-2.74**	18597		23890	6.2
Netherlands	**AEX**	550.08	**-2.95**	482.08		570.82	1.0
Portugal	**PSI 20**	5516.87	**-4.36**	4560.11		5791.88	2.4
Russia	**RTS Index**	1272.76	**-1.08**	973.33		1311.21	10.3
South Africa	**FTSE/JSE All-Share**	58656.82	**-4.77**	50831.89		61684.77	-1.4
Spain	**IBEX 35**	10211.20	**-3.63**	9329.7		11135.4	1.7
Sweden	**SX All Share**	574.67	**-1.85**	545.83		600.20	1.0
Switzerland	**Swiss Market**	9220.69	**-3.10**	8330.93		9611.61	-1.7
U.K.	**FTSE 100**	7443.43	**-2.90**	7114.36		7778.64	-3.2
Asia-Pacific							
Australia	**S&P/ASX 200**	6121.40	**1.18**	5615.6		6135.8	0.9
China	**Shanghai Composite**	3462.08	**-2.70**	3052.79		3559.47	4.7
Hong Kong	**Hang Seng**	32601.78	**-1.67**	23129.21		33154.12	9.0
India	**S&P BSE Sensex**	35066.75	**-2.73**	28155.56		36283.25	3.0
Japan	**Nikkei Stock Avg**	23274.53	**-1.51**	18335.63		24124.15	2.2
Malaysia	**FTSE Bursa Malaysia KLCI**	1870.48	**0.89**	1685.01		1870.52	4.1
Singapore	**Straits Times**	3529.82	**-1.05**	3041.94		3609.24	3.7
South Korea	**Kospi**	2525.39	**-1.92**	2065.08		2598.19	2.3
Taiwan	**Weighted**	11126.23	**-0.19**	9455.56		11253.11	4.5

Source: SIX Financial Information;WSJ Market Data Group

Commodities and Currencies

	Last Week Close	Net chg	% Chg	YTD % chg
DJ Commodity	**635.16**	-10.71	**-1.66**	1.56
TR/CC CRB Index	**197.44**	-3.08	**-1.54**	1.84
Crude oil, $ per barrel	**65.45**	-0.69	**-1.04**	8.33
Natural gas, $/MMBtu	**2.846**	-0.329	**-10.36**	-3.62
Gold, $ per troy oz.	**1333.70**	-18.40	**-1.36**	2.10
U.S. Dollar Index	**89.19**	0.13	**0.14**	-3.18
WSJ Dollar Index	**83.58**	0.51	**0.62**	-2.78
Euro, per dollar	**0.8027**	-0.0021	**-0.26**	-3.66
Yen, per dollar	**110.15**	1.55	**1.43**	-2.27
U.K. pound, in dollars	**1.41**	-0.0041	**-0.29**	4.48

	52-Week Low	Close (●)	High	% Chg
DJ Commodity	532.01		645.87	**10.45**
TR/CC CRB Index	166.50		200.52	**2.19**
Crude oil, $ per barrel	42.53		66.14	**21.59**
Natural gas, $/MMBtu	2.56		3.63	**-7.08**
Gold, $ per troy oz.	1200.10		1362.40	**9.45**
U.S. Dollar Index	88.67		102.15	**-10.57**
WSJ Dollar Index	82.97		92.17	**-7.48**
Euro, per dollar	0.80		0.95	**-13.43**
Yen, per dollar	107.84		114.95	**-2.17**
U.K. pound, in dollars	1.22		1.43	**13.08**

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	Shares (mil.)	Pricing Range($) Low/High	Bookrunner(s)
2/6	1/8	Bioceres Provider of crop productivity solutions.	**BIOX** N	**11.8**	10.00/ 12.00	Jefferies, Piper Jaffray, Santander
2/6	11/13 2017	TFI TAB Gida Yatirimlari Fast casual restaurant chain.	**TFIG** Nq	**264.0**	9.00/ 11.00	MS, Credit Suisse, GS, Citi, JPM, Rabobank
2/7	1/12	Cactus Designs, manufactures, sells and rents wellheads and pressure control equipment.	**WHD** N	**21.4**	16.00/ 19.00	Citi, Credit Suisse
2/7	1/9	Evolus Manufacturer of pharmaceutical products used in aesthetic procedures and treatments.	**EOLS** Nq	**5.0**	12.00/ 14.00	Cantor Fitzgerald & Co, Mizuho
2/7	1/12	Huami Manufacturer of wearable fitness devices.	**HMI** N	**40.0**	10.00/ 12.00	Credit Suisse, Citi, China Renaissance Prtnrs
2/7	8/9 2017	Quintana Energy Services Provider of diversified oilfield services.	**QES** N	**9.3**	12.00/ 15.00	BofA ML, Piper Jaffray, Citi, Barclays, Perella Weinberg Prtnrs, Evercore, Stephens
2/7	1/11	Victory Capital Holdings Manages investment portfolios.	**VCTR** Nq	**11.7**	17.00/ 19.00	JPM, BofA ML, MS, Barclays, GS, RBC Cptl Mkts
2/8	1/12	Cardlytics Provider of banking rewards solutions.	**CDLX** Nq	**5.4**	13.00/ 15.00	BofA ML, JPM, WFS, SunTrust
2/8	1/12	IPSCO Tubulars Manufacturer of oil country tubular goods.	**IPSC** N	**23.3**	20.00/ 23.00	BofA ML, MS, JPM, UBS, Citi, Credit Suisse, Barclays, Evercore

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.

Lockup expiration	Issue date	Issuer	Symbol	Offer price($)	Offer amt ($ mil.)	Through Friday (%)	Lockup provision
Feb. 6	Aug. 10, '17	YogaWorks	**YOGA**	5.50	40.2	**-48.2**	180 days
Feb. 7	Aug. 11, '17	Ranger Energy Services	**RNGR**	14.50	85.0	**-26.3**	180 days

Sources: Dealogic; WSJ Market Data Group

IPO Scorecard

Performance of IPOs, most-recent listed first

Company SYMBOL IPO date/Offer price	Friday's close ($)	% Chg From Offer price	1st-day close	Company SYMBOL IPO date/Offer price	Friday's close ($)	% Chg From Offer price	1st-day close
Central Puerto **CEPU** Feb. 2/$16.50	17.70	**7.3**	...	One Stop Sys **OSS** Feb. 1/$5.00	4.70	**-6.0**	-3.7
FTS Intl **FTSI** Feb. 2/$18.00	20.61	**14.5**	...	Sol-Gel Tech **SLGL** Feb. 1/$12.00	12.41	**3.4**	-9.0
Corporacion America Airports **CAAP** Feb. 1/$17.00	16.60	**-2.4**	1.2	VICI Properties **VICI** Feb. 1/$20.00	21.01	**5.1**	0.6
Hudson **HUD** Feb. 1/$19.00	18.00	**-5.3**	2.3	Mtech Acquisition **MTECU** Jan. 30/$10.00	10.06	**0.6**	-0.1
iPiC Entertainment **IPIC** Feb. 1/$18.50	14.80	**-20.0**	-2.2	ARMO BioSciences **ARMO** Jan. 26/$17.00	33.32	**96.0**	12.0

Sources: WSJ Market Data Group; FactSet Research Systems

Other Stock Offerings

Secondaries and follow-ons expected this week in the U.S. market

Expected	Issuer/Business	Symbol/ Primary exchange	Amount ($mil.)	Friday's price ($)	Bookrunner(s)
Feb. 7	**Blink Charging** Auto/Truck	**CCGI** Nq	66.7	7.55	Joseph Gunnar & Co
Feb. 8	**Tandem Diabetes Care** Healthcare	**TNDM** Nq	43.8	2.67	Oppenheimer

Off the Shelf

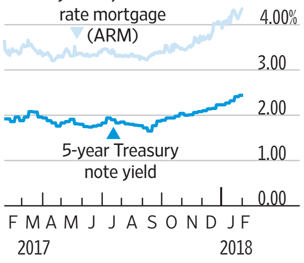
"Shelf registrations" allow a company to prepare a stock or bond for sale, without selling the whole issue at once. Corporations sell as conditions become favorable. Here are the shelf sales, or takedowns, over the last week:

Issuer/Industry	Takedown date/ Registration date	Deal value ($ mil.)	Registration (mil.)	Bookrunner(s)
Viking Therapeutics Healthcare	Feb. 2 June 20,'16	**$55.0**	$150.0	W. Blair
Seattle Genetics Healthcare	Feb. 1 Jan. 31,'18	**$690.0**	...	Barclays, JPM
Shell Midstream Partners Oil & Gas	Feb. 1 Nov. 3,'15	**$680.0**	...	MS
Sun Hydraulics Metal & Steel	Feb. 1 Jan. 29,'18	**$253.0**	...	MS
Fusion Telecommunications Intl. Telecommunications	Feb. 1 Dec. 18,'17	**$36.0**	$100.0	Craig-Hallum Group
Nuvectra Technology	Feb. 1 Oct. 5,'17	**$22.6**	$100.0	Piper Jaffray
OncoSec Medical Healthcare	Feb. 1 Aug. 9,'16	**$20.0**	$105.5	Piper Jaffray, Cantor Fitzgerald & Co
Ultra Clean Holdings Technology	Jan. 31 Jan. 5,'18	**$100.0**	...	Needham & Co, Cowen & Co
Green Bancorp Finance	Jan. 31 Dec. 20,'17	**$69.8**	$480.8	Barclays
Cerus Healthcare	Jan. 31 Aug. 4,'17	**$50.0**	$250.0	BTIG
Cymabay Therapeutics Healthcare	Jan. 30 Dec. 29,'17	**$144.1**	$200.0	Leerink Prtnrs, Evercore
Amarin Corp Healthcare	Jan. 30 March 1,'17	**$70.0**	...	Cantor Fitzgerald & Co
Syros Pharmaceuticals Healthcare	Jan. 30 July 20,'17	**$40.0**	$225.0	JPM, Cowen & Co, Piper Jaffray
Alder Biopharmaceuticals Healthcare	Jan. 29 Feb. 23,'17	**$250.0**	...	GS, Leerink Prtnrs, WFS

Consumer Rates and Returns to Investor

U.S. consumer rates

A consumer rate against its benchmark over the past year



Selected rates

Five-year ARM, Rate

Bankrate.com avg†:	**4.35%**
American Airlines Federal Credit Union	**2.63%**
Ft Worth, TX	800-533-0035
Foxboro Federal Savings	**2.88%**
Foxboro, MA	877-369-3331
Third Federal Savings and Loan	**2.99%**
Cleveland, OH	866-627-1785
Langley Federal Credit Union	**3.00%**
Newport News, VA	800-826-7490
Capitol Federal Svgs Bankk	**3.25%**
Shawnee, KS	800-222-7312

Interest rate	Yield/Rate (%) Last (●)	Week ago	52-Week Range (%) Low	High	3-yr chg (pct pts)
Federal-funds rate target	1.25-1.50	1.25-1.50	0.50	1.50	**1.25**
Prime rate*	**4.50**	4.50	3.75	4.50	**1.25**
Libor, 3-month	**1.79**	1.77	1.03	1.79	**1.54**
Money market, annual yield	**0.33**	0.30	0.25	0.36	**-0.09**
Five-year CD, annual yield	**1.55**	1.54	1.20	1.55	**0.09**
30-year mortgage, fixed†	**4.31**	4.14	3.73	4.33	**0.59**
15-year mortgage, fixed†	**3.73**	3.61	2.99	3.73	**0.72**
Jumbo mortgages, $424,100-plus†	**4.55**	4.46	4.21	4.87	**0.09**
Five-year adj mortgage (ARM)†	**4.35**	4.13	3.20	4.35	**0.85**
New-car loan, 48-month	**3.55**	3.30	2.85	3.55	**0.61**

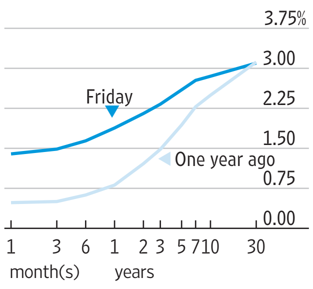
Bankrate.com rates based on survey of over 4,800 online banks. *Base rate posted by 70% of the nation's largest banks. † Excludes closing costs.

Sources: SIX Financial Information; WSJ Market Data Group; Bankrate.com

Benchmark Yields and Rates

Treasury yield curve

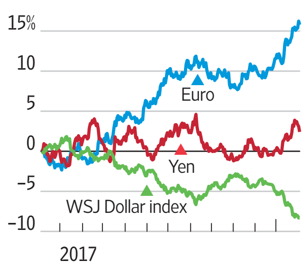
Yield to maturity of current bills, notes and bonds



Sources: Ryan ALM; Tullett Prebon; WSJ Market Data Group

Forex Race

Yen, euro vs. dollar; dollar vs. major U.S. trading partners



Corporate Borrowing Rates and Yields

Bond total return index	Yield (%) Last	Wk ago	Spread +/- Treasurys, in basis pts, 52-wk Range Last	Low	High	Total Return 52-wk	3-yr
10-yr Treasury, Ryan ALM	**2.852**	2.661				-0.93	-1.55
DJ Corporate	**3.461**	3.325				4.00	2.11
Aggregate, Barclays Capital	**3.040**	2.930	n.a.	34	45	1.54	0.91
High Yield 100, Merrill Lynch	**5.820**	5.467	322	304	394	4.771	4.532
Fixed-Rate MBS, Barclays	**3.240**	3.150	n.a.	19	34	0.75	0.98
Muni Master, Merrill	**2.412**	2.262	13	5	18	2.624	1.476
EMBI Global, J.P. Morgan	**5.725**	5.591	290	289	346	6.190	6.307

Sources: J.P. Morgan; Ryan ALM; S&P Dow Jones Indices; Barclays Capital; Merrill Lynch

Public and Private Borrowing

Treasurys

Monday, February 5

Auction of 13 week bill; announced on February 1; settles on February 8

Auction of 26 week bill; announced on February 1; settles on February 8

Tuesday, February 6

Auction of 4 week bill; announced on February 5; settles on February 8

Auction of 3 year note; announced on January 31; settles on February 15

Wednesday, February 7

Auction of 10 year note; announced on January 31; settles on February 15

Thursday, February 8

Auction of 30 year bond; announced on January 31; settles on February 15

Public and Municipal Finance

Deals of $150 million or more expected this week

Sale	Final maturity	Issuer	Total ($mil.)	Rating Fitch	Moody's	S&P	Bookrunner/ Bond Counsel(s)
Feb. 6	March 1, 2048	Fort Lauderdale City-Florida	180.1	N.R.	N.R.	N.R.	Preliminary/ Greenberg Traurig PA
Feb. 6	Feb. 27, 2019	Richland Co-South Carolina	250.0	N.R.	N.R.	N.R.	Preliminary/ McNair Law Firm PA/ Ernest W Cromartie Law Offices/Rutherford Law Firm LLC
Feb. 9	prelim.	Delaware	225.0	N.R.	N.R.	N.R.	Citi/—
Feb. 9	prelim.	Utah	326.4	N.R.	N.R.	N.R.	J P Morgan Securities LLC/—

Source: Thomson Reuters/Ipreo

Market Gauge Flashes Yellow

BY SPENCER JAKAB


VITALY BELOUSOV/SPUTNIK/ASSOCIATED PRESS
A metric developed by Yale professor Robert Shiller offers a valuable way to gauge stock prices.

Is this the top?

Following a 1,096-point weekly decline in the Dow Jones Industrials that culminated in the largest one-week point drop since late 2008, it is natural to ask. The question, however, isn't particularly helpful.

ANALYSIS

Investing legends who have built vast fortunes by patiently harnessing the magic of compound interest have said that ad nauseam. Not only are the market's turning points unknowable but just trying to guess them is dangerous. Mutual-fund manager Peter Lynch warned that "far more money has been lost by investors preparing for corrections, or trying to anticipate corrections, than has been lost in corrections themselves."

This is more than folk wisdom from someone with a lot more money than most of us. Studies routinely show that individual investors lose more than a percentage point a year through timing errors. The months when retail investors lag behind the market the most tend to be when stocks are the most volatile, suggesting they have sold at inopportune times.

The smart approach centers on regular portfolio rebalancing. The key is to do it on an arbitrary date rather than when we are feeling fearful or greedy, since human instincts are often wrong. Services like robo advisers or target-date funds will implement this mild form of market timing in a cheap and tax-efficient way.

But is the "rebalance and forget it" approach the best possible one? Not necessarily, and this might be one of those times when it pays to take more chips off the table than usual. While there was plenty of anecdotal evidence in recent months that the stock market was frothy, there are objective ways of measuring that.

One more reliable than most is the cyclically adjusted price/earnings ratio popularized by Yale professor and Nobel Prize winner Robert Shiller. Less prone to distortion than short-term valuation measures since it spans a decade and adjusts for inflation, the measure shows that U.S. stocks have been more expensive than today only about 2% of the time going back to 1881. Even after Friday's 666-point tumble, stocks are pricier now than before the Great Crash of 1929.

While Mr. Shiller himself cautions that his P/E ratio is no market-timing tool or crash indicator, he says it explains about one-third of future U.S. stock returns. The S&P 500 has notched an annual five-year total return, reflecting price gains and dividend payments, of negative 0.4% on average when the Shiller P/E was in the highest 10% of readings historically, as it is now, and positive 16.2% following the lowest tenth of readings.

While that difference is huge, reacting to valuation reeks of market timing to many in the buy-and-hold crowd. One exception is Elm Partners, which offers low-cost, tax-efficient passive investment like a robo adviser but with an eye on the riskiness of stocks. Chief Executive James White says Elm's allocation to U.S. equities is now just 18% compared with a base level of 38% because of their own value measure, which is similar to the Shiller P/E.

Calling the top is nearly impossible, but calling markets toppy and reacting accordingly may not be.

Energy Sector Tumbles by 4.1%

Energy stocks had their worst session in more than two years on Friday, leading the market lower.

The S&P 500 energy sector fell 4.1% on Friday, nearly double the 2.1% drop in the broader index, with all 32 companies in the sector in the red.

Exxon Mobil Corp. fell 5.1% and **Chevron** Corp. sank 5.6%, both marking their biggest percentage declines since 2011. Both of the energy companies delivered results that missed expectations before the market opened Friday, despite oil prices that have generally been rising.

The news, along with a 1% fall in oil prices last week, helped weigh on the entire sector.

Freeport-McMoRan Inc. dropped 7.6%, **Hess** Corp. declined 5.5%, and **Noble Energy** Inc. was down 5.5%.

The losses for the S&P 500 energy sector nearly erased its year-to-date gain. The two oil majors also weighed on the Dow Jones Industrial Average, together accounting for 79 points of the Dow's 666-point decline.

—Ben Eisen

Volatility Makes Return to Markets

BY GUNJAN BANERJI

Market volatility has emerged after a prolonged stretch of quiet.

Since the start of 2018, turbulence in stocks, bonds, commodities and currencies has increased—a distinct shift from last year, when calm dominated markets.

The Dow Jones Industrial Average tumbled more than 650 points Friday, capping its worst week since January 2016. A measure of expected stock volatility dubbed the Cboe Volatility Index, or VIX, jumped to 17.31 and settled at its highest level since November 2016, a time when jitters surrounding the U.S. presidential election roiled markets.

A yardstick of Treasury market volatility climbed to a six-month high Thursday, Thomson Reuters data show, while a gauge tracking currency swings also has risen sharply.

The resurgence of volatility could create problems for some who have become accustomed to muted moves in prices.

For instance, the recent turbulence was a blow to the wildly popular short volatility trade, in which investors bet on stocks to remain subdued through exchange-traded products or derivatives. The trade got crushed in January for the first time in months.

Of the investors betting against volatility, "those people are getting hurt. There's no doubt about that," said Jerry Lucas, a New York-based managing director at UBS Wealth Management.

Friday's moves arrived after a period of tumult that started in January. During the month, a measure of stock volatility jumped even as the S&P 500 climbed more than 5%—a development that hasn't happened to that degree in 14 years.

One of the biggest changes that has sparked this bout of volatility has been in interest rates. The yield on Treasurys maturing in two years hit the highest level in almost a decade on Thursday, as signs of inflation have started to creep up after years of price gains being subdued.

Higher rates spell potential bad news for stocks and emerging markets. Stock dividends compete with bond yields as income for investors, while rising interest rates usually portend higher borrowing costs for developing economies.

It also means the U.S. Federal Reserve may tighten monetary policy at a faster clip. Penn Mutual Asset Management portfolio manager Zhiwei Ren warned that that would ripple across markets.

The resurgence could create problems for investors betting on muted price moves.

Signs of economic growth raise the stakes for the Fed's every move, Mr. Ren said, making the potential for missteps greater. How to manage a more heated economy is "a more challenging task for the Federal Reserve," he said. This "justifies higher volatility."

The jump in turbulence comes after stock markets have been on an extended tear. The S&P 500 in January posted its longest streak of monthly gains in almost six decades. Ten-year Treasurys just finished the most tranquil year in almost four decades as yields remained low, keeping bond prices high.

"That kind of market is coming to an end," said Mr. Ren. "People are starting to realize that the fundamentals are changing."

Banks Lift Oil Forecasts but See Risks

Prices rise as balance returns to supply, but that could encourage producers to open taps

By Georgi Kantchev

Banks raised their oil-price forecasts for a fourth month in a row in January as rebalancing in crude supply pushed prices to multiyear highs.

But some analysts question how long the rally will last because the higher prices can threaten that balance.

A poll of 15 investment banks surveyed by The Wall Street Journal near the end of January predicted that Brent crude, the international benchmark, will average $61 a barrel this year, up $3 from the December survey. The banks expect West Texas Intermediate, the U.S. oil gauge, to average $57 a barrel in 2018, up $3 from the previous survey.

Investor sentiment toward oil has become more positive on a range of factors, including strong global growth, supply limits by big producers, a weaker dollar and output disruptions in Venezuela.

But analysts say higher prices are stimulating U.S. drillers to ramp up output and could fracture the coalition between the Organization of the Petroleum Exporting Countries and other big producers, whose cuts have helped sap supply. That is leading some banks to expect prices to fall later this year.

On Friday, Brent crude settled at $68.58 a barrel and WTI settled at $65.45 a barrel. Brent gained 3.3% last month, its fifth consecutive month of gains and the longest winning streak since April 2011.

After a period of global oversupply that drove prices from over $100 a barrel in mid-2014 to under $30 in early 2016, global stockpiles of crude have recently started declining.

Members of OPEC have largely stuck by their agreement to reduce production by about 1.8 million barrels a day, or nearly 2% of global output.

Aiding OPEC's efforts, Venezuelan oil production fell 29% last year, driven by mismanagement and underinvestment at the state oil company.

"In Venezuela, oil supply disruptions have moved from a risk to a reality, and we believe the situation could worsen," said analysts at Barclays PLC, who expect output this year to fall by an additional quarter.

Another factor boosting oil prices has been the weaker dollar, which makes dollar-denominated commodities like oil more attractive. The greenback recently fell to its lowest level in more than three years.

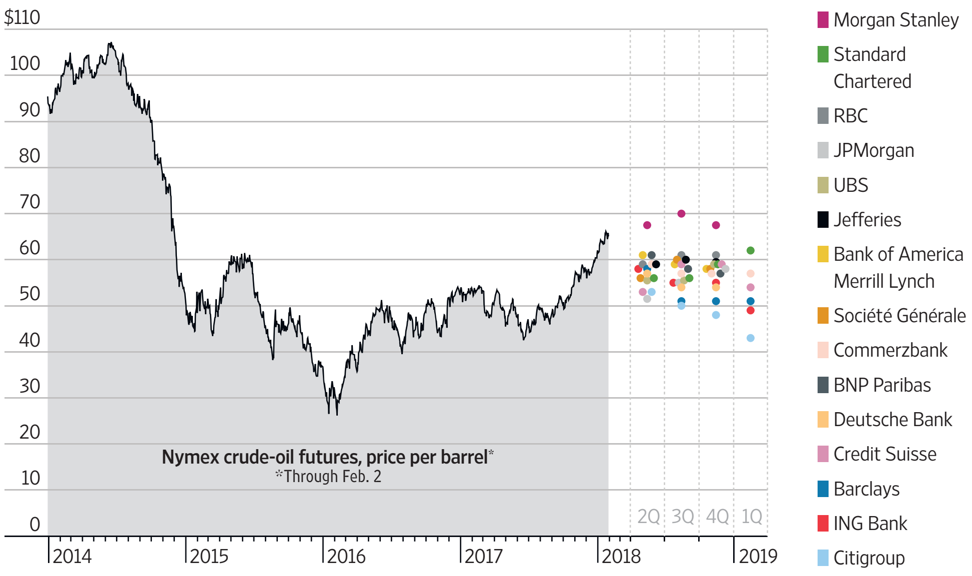
Despite the bullish background, some analysts see prices moderating later in the year as higher prices encourage more supply.

U.S. oil production surpassed 10 million barrels a day in November for the first time in nearly 50 years, as nimble U.S. shale producers took advantage of higher prices. At $60 a barrel, more deposits become commercially viable to drill, analysts say.

The banks in the Journal survey predict that, on average, Brent crude will fall to $59 a barrel next year before rising again to $61 a barrel in 2020.

Looking Ahead at Oil Prices

Where investment banks in January's survey see the price of U.S. crude-oil futures in the next few quarters



Sources: WSJ Market Data Group (oil price); the companies (forecasts)

THE WALL STREET JOURNAL.

Currencies

U.S.-dollar foreign-exchange rates in late New York trading

Country/currency	Fri in US$	Fri per US$	US$ vs, YTD chg (%)
Americas			
Argentina peso	.0514	19.4670	4.6
Brazil real	.3107	3.2182	–2.8
Canada dollar	.8046	1.2429	–1.1
Chile peso	.001659	602.80	–2.1
Ecuador US dollar	1	1	unch
Mexico peso	.0538	18.5948	–5.5
Uruguay peso	.03521	28.4000	–1.4
Venezuela b. fuerte	.100050	9.9951	–3.4
Asia-Pacific			
Australian dollar	.7922	1.2623	–1.4
China yuan	.1586	6.3033	–3.1
Hong Kong dollar	.1279	7.8194	0.1
India rupee	.01557	64.220	0.5
Indonesia rupiah	.0000745	13418	–0.5
Japan yen	.009079	110.15	–2.3
Kazakhstan tenge	.003105	322.10	–3.2
Macau pataca	.1241	8.0561	0.1
Malaysia ringgit	.2573	3.8870	–4.3
New Zealand dollar	.7298	1.3702	–2.8
Pakistan rupee	.00903	110.760	0.1
Philippines peso	.0194	51.473	3.0
Singapore dollar	.7577	1.3197	–1.3
South Korea won	.0009173	1090.17	2.2
Sri Lanka rupee	.0064834	154.24	0.5
Taiwan dollar	.03405	29.371	–1.0
Thailand baht	.03178	31.470	–3.4
Vietnam dong	.00004403	22710	...
Europe			
Czech Rep. koruna	.04937	20.257	–4.8
Denmark krone	.1674	5.9749	–3.7
Euro area euro	1.2459	.8027	–3.7
Hungary forint	.004020	248.74	–4.0
Iceland krona	.009953	100.47	–3.0
Norway krone	.1293	7.7367	–5.7
Poland zloty	.2988	3.3469	–3.8
Russia ruble	.01769	56.543	–2.0
Sweden krona	.1265	7.9056	–3.4
Switzerland franc	1.0739	.9312	–4.4
Turkey lira	.2653	3.7699	–0.7
Ukraine hryvnia	.0360	27.7719	–1.3
UK pound	1.4119	.7083	–4.3
Middle East/Africa			
Bahrain dinar	2.6525	.3770	–0.03
Egypt pound	.0567	17.6500	–0.7
Israel shekel	.2897	3.4520	–0.8
Kuwait dinar	3.3365	.2997	–0.6
Oman sul rial	2.5974	.3850	0.01
Qatar rial	.2744	3.644	–0.1
Saudi Arabia riyal	.2666	3.7505	...
South Africa rand	.0827	12.0883	–2.2

	Close	Net Chg	% Chg	YTD % Chg
WSJ Dollar Index	83.58	0.61	0.74	–2.78

Sources: Tullett Prebon, WSJ Market Data Group

THE TICKER | Market events coming this week

Monday

ISM non-mfg index
Dec., previous 55.9
Jan., expected 56.5

Earnings expected*
Estimate/Year Ago($)
Arconic **0.24**/0.12
Bristol-Myers Squibb **0.67**/0.63
Hess **(0.91)**/(1.01)
National Oilwell Varco **(0.04)**/(0.15)
Skyworks **1.91**/1.61
Sysco **0.64**/0.51

Tuesday

Int'l trade deficit in billions
Nov., previous $50.5
Dec., expected $52.1

Earnings expected*
Estimate/Year Ago($)
Allergan **4.74**/3.90
Becton, Dickinson & Co. **2.41**/2.33
General Motors **1.39**/1.28
Gilead Sciences **1.67**/2.70
S&P Global **1.61**/1.28
Walt Disney **1.62**/1.55

Wednesday

Mort. bankers indexes
Purch., previous down 3%
Refinan., prev. down 3%

EIA status report
Previous change in stocks in millions of barrels
Crude oil up 6.8
Gasoline down 2
Distillates down 1.9

Consumer credit
Nov., prev. up $27.95 bil.
Dec., exp. n.a.

Earnings expected*
Estimate/Year Ago($)
Cognizant **0.97**/0.87
ICE **0.72**/0.71
NXP **1.79**/1.76
Prudential Fin. **2.65**/2.46
Tesla **(3.07)**/(0.69)
Twenty-First Century Fox **0.39**/0.53

Thursday

Initial jobless claims
Previous 230,000
Expected 233,000

EIA report: natural gas
Previous change in stocks in billions of cubic feet
down 99

Earnings expected*
Estimate/Year Ago($)
Activision Blizzard **0.93**/0.92
AIG **0.75**/(2.72)

AP/DUANE BURLESON

Auto maker General Motors is slated to report quarterly results Tuesday.

DXC Tech. **1.98**/0.81
Nvidia **1.15**/0.99
Philip Morris Intl. **1.35**/1.10
Regeneron **4.47**/3.04

Friday

Short-selling reports
Ratio, days of trading volume of current position, at Jan. 12
NYSE 4.7
Nasdaq 4

Wholesale inventories
Nov., previous up 0.8%
Dec., expected up 0.2%

Earnings expected*
Estimate/Year Ago($)
Cboe **0.87**/0.63
Moody's **1.44**/1.23
PG&E **0.68**/1.33
Ventas **0.45**/0.58

* FACTSET ESTIMATES EARNINGS-PER-SHARE ESTIMATES DON'T INCLUDE EXTRAORDINARY ITEMS (LOSSES IN PARENTHESES) ◆ ADJUSTED FOR STOCK SPLITNOTE: FORECASTS ARE FROM DOW JONES WEEKLY SURVEY OF ECONOMISTS

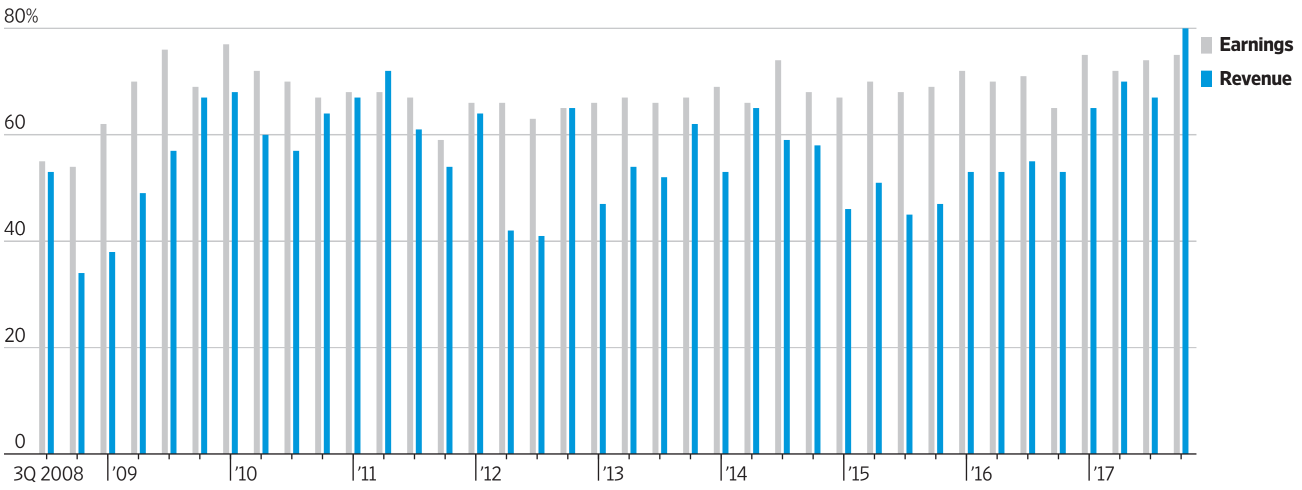
MARKETS

Corporate Earnings Shine Amid Turmoil

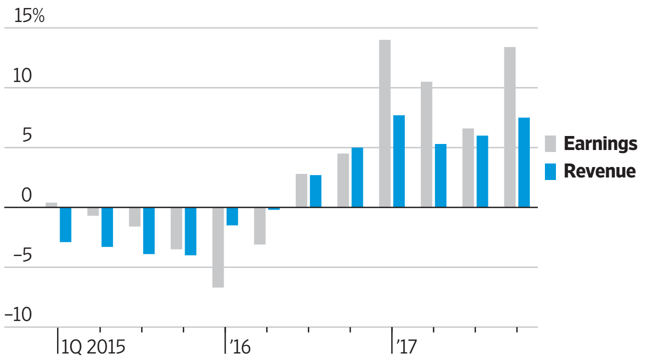
Among S&P 500 companies, 80% have exceeded revenue expectations so far

By Michael Wursthorn And Corrie Driebusch

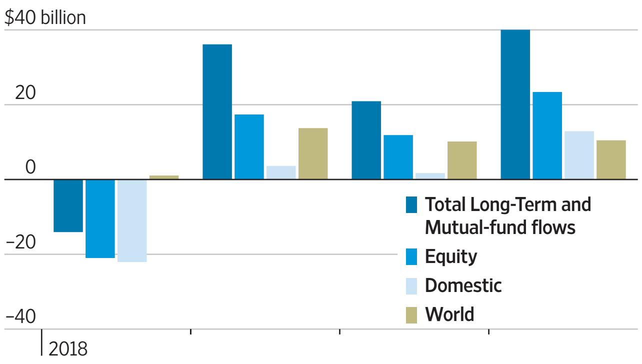
More companies are beating revenue and earnings expectations in the fourth quarter.



Earnings and revenue growth has picked up in recent quarters.



Money has flowed into U.S. stock mutual and exchange-traded funds in the past few weeks.



Sources FactSet (estimates, growth); Investment Company Institute (flows)

THE WALL STREET JOURNAL.

Investors have plenty of things to worry about after stocks suffered their steepest weekly decline in two years. Earnings aren't one of them.

With about half of the companies in the S&P 500 having reported fourth-quarter results, roughly 80% have beaten Wall Street's revenue expectations. That is the highest percentage since at least the third quarter of 2008, when FactSet started tracking the metric.

The companies in the index are on track to increase revenue 7.5% and earnings 13% from a year earlier, both improvements from the third quarter.

"Corporate profits are doing well because the economic backdrop is getting better," said Patrick Palfrey, equity strategist at Credit Suisse. "Add in the tax change, and it adds a step-function change for these earnings."

Manufacturer **3M Co.**, which makes Scotch tape and Post-it notes, reported a 9% jump in sales, while **Netflix**'s revenue soared 33%, both topping Wall Street's projections. Other notable revenue beats were reported by **Facebook** Inc., **Time Warner** Inc., **United Technologies** Corp., **Comcast** Corp. and **Intel** Corp., with shares of all the companies generally rising in the wake of their reports.

The improvement is significant, some money managers said, because the results can be tied solely to strong corporate performance. In future periods, Congress's sweeping tax overhaul, which lowers the corporate-tax rate to 21% from 35%, will likely get much of the credit for earnings beats.

The S&P 500 declined 3.9% last week as concerns about rising interest rates and the threat of inflation pounded financial markets. Many investors, though, have said they still feel confident that strong corporate earnings and accelerating growth in the U.S. and abroad will continue to support markets almost nine years into the bull market. The S&P 500 has surged 29% since the 2016 presidential election and is down 3.9% from the Jan. 26 high.

After the financial crisis, companies relied mostly on cost cuts to boost profits, but revenue has now grown for six consecutive periods at companies in the S&P 500, according to FactSet. The improved results coincide with higher consumer spending, low unemployment and strong manufacturing data.

"It's an indication of animal spirits to have that big of a quarter in sales," said Diane Jaffee, a senior portfolio manager at TCW Group Inc. "We've hit an expansion phase."

The upbeat results are helping investors overcome fears about stretched valuations. About $18.3 billion flowed into U.S.-focused mutual funds and exchange-traded funds in the three-week period ended Jan. 24, versus net outflows of $22.1 billion in the first week of January, according to the Investment Company Institute.

Some investors, though, are looking past the fourth-quarter numbers to what are expected to be even stronger earnings in the year ahead.

"Most investors will look for 2018 and 2019 earnings growth, especially with lower corporate-tax rates as a benefit," said Grant Bughman, senior equity specialist at UBS Asset Management.

Though many analysts started calculating potential corporate benefits after the tax bill passed in December, this earnings season is the first time many executives have offered savings projections and outlined plans for spending their extra cash.

Walt Disney Co., **Bank of America** Corp., **AT&T** Inc. and other companies have said they would give their employees $1,000 bonuses to let them share in the windfall. **Wells Fargo** & Co. and **Fifth Third Bancorp** said they would boost their minimum wages.

Beyond one-time payouts, investors hope the tax overhaul will usher in a period of business investment. The tax bill allows companies to speed up the deduction of capital expenditures, which should translate into increased spending on major projects, including physical assets like buildings and equipment. Companies are projected to spend about $660 billion on improving or replacing assets this year, up 8% from last year, according to Goldman Sachs Group Inc.

Apple Inc., for one, said it would pay a one-time tax of $38 billion on its overseas cash holdings, ramp up spending on data centers and create more than 20,000 jobs.

But some investors fear unintended consequences if the tax bill leads to an overheating in the economy, with companies increasing wages and driving up inflation. A rise in inflation, which has been stubbornly low for some time, could lead the Federal Reserve to alter its plan to gradually boost interest rates and wind down its massive bond portfolio, thereby pressuring stocks.

Other investors say they are concerned companies may use the extra cash for share buybacks or boosting dividends. Firms could also use the funds for mergers, which would likely lead to job cuts.

After the 2004 tax holiday, for example, companies spent 79 cents of every dollar they brought back to the U.S. on share repurchases and 15 cents on dividends, according to a National Bureau of Economic Research working paper.

"There's been this euphoria coming out of the corporate world around tax reform," said Jennifer Ellison, a principal with Bingham Osborn & Scarborough, a San Francisco-based investment firm with $4.2 billion in assets under management. "Individuals expect it to be manna from heaven that will trickle down to everyone."

HEARD ON THE STREET

FINANCIAL ANALYSIS & COMMENTARY

Email: heard@wsj.com WSJ.com/Heard

No More Tigers in Exxon's Tank

A decade or so ago, the numbers coming out of **Exxon Mobil** were so good as to be slightly embarrassing. In 2008, as the world entered a deep recession, the energy giant made a profit of more than $5 million an hour.

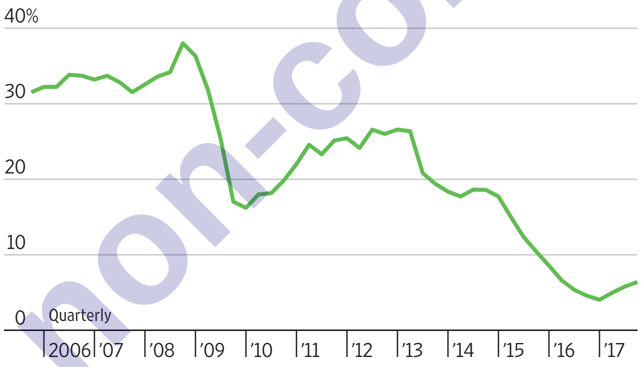
But Friday's fourth-quarter gains—a 400% rise compared with a year earlier—only looked gaudy because of one-off items, most of them accounting gains from corporate-tax cuts. On an adjusted basis, earnings fell slightly. Investors were clearly unimpressed, sending the shares down by 5% that day.

While Exxon's refining, marketing and chemical businesses continued to do well, its bread and butter, pumping oil and natural gas out of the ground, didn't. Production in oil-equivalent terms fell by 3% year over year and by 1% after adjusting for divestitures.

Making sure to get in political points with the energy-friendly Trump administration, the company touted the benefits of lower taxes and its commitment to invest $50 billion domestically over the next five years. Much of that, both upstream and downstream, is owed to the shale boom rather than incentives, though.

There Will Be Blood

Exxon Mobil return on invested capital, trailing 12 months



Source: FactSet

THE WALL STREET JOURNAL.

Prodigious production of oil, natural gas and associated liquids from the U.S. shale patch, where Exxon has doubled down, has spurred high levels of spending for infrastructure to capture and exploit that bounty.

Despite the fact that the U.S. is about to break its record for oil production and is now nearly on par with Saudi Arabia, the value of large U.S. energy companies hasn't expanded. Exxon's market value is almost the same as it was a decade ago while the energy sector has shriveled from more than 15% of the S&P 500 to just 6% today.

The main reason is profitability. As the focus turns from complicated mega-projects, where high costs and high risks led to big profits, to smaller, less risky operations that can also be done by smaller companies, returns have suffered.

Exxon's return on invested capital once ranged between 20% and 35%. It now hovers in the mid single digits.

For 2017 overall, a decent year of rising prices for crude, Exxon posted a loss of $459 million in its U.S. upstream business excluding one-off items such as tax benefits, narrowing from a loss of nearly $2 billion in 2016.

As investment in the shale patch and some international bright spots such as Guyana are set to boost output—oil-equivalent production is seen rising from 3.985 million barrels a day in 2017 to 4.34 million by 2021, according to analyst consensus on FactSet—investors will be focusing on returns as much as volume. They may not like what they see.

—Spencer Jakab

OVERHEARD

Buying stocks and holding them is a time-tested, winning investment strategy. Well, mostly.

Seattle Genetics announced the acquisition of **Cascadian Therapeutics**, a biotech company focused on developing a new breast-cancer treatment, for $10 a share last week. That meant a quick score for recent shareholders—the acquisition price amounted to a 69% premium to the stock price before the deal was announced. Cascadian shares nearly tripled in the month of January.

Long-term shareholders may not be as thrilled, however. Cascadian went public in 1991, and shares closed at $382.50 on the first day of trading, according to FactSet data. That means the shares lost 97% since inception, even after including the takeover premium. Total shares outstanding have grown dramatically since the initial public offering.

Maybe day trading isn't such a bad idea after all.

Amazon's Growth Beats Google's Profit for Tech Investors

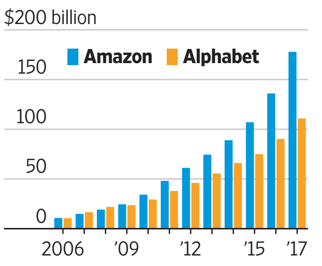
One problem the brilliant minds at Google have yet to solve: How to beat **Amazon.com** at its own game.

It isn't for a lack of trying. Over the past couple of years, the internet-search giant has aggressively built up its own cloud-computing business and pumped out its own line of smart speaker products—two relatively new businesses that have been wildly successful for Amazon.

And that hasn't been without some success on Google's part. Its cloud-computing arm is now generating more than $1 billion in revenue every quarter. And its Home line of smart speakers now has about 31% of the U.S. market, according to Consumer Intelligence Research Partners.

Net Gains

Revenue per year



Source: S&P Capital IQ

But investors are lukewarm on Google at best. Such was evident on Friday, when the shares of parent company **Alphabet** Inc. slid 5% in the wake of its fourth-quarter results, though that only wiped out gains made since the first of the year. By contrast, Amazon's own results helped its stock defy the market's brutal selloff to gain nearly 3% for the day—having already run up 17% for the year.

For Alphabet, the main issue for investors is the rising costs that Google has to pay partners to direct traffic to its sites. Those traffic-acquisition costs totaled $21.6 billion in 2017, up 29% from the previous year. That outpaced the 20% revenue growth for Google's core advertising business for the year, which weighs on the company's profitability. Alphabet Chief Financial Officer Ruth Porat noted that the growth rate of these costs should start to moderate early this year.

But profitability isn't why investors favor the retailer over the search engine. Google's $26.1 billion of operating income last year is about 40% more than Amazon has earned in its entire existence. Nor is it the propensity to make big gambles. The difference is that Amazon has figured out how to make more of its big gambles, such as Prime and its AWS cloud service, drive its accelerating growth. Since 2010, Amazon's larger revenue base has averaged 28% growth annually while Alphabet's has averaged 21%.

In textbook investing, profits matter over revenue growth, but that doesn't always hold in tech. Investors won't return to Google just because it is so profitable. Instead, the company can emphasize successful new businesses like the cloud and better articulate how its ubiquitous Android mobile operating system contributes to growth. If it can do that while keeping its profitable core business clicking, Google can catch up to its rival.

—Dan Gallagher

Bond Market Shrugs Off Europe Risk

Rising yields and shrinking European Central Bank bond purchases were supposed to be bad for bonds from indebted southern European governments. So far, at least, it isn't working out like that: Southern Europe is the place to be.

As the bond selloff has gathered steam in recent weeks, German 10-year yields have risen more than 0.4 percentage point from their December lows to 0.75%. But Spanish yields are little changed and the spread between the two has collapsed to its tightest since 2010, around 0.7 percentage point. Italian bond yields have risen a little, but again the spread to Germany has tightened.

That is remarkable in part because in January the ECB cut the pace of its bond purchases in half, to €30 billion ($37 billion).

The market is already focused on the central bank's next steps toward removing stimulus. Political risk is still lurking, with Italy holding elections in March.

But the moves also reflect the growth revival in the eurozone, which just recorded its strongest annual expansion since 2007. The big four economies—Germany, France, Italy and Spain—are all faring well. That is positive for bonds from countries that pose more credit risk, such as Italy and Spain.

At some point, however, German yields will have risen enough to look attractive again, and spreads will widen. And growth alone doesn't make up for the eurozone's unaddressed structural weaknesses. But for now, it is doing a good job driving convergence in the bond market.

—Richard Barley

INVESTING IN FUNDS & ETFS

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DETAILS, R2

The Surprising Good News About Demographics and The Stock Market

ROBERT NEUBECKER

Millennials could step in for the boomers in the stock market, defying the conventional wisdom—and boosting equities

BY MARK HULBERT

EVERYBODY KNOWS the conventional wisdom that the demographic trend these days is not a friend of the stock market. The baby-boom generation, we've been told, is moving into retirement, and selling stocks in the process.

The conventional wisdom, though, is no longer as accurate as it used to be.

Credit the baby boomers' children, the so-called millennial generation born in the 1980s and 1990s. The millennials are entering the period of their lives in which they increasingly will be investing heavily in the stock market, and according to the leading economic model that relates demographic trends to the stock market, they are a big enough generation to overcome the bearish impact of the baby boomers' retirement. In fact, according to this model, demographics will be a positive for stocks until 2035 (of course, with jarring market declines along the way).

Validity of the model

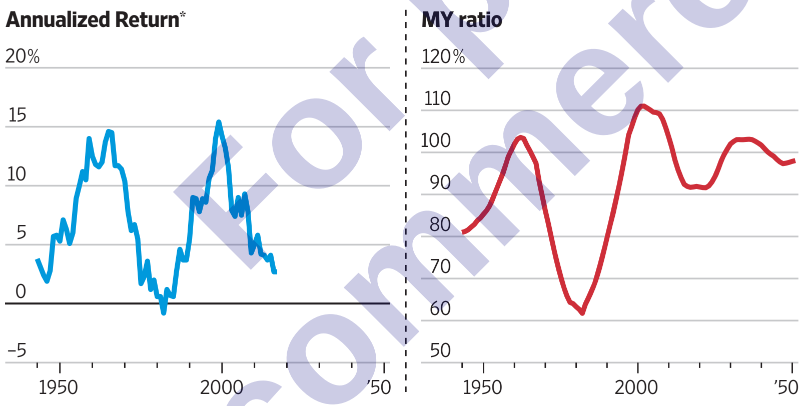
Some might question the validity of this model, put forth in a seminal study in 2002 by a handful of professors in finance and economics. But the model is consistent with the performance of stocks during periods that cover most of the 20th century. And it successfully predicted the relative weakness in stocks for the years from 2000 to 2016.

The performance of stocks from 2000 (when the demographic trends shifted to being bearish for equities) to 2016 (when they shifted back to being bullish) was well below average—recent all-time highs notwithstanding. Indeed, market strength in recent years only barely made up for the huge losses incurred during the financial crisis and, before that, the bursting of the internet-stock bubble. On an inflation-adjusted and dividend-adjusted basis over that 16-plus-year period, the Nasdaq Composite lost ground. The S&P 500 produced just a 2.7% annualized return.

That S&P 500 return was less than half the stock market's long-term average of 6.9% annualized. There have been only two other times over the past 90 years in which the broad market's average return was this low: the period from 1929 through the mid- to late 1940s (encompassing the Great Depression), and the one between the mid-1960s and the early 1980s (encompassing the 1973-74 bear market and that era's hyperinflation). That is exactly what the demographic model would have forecast. (See chart.)

A Remarkable Long-Term Model

The S&P 500's inflation-adjusted, dividend-adjusted annualized return over trailing 16.25 years, versus ratio of middle-aged population to the young (the MY ratio)



* Over trailing 16.25 years. Sources: Ned Davis Research, Morningstar. THE WALL STREET JOURNAL.

The MY ratio

I wrote a newspaper article about the study soon after it was published, forecasting that the shift in demographics would cause

Please turn to the next page

INSIDE

SCOREBOARD

January 2018 fund performance, total return by fund type. More on R2.

U.S. stocks*	Intl. stocks*	Bonds (intmd.)
4.4%	5.2%	–1.0%

*Diversified funds only, excluding sector and regional/country funds

Source: Lipper

WHY OLDER KINDERGARTNERS SHOULD RUN YOUR MUTUAL FUND (SOMEDAY)

BY MATTHEW KASSEL

IT TURNS OUT that some mutual-fund managers may have gotten an edge over their competitors before they even started grade school.

A new study suggests there is a relation between mutual-fund managers' performance and how old they were when they started kindergarten.

Using a sample of 4,081 managers between 1980 and 2015, researchers found that those who were among the oldest quarter of their kindergarten class outperformed those in the youngest quarter by an average of 0.48 percentage point a year. For an investor with $1 million in a mutual fund, that difference would amount to $4,800 for one year.

Confidence factor

No doubt, this may sound a bit odd, or even silly. But there's a reason fund managers who were older in kindergarten have tended to generate better returns. It's because they are more confident, says Kevin Mullally, a co-author of the paper and a professor of economics at the University of Alabama's Culverhouse College of Commerce in Tuscaloosa. His fellow authors are John Bai and Linlin Ma of Northeastern University's D'Amore-McKim School of Business, and David H. Solomon of Boston College's Carroll School of Management. Their paper will be published in the Journal of Financial Economics.

ROBERT NEUBECKER

The confidence of managers who started kindergarten later, Dr. Mullally says, shows up in better, bolder decisions; they tend to hold fewer stocks while investing more in each of them, for instance. They also are less likely to "window-dress" their holdings, he says, meaning they're more open about having held losing stocks at some point.

Such self-confidence is a result, Dr. Mullally says, of the "relative-age effect," which posits that children who are older than their peers in kindergarten are more likely to perform better in school and have higher self-esteem.

There's a reason that mutual-fund managers who were older in kindergarten tend to do better: confidence.

Praise for study

Samuel Hartzmark, an associate professor of finance at the University of Chicago's Booth School of Business, says the study stands out in part for the clever way it establishes that managers who were older in kindergarten even *look* more confident. In a random online survey, Dr. Mullally and his co-authors asked people to evaluate pairs of photos showing as adults a manager who was older in kindergarten and one who was younger. In 55% of the cases, respondents picked the manager who started kindergarten at a later age as the more confident-looking one.

The survey, Dr. Hartzmark says, is a valuable "contribution to the larger behavioral-economics literature about how people view the world."

"It's one of the better papers on this topic I've seen in a while," says Elizabeth Dhuey, associate professor of economics at the University of Toronto, who has studied the relative-age effect in detail.

Still, Dr. Dhuey says, while the paper controls for some aspects of education, such as SAT scores and M.B.A.s, it doesn't completely rule out the possibility that more-successful fund managers may just be better educated.

Dr. Mullally acknowledges the limitations of the study, but says he feels it is unclear how being better educated would manifest itself except through the controls used in the study. "I doubt managers are learning how to better invest while in elementary school," he says.

Looking ahead, Dr. Mullally says he would like to see further research on, among other things, how early life experiences have the potential to shape our lives indelibly. "It's quite fascinating to think," he says, "that the things we experience when we're young have such a large impact on us 30 years down the line."

Mr. Kassel is a writer in New York. He can be reached at reports@wsj.com.

ASK ENCORE | GLENN RUFFENACH

The Biggest Estate-Plan Mistake: Losing It

The problem for many people is forgetting where the paperwork is

I think you should warn your readers about where they keep their estate plans. A close relative just went through an experience where, for a time, no one could locate this paperwork.

Great point, and something I have been through myself.

My wife and I had a close relative who, as part of a move to a new home, asked us to keep a number of boxes filled with what appeared to be household items. Our relative died suddenly, and no one knew where her will was—or even if she had one. My wife and I ended up digging through the boxes, where, much to everyone's surprise, we found the will.

Such stories, unfortunately, are all too common. As many financial planners (and no small number of retirees) have told us through the years, people go to great lengths to create a suitable estate plan—and then fail to keep track of the paperwork and particulars.

Ask yourself: Where is your current estate plan and associated documents? In a drawer? A closet? The basement? A safe-deposit box? Your lawyer's office? Does your spouse or partner *know* where the paperwork is, and does she/he have access to it? (If the documents are in a safe-deposit box, does your spouse know where the box and key are?)

Just as bad: Your survivors know where the documents are and can access them, but the paperwork doesn't include many or most of the details they need: account numbers, passwords, names and contact information for advisers and financial institutions.

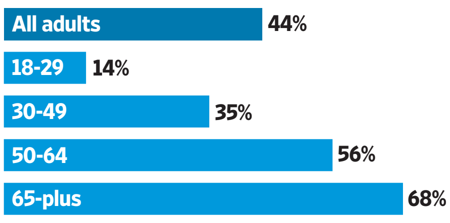
A number of years ago, I spoke with a retired financial executive who was moving to Florida from out of state. As part of the move, he and his wife got new wills, as well as new living wills, health-care proxies and powers of attorney. At the same time, he took an extra, and critical, step:

"I put together a two-page letter and a two-page list as a guide for my wife and our two grown children," he told us. "And we sat down together to review and discuss them." The letter outlined how the estate plan worked and where the documents were located; the


SONIA PULIDO

A Lack of Planning

Asked whether they have a will that describes how they would like their money and estate to be handled after their death, only about half of surveyed adults ages 50 to 64, and about two-thirds of those age 65 and older, said they have such paperwork.



Source: Gallup Poll THE WALL STREET JOURNAL.

list contained a wealth of additional information: names and contact information for, among others, the couple's lawyers, banker, financial adviser, insurance brokers and accountant, as well as account numbers and the location of their safe-deposit box.

That retiree inspired me to do the same. I assembled a similar letter and guide for my wife (who has little interest in such matters), and I regularly remind—and physically show—her and our two adult daughters where this paperwork sits. (At this point, our daughters roll their eyes and say: "I *know* where everything is!" But I still remind them. I enjoy it.)

So...I hope you take time, first, to put your estate plan where people can find it and, second, to assemble all the details needed to put the plan into effect. Your survivors will be more grateful than you know.

* * *

My question is about withdrawing money from my savings in retirement. I am now almost 62 and my wife is 55. We have five children: three grown and two still at home, ages 14 and 16. Our assets: $1.3 million in a 401(k), $150,000 in cash, $500,000 in stocks/bonds, and $300,000 in equity in our home. I plan to retire in 2½ years.

My gross-income needs will be $95,000. But I would like an additional $20,000 for travel, gifts for grandchildren, etc. So, a total of about $120,000. My income will be: $30,000 from Social Security (mine) and $33,000 from pension, for a total of $63,000. So, I would need a good $60,000 a year from savings. When I retire, do I withdraw from my 401(k) first? From savings? A mixture?

This question allows us to address two critically important ideas: withdrawal rates and withdrawal strategies.

Not counting your home, you have almost $2 million in assets. If you need about $60,000 a year from savings, that translates into an initial withdrawal rate of about 3% annually. And that's a good starting point.

Yes, 4% is widely regarded as a "safe" withdrawal rate. But if you have a lengthy retirement (if you're almost 62 and healthy, the odds are good that you will), and if returns on stocks and bonds in coming decades prove to be lower than recent decades (the current bull market *will* end at some point), 3% is a more prudent place to start.

As for withdrawal strategies, conventional wisdom calls for tapping taxable accounts first, followed by tax-deferred accounts, and then Roth accounts (if you have them). In this way, your tax-deferred money has more time to grow. That said, a mixed approach—tapping *both* your taxable brokerage account and 401(k)—may work better, says Neil Brown, a certified financial planner at Burkett Financial Services in West Columbia, S.C. One reason: the required withdrawals from tax-deferred accounts that investors face after age 70½.

In this case, let's assume your assets increase in value about 6% annually in the next eight years. That would mean the current $1.3 million in your 401(k) would grow to more than $2 million—which would mean that you would be required, after you reach 70½, to withdraw about $80,000 annually from just this one account, Mr. Brown notes.

With that in mind, it "would be better utilizing some sort of mixture from the 401(k) and the taxable brokerage account to fill [this person's] lower brackets prior to age 70½," Mr. Brown says. "This strategy could keep Social Security taxation low and reduce the tax burden that he or his heirs will be accumulating by simply allowing the 401(k) to grow."

You also could consider delaying Social Security and living off your combined assets now to guarantee a larger benefit at age 70. Under this approach, that projected $30,000 annual benefit could grow to more than $40,000, Mr. Brown notes. "This could prove a good decision not only for him but for his wife, who—if her Social Security benefit ends up being smaller than her husband's—will step into the larger benefit at his death."

Mr. Ruffenach is a former reporter and editor for The Wall Street Journal. His column examines financial issues for those thinking about, planning and living their retirement. Send questions, comments to **askencore@wsj.com**.

Good News for the Stock Market

Continued from the prior page

the stock market on balance to struggle until 2016. The study's authors were John Geanakoplos, a professor finance at Yale University, Michael Magill, an economics professor at the University of Southern California, and Martine Quinzii, an economics professor at the University of California, Davis. Though their model is complex, its essence can be distilled to a single number: the ratio of those the authors labeled as middle-aged (ages 35-49) to those labeled young (ages 20-34).

The model's prediction is that stocks on balance should perform better when this so-called MY ratio is rising than when it is falling. It is this ratio that turned up at the beginning of last year and will continue rising until 2035.

To be sure, the MY ratio in 2035 won't be as high as it was at the height of the internet-stock bubble in early 2000. But Prof. Geanakoplos, in an interview, said that what's important to the model isn't the absolute level of the MY ratio but its trend. And it will be trending upward for the next 17 years.

Fed hangover

One thing that could temper this otherwise rosy forecast is the hangover from the Fed's market-supporting bond-buying program, known as quantitative easing, or QE. Prof. Geanakoplos speculated that the stock market between 2000 and 2016 would have performed even more poorly than it did but for QE, which in effect "borrowed" some good performance from the future. If so, then average returns between now and 2035 may be somewhat less than they would have been otherwise.

Another unknown is the effect of international trade. The demographic model historically has worked best in countries for which trade represents a small share of GDP, such as Japan, and least well for countries for which trade represents a big share, such as those in Europe.

The U.S. in this regard is far closer to the Japan end of the spectrum than Europe, but nevertheless trade in recent decades has grown as a share of the U.S. economy.

These qualifications notwithstanding, however, Prof. Geanakoplos still puts stock in the demographic model's forecast that the stock market will perform better between now and 2035, on average, than it did between 2000 and 2016.

The model says stocks through 2035 will do better than in 2000-16.

No straight line?

He emphasized that the model's long-term bullishness doesn't imply that the market will rise in a straight line. There undoubtedly will be one or more bear markets along the way, after all. But it has to be welcome news to investors that demography can now even be considered as a bullish prop for equities.

Confirmation that the demographic model is worth paying attention to comes from its success in Japan, a country for which trade represents a small share of GDP and is therefore where the demographic model should be particularly accurate.

Japan's MY ratio has been rising since 2002, and sure enough, the Nikkei Stock Average is nearly triple today where it stood at its 2002 low.

According to Alejandra Grindal, senior international economist for Ned Davis Research, Japan's MY ratio is forecast to continue rising for five more years—until 2022—and then decline for more than a decade.

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MONTHLY MONITOR | WILLIAM POWER

U.S.-Stock Funds Start the Year With a 4.4% January Gain, But Few Are Feeling Carefree

A global stock rally to start 2018 has been pumping up most stock-fund investors and their 401(k)s. Yet many analysts caution that a pullback must *surely* be on the horizon.

The average diversified U.S.-stock fund registered a total return of 4.4% for January, according to Thomson Reuters Lipper data. International-stock funds were up 5.2%. The trend—good gains for U.S. funds, and even better for overseas—continued the pattern of 2017, when U.S.-stock funds rose 18.3% and international 26.8%.

Investors "would be wise to globally diversify" if they haven't already, says John Serrapere, director of research at Arrow Funds in Laurel, Md. He sees a sharp decline soon for stocks—beyond Friday's 2.5% drop—but figures that would be healthy for markets after the long run-up. "You *want* a correction to reduce the risk of a crash that could ignite a contagion that damages the economy," he says.

Mr. Serrapere says he is concerned that the bull market, supported by strong corporate earnings, is in its late stages—marked by investors' growing interest in more-speculative markets such as commodities and bitcoin. He also anticipates that some investors who plowed money into bonds, looking for a safer investment, will turn toward stocks again as bonds have pulled back. "The key is to be smart if you're going into equities" now, he says. "The smart money is putting more into international equities and bonds."

Bond funds declined for the month. Funds focused on intermediate-maturity, investment-grade debt (the most common type of bond fund) fell an average of nearly 1%, after rising 3.6% for all of 2017.

Super Bowl's Final Score for Stocks

Sunday night's game result is bullish for stocks in 2018, according to the Super Bowl Predictor of the market. The quirky indicator—popularized by market analyst Robert H. Stovall, and accurate after 40 of the 51 Super Bowls through last year—goes like this: Stocks go up for the year if an original National Football League team (like the Philadelphia Eagles) wins, but down if the winner is from the old American Football League (like the New England Patriots). Teams added after the two leagues' long-ago merger count for either the National or American side depending on which of today's two conferences they play in.

The win by the Eagles, an original NFL team, is bullish for 2018.

The totally unscientific indicator had worked for seven straight years before misfiring in 2016 and 2017. Will it return to form in 2018?


ERIC GAY/ASSOCIATED PRESS

The SB-tied market predictor is 78% accurate.

Mr. Power is a Wall Street Journal news editor in South Brunswick, N.J. Email him at ***william.power@wsj.com***.

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This Journal Report doesn't stop here. Join us online with The Experts—a group of industry, academic and cultural thinkers who weigh in on investing and personal-finance issues raised in this and future reports.

Read what they have to say at **WSJ.com/Experts**. Posts featured throughout the week include:

◆ "How to Make Sure 'Lifestyle Creep' Doesn't Damage Your Finances," by Peter Lazaroff, blogger and chief investment officer at Plancorp.

◆ "Why Baby Boomers Need to Think Ahead—Quickly," by Olivia S. Mitchell, professor of insurance and risk management and business economics and policy at the Wharton School of the University of Pennsylvania.

◆ "Two Ways to Increase Deductions Under the New Tax Law," by William Reichenstein, Powers Professor at Baylor University and head of research at socialsecuritysolutions.com.

The Journal Report welcomes your comments—by mail, fax or email. Letters should be addressed to Lawrence Rout, The Wall Street Journal, 4300 Route 1 North, South Brunswick, N.J. 08852. The fax number is 609-520-7256, and the email address is reports@wsj.com.

SAVING FOR COLLEGE | CHANA R. SCHOENBERGER

Before Using a '529' to Pay for K-12 Costs...

Parents can now use the college accounts for private school. But should they?

We again answer questions from readers who want to know how best to save for college—and, this time, how to use educational savings accounts for earlier school years.

* * *

Changes in the new tax law mean that you can now use a 529 account to pay for K-12 education as well as for higher education. Should you use your college savings this way?

This new rule has piqued the interest of many families with children in private school. At 529 plan adviser CollegeBacker, 54% of families who hold accounts are considering using their 529 funds for K-12 tuition, but more than half don't know if that's a good idea, says Abby Chao, co-founder and chief operating officer.

It isn't.

"If you already have a 529 plan intended for college, then you should let it continue to grow until college to maximize the benefit of tax-free growth and withdrawals," she says.

"Definitely not," agrees Ric Edelman, who heads financial-planning firm Edelman Financial Services, and hosts a radio show on personal finance. Since the main benefit of a 529 is tax-free growth that compounds over time, you want to leave it in there for as long as possible. This is why investing 529 funds for a new baby makes sense, because the money won't be needed for two decades until the baby goes to college. Taking out the money early and using it to pay for private school won't do you much good, he says.

"The money won't be in the account long enough for the compounding to do its job, rendering the exercise almost pointless," Mr. Edelman says.

If you are not already maxing out your available state tax deductions, consider contributing up to the state tax deduction in a separate 529 account, Ms. Chao suggests.

"This allows you to choose an investment portfolio that matches the time horizon for K-12 withdrawals, whether it's a year or a decade, while also capturing the state tax deduction," she says.

Note that not all states are adopting the new K-12 rules when it comes to state tax deductions. In Illinois, for instance, residents don't qualify for a state tax deduction for contributing to their 529s if the money is being used for K-12 tuition, Ms. Chao says.

"State tax penalties could be an unpleasant surprise if you try to claim a deduction for K-12 tuition without knowing the rules."

* * *

May I use distributions from my child's 529 college savings account to pay for rooming expenses in a home that I own, and rent to my child, during college?

"A 529 plan can be used to cover the beneficiary's room and board, regardless of whether the student lives on campus, off campus, or even at home with parents," says Ms. Chao. Just make sure that the cost falls within the institution's budget for room and board in its stated cost of attendance and that the student is enrolled at least half time, she says.

But Mr. Edelman thinks this strategy could earn you a call from the IRS.

"There's a significant audit risk if you do that," he says.

* * *

What is the best way to transfer the funds from my nephew's 529 in one state to my son's 529 in another state without incurring taxes?

You're permitted to switch beneficiaries in a 529 account, as long as the new beneficiary and the original beneficiary are close relatives. And you don't have to use your own state's plan, although certain states give tax benefits to residents who do so.

Most state plans allow you to move money this way, says Mr. Edelman. He recommends a two-step process: "Have child A in state A move the money into state B in the name of child A, and then change the beneficiary." There may be a small fee to do so, he says.

Be aware of potential tax consequences, Ms. Chao says. "If you previously claimed a state income-tax deduction based on your contributions to your nephew's 529 plan—and then you roll over to a different state—your nephew's state may seek to recapture that deduction," she says. To avoid this, you can stick with the original 529 plan and retitle it with your son as the beneficiary.

* * *

Can we keep unused funds in my grown son's 529 and use them for eventual grandchildren? Could we use these funds to pay qualified expenses for our daughter-in-law if the original beneficiary is our son, her husband? Is there an age limit on when a beneficiary can use the funds?

The rules are quite flexible when it comes to unused funds, Ms. Chao says. You can change the beneficiary to any member of the beneficiary's family, including a child or spouse, without age limits or time limits.

* * *

I've been contributing cash to our grandkids' college 529 plans for the past couple of years. Can I deposit appreciated stock into their 529s instead?

No, you cannot contribute appreciated stock.

You can only deposit cash into a 529 plan, Ms. Chao says. That's because each plan has a menu of investment options, often target-date funds, designed to grow in the early years and downshift to more conservative investments as the child approaches college. Plans don't allow for self-directed investments like stock picking, says Andrea Fierstein, a 529 consultant to state plans who runs AKF Consulting.

* * *

In 2013 I made a $70,000 contribution to my grandchild's 529 plan as a five-year forward contribution ($14,000 x 5). I filed an estate-tax form. May I make a five-year forward contribution again in 2018?

Yes. Since five years have passed since your original contribution, you can contribute another $75,000 ($15,000 for each of the next five years) as another five-year forward contribution, Ms. Chao says.

ISTOCKPHOTO/GETTY IMAGES

Tax-law changes have piqued the interest of many families with children in private school.

Have a college-finance question in general? We'll be answering some of them in future Investing in Funds & ETFs reports. Write to reports@wsj.com.

It's Never Too Late To Try for College Aid

BY CHERYL WINOKUR MUNK

MANY FAMILIES assume they can apply for financial aid or scholarship money only before the start of a student's freshman year in college. After that, there's no point. they presume.

But such thinking is a mistake—and one that could leave significant money on the table.

In reality, students can apply for financial aid not only as high-school seniors but also every year they are in college or graduate school, says Anne Sturtevant, executive director of higher education at the College Board. There are also a number of scholarship and grant opportunities specifically geared toward upperclassmen.

"You've got nothing to lose by applying," she says.

It starts with Fafsa

The first step—for a high-school senior or a student already enrolled in college—is to fill out the Free Application for Federal Student Aid, known as the Fafsa. This information determines a student's eligibility for federal financial aid and is used by many states, colleges and private organizations in their aid decisions.

The new Fafsa becomes available each year on Oct. 1, and experts recommend that students fill it out annually as early as possible; those who file early tend to receive more aid than those who delay. That's because some state and community grant and scholarship programs that use Fafsa information to make decisions provide financial aid on a first-come, first-served basis, says Erin Powers, director of communications for the National Association of Student Financial Aid Administrators.

Typically, students fill out the Fafsa a year in advance of when they'll need the funds, so a current high-school senior would use the 2018-19 Fafsa form. However, students who require federal aid for this academic year and haven't already applied, or whose financial circumstances have changed, have until June 30 to fill out the 2017-18 Fafsa. Even after the deadlines for applying for financial aid from states and colleges have passed, the Fafsa can still be used to apply for other types of financial aid, such as federal student loans, Ms. Sturtevant says.

Scholarship options

Beyond federal aid, students can also look for scholarships any year that they're in college or graduate school. Certainly, scholarship opportunities are more plentiful for entering freshman, but upperclassmen may also be eligible for a number of grants from their college, local businesses, civic organizations and other sources.

To find opportunities, students can search free of charge on websites such as the College Board's bigfuture.org. On that site, students can enter basic information such as their educational status, affiliations and types of awards they're interested in to find out what's available. They should select "other" as their educational status to find scholarships for students who are already enrolled in college or graduate school. Other websites to explore for scholarships include fastweb.com, cappex.com and edvisors.com.

Caitlin Riederer, a 27-year-old investor at a private-equity firm in New York, says about a third of the $100,000 she received in undergraduate scholarships was awarded during her sophomore, junior and senior years. The money came from a mixture of on-campus and corporate "case competitions"—exercises that challenge teams of students to solve a business problem—corporate and industry-group scholarships, on-campus leadership awards and entrepreneurial grants that she wouldn't have been eligible for as an entering freshman.

Some scholarships are meant specifically for students in their sophomore, junior or senior year or for students who are in graduate school, while others are open to any undergraduate or graduate student who meets the specific criteria. Awards can be based on grade-point average, field of study, leadership and community service, among other things.

Students can look for scholarships any year that they're in college or graduate school.

"You may end up qualifying for money from your own institution as an upperclassman that you didn't qualify for as a freshman," says MorraLee Keller, who, as director of technical assistance at the National College Access Network, helps students determine effective strategies for applying to college and securing financial aid.

Transfer opportunity

Students who transfer from two-year community colleges to four-year institutions also have an opportunity to obtain scholarships, says Ms. Sturtevant of the College Board. A large provider of these awards is the Jack Kent Cooke Foundation, which each year selects about 45 transfer students to receive scholarship money for the final two to three years necessary to earn a bachelor's degree. The amount of each scholarship varies, with a maximum of $40,000 a year.

While it takes time and effort to earn scholarships and grants, some students, like Laura Hutson, a 30-year-old junior at Temple University in Philadelphia, are determined. She keeps application essays on hand and regularly scours websites such as myscholly.com for new opportunities to help defray the costs of her education.

She hasn't found the right match yet, but she remains hopeful.

"Money's tight, and I'm trying to find every scholarship I can," she says.

Ms. Winokur Munk is a writer in West Orange, N.J. She can be reached at ***reports@wsj.com.***

FIXED-INCOME INVESTING

THE INS AND OUTS OF 'UNCONSTRAINED' BOND FUNDS

BY BAILEY MCCANN

BOND INVESTORS have had a rough start to 2018. Bond yields are up, prices are down and inflation worries have risen after Friday's jobs report. And the Fed is expected to raise interest rates at least three times this year.

In this environment, some investors might be tempted to take a closer look at "unconstrained" bond funds, which claim to offer a hedge against rising rates and inflation. These funds take a "go anywhere" approach to the credit markets, meaning they invest opportunistically—taking both long and short positions—to achieve a predefined return objective.

The problem, some experts say, is that unconstrained bond funds aren't always easy to evaluate. Some hold a mix of debt, including Treasury bonds, corporate bonds and loans, while others focus only on mortgages. Others may claim to be unconstrained, but have only a sliver of high-yield, or junk, bonds in what is otherwise a vanilla Treasury portfolio. Because they don't invest in the same types of securities and aren't tied to a benchmark such as the Barclays Aggregate Bond Index, comparing them can be a challenge.

What's an investor to do?

"The thing investors must understand is that there are only two types of credit investments—you're either taking interest-rate risk or you're taking credit risk," says Thomas H. Atteberry, who manages **FPA New Income Fund** (FPNIX), which seeks an absolute return by investing in asset-backed securities, corporate bonds, municipal bonds and U.S. Treasury bonds. "If you don't think you are going to get paid to take interest-rate risk, then you might look at an unconstrained fund. From there you have to decide if you agree with the fund manager's view of what credit risk you're going to get paid for over the near term."

'Taper tantrum' lesson

Unconstrained bond funds may not be comparable to the Barclays index, but Mr. Atteberry says there are guideposts that investors can use to get a sense for how unconstrained funds might react to changes in the market.

One suggestion is to look at how the fund performed during 2013's "taper tantrum," when yields surged on news that the Fed was going to slow down its bond-buying program. "If you look at how these funds did in 2013 around the tantrum, or more recently in the last quarter as yields have gone up, you can start to get a sense for what you might expect as rates rise," Mr. Atteberry says. Investors also should look at leverage and the amount of turnover in a fund's portfolio. "To me, it's hard to make the case that you have done a lot of work on security selection if you're running a huge portfolio that turns over frequently," he says.

Greg Parsons, the chief executive officer of New York-based Semper Capital, says investors also should examine whether the fund manager's decisions reflect what the fund says it invests in.

"What investors should be pressure-testing is if a prospectus says a manager invests in X, the manager actually invested in X," he says. And as always, the managers should be able to explain what the specific value of an investment is and why the credit risk is worth taking. **Semper MBS Total Return Fund** (SEMMX) is part of the unconstrained category and focuses on mortgage-backed securities.

Buy and hold?

With interest rates likely to rise over the next several years and a more-bearish outlook for U.S. Treasurys dominating the headlines, some argue that there is a long-term case for a more-flexible approach to credit investing.

"Diversification is important, and [nontraditional credit] assets can provide incremental yield to a portfolio over the long term," says Joseph Barrato, CEO and director of investment strategies at Arrow Funds, based in Olney, Md. **Arrow Dynamic Income Fund** (ASFFX) invests in high-yield bonds, credit defaults and Treasurys.

Still, some fund managers say that finding value won't be easy in this environment. Kathleen Gaffney, who manages **Eaton Vance Multisector Income Fund** (EVBAX), says she has started looking globally at emerging-markets bonds because those markets are earlier in their credit cycles than the U.S.

Unconstrained managers are broadly positive on mortgage-backed securities as U.S. housing continues to rebound. Stephen Kane, group managing director, fixed income, at Los Angeles-based TCW, sees a strong runway for growth in legacy mortgage-backed securities, which consist of loans made before the financial crisis that are nearing maturity. TCW's **MetWest Unconstrained Bond Fund** (MWCIX) is almost 40% invested in the MBS market.

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PORTFOLIO STRATEGY

Sometimes, Less Is More With a Portfolio of Funds

Some say reasonable returns with low risk and fees can be had with fewer than 5 mutual funds or ETFs

ANDREW COLIN BECK

BY DAN WEIL

WITH THE NUMBER of mutual funds and exchange-traded funds exploding, investors might be tempted to purchase more funds. After all, diversifying a portfolio is a good thing, right?

Yes, but only up to a point. After that point, more can be less. In fact, investors can put together a sturdy, diversified portfolio with fewer than five funds, and for plenty of people, just one will do, some financial advisers and analysts say. The minimalist strategy can provide reasonable returns with limited risk and low fees, they agree.

“Simpler can be better,” says Tom Fredrickson, a New York financial planner. “It takes human emotion and behavioral mistakes out of the equation. As people don't have to actively do anything, it benefits them in the long run.”

Here are some of the ways to construct a less-is-more portfolio:

◆ **Target-date funds:** An easy way to attain a broad-based portfolio in a single vehicle is through target-date funds, which are common in 401(k) plans. These funds contain stocks, bonds and sometimes alternative investments, such as real estate and commodities—and the mix is automatically adjusted over time.

A fund's target date corresponds with investors' expected retirement date. The funds begin their life with a heavy concentration of stocks to provide strong returns, and then shift toward bonds later to reduce risk. “These are designed to be the only fund that someone holds, and as a group, they are the single best diversifiers,” says John Rekenthaler, vice president of research at investment-information firm Morningstar.

Investors should shop carefully among these funds, because asset allocations and fees vary. Some funds have zero stocks at the target date, while others have a 40% to 50% stock weighting. Vanguard Group, Fidelity Investments and T. Rowe Price all have strong offerings, Mr. Rekenthaler says. He recommends sticking to funds with annual expenses of 0.7% or less.

To be sure, not all advisers are enamored of target-date funds. One drawback commonly cited is that a fund's asset allocation at any given time may not be right for all of its investors.

“The issue I have is that they're cookie-cutter,” says Ethan Anderson, a financial adviser at Rehmann Financial in Grand Rapids, Mich. “The funds don't know anything about you, except when you're retiring.”

◆ **One stock fund:** Some advisers say investors under 30 can get by with just a single stock fund. That's because over long periods, stock returns are superior to those of bonds. And while stocks often experience periods of volatility, that's of little concern to someone holding an investment for 30 years or more—so long as you have the risk tolerance to resist selling when the market tumbles.

“If you're more than 10 years from retirement, there's no need to invest in bonds,” Mr. Anderson says. Rolling monthly 10-year returns for the S&P 500 were positive 94.6% of the time from January 1926 through December 2017, according to Morningstar. And from 1928 through 2017, the S&P 500, including dividends, generated an average annual return of 9.65%, compared with 4.88% for 10-year Treasury notes, according to data from Aswath Damodaran, a finance professor at New York University's Stern School of Business.

A number of U.S.-stock ETFs cost less than 0.5% a year in expenses. Many advisers cite **Vanguard Total Stock Market** ETF (VTI) as a solid choice. Some say it's important to own foreign stocks, too, for diversification, and recommend **Vanguard Total World Stock** ETF (VT).

◆ **The bond question:** Many advisers say the stabilizing effect of bonds is important for all investors. “The maximum I'd recommend is 80% in stocks” for investors of any age, says Harold Evensky, chairman of Evensky & Katz/Foldes Financial Wealth Management in Coral Gables, Fla. It's important to have some money in fixed-income investments, so that when stocks are cheap you can put more in stocks, he says.

Dan Goldie, president of Dan Goldie Financial Services in Palo Alto, Calif., says investors should hold separate funds for stocks and bonds, rather than a balanced fund, which includes both. That's because investors don't have any control over asset allocation in balanced funds. With separate stock and bond funds, “you can balance allocations in the way you see fit,” he says. A two-fund portfolio could include Vanguard Total World Stock ETF and **Vanguard Short-Term Bond** ETF (BSV), Mr. Goldie says.

Keep in mind that not everyone thinks investors should get their bond exposure from mutual funds and ETFs. Interest rates may rise over the next 10 to 20 years, says Mick Heyman, a financial adviser in San Diego. And that would push bond-fund prices down, meaning losses for fund investors.

He says a safer strategy would be to buy Treasurys or certificates of deposit and then hold them until maturity, almost guaranteeing you would receive your principal back.

◆ **One enhancer?** If you want to go for more than two funds, advisers say you can enhance risk-adjusted returns with a small-cap stock fund and a midcap-stock fund. They have mixed views on the usefulness of an alternative-investment fund.

“It depends on your time horizon,” says Karim Ahamed, an investment adviser at HPM Partners in Chicago. Alternative investments whose movements aren't closely correlated with those of stocks and bonds can damp the overall volatility of a portfolio. So if you have an investment you want to cash in five to seven years later—say, a college-tuition fund—certain alternatives could be beneficial as a diversifier, Mr. Ahamed says. “But if it's a gift from your parent that won't be touched for 15 to 20 years, it wouldn't provide much benefit.” Alternatives funds tend to have high fees and often underperform stocks.

With or without alternatives, a handful of funds or less may be all you need for a healthy portfolio.

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IN TRANSLATION

HOT MONEY

Investors in some emerging markets may hear warnings about hot money. So, what is it and why does it matter?

Hot money refers to investments made for short periods. “Certainly, less than one year in duration,” says Louis Lau, director of investments at Brandes Investment Partners in San Diego.

It is called hot money because the investors behind it tend to be as flighty as a nervous cat.

“Political worries can make hot money disappear quickly, especially in cases where there is unorthodox economic policy,” says Mr. Lau.

One place hot money could come into play is Turkey, whose relations with the U.S. have been strained lately. Turkey has some unorthodox economic policies, including the central bank's decision not to raise the cost of borrowing recently despite 13% inflation, the highest since 2004.

And it has some political problems—including a recent trial in a federal court in New York in which a Turkish gold trader was convicted last month of conspiring with Turkish and Iranian banking and government officials to help Iran evade U.S. sanctions.

Turkish officials, including President Recep Tayyip Erdogan, were highly critical of the proceedings throughout the trial. Depending on how the rift between Washington and Ankara over the trial and other issues plays out, the hot money could evaporate and send the Turkish market into a tailspin.

—Simon Constable

EXCHANGE-TRADED FUNDS

Zero-Fee ETFs (or Even Negative) Are Coming

A professor discusses what could cause the final push past the no-charge barrier in 2½ years or less

BY DEREK HORSTMEYER

ARE ZERO-FEE exchange-traded funds on the horizon in the U.S.?

Between the low overhead costs possible through economies of scale, and the additional income that fund managers can generate by lending securities to short-term borrowers, the barrier could be broken in the next year or two. Even a negative-fee ETF—where the fund pays investors to invest—might be possible.

The U.S. ETF industry has grown at an average of more than $100 billion a quarter over the past two years, ballooning into a $3 trillion behemoth. Accompanying this growth in assets under management has been a steady reduction in operating expenses, with numerous brokerage houses now offering annual fees of just 0.03% (technically, 0.03 percentage point) on U.S. market-index ETFs. That's $3 on a $10,000 investment.

What could spark the final push past the zero-fee barrier?

In 2014, **Charles Schwab** Corp. challenged **Vanguard Group**'s stranglehold on the index-ETF market by reducing its **Schwab U.S. Broad Market** ETF (SCHB) fee to just 0.04%, kicking the "race to zero" into high gear. This move seems to have paid off for Schwab, with this flagship ETF growing 10-fold over the past four years and nearly catching such industry heavyweights as **iShares S&P 1500 Index Fund** (ITOT), though both still lag far behind Vanguard's low-fee offering **Vanguard S&P 500** ETF (VOO) in terms of assets.

Competition between these firms has continued to drive down expense ratios. Lee Kranefuss, one of the founders of iShares, has been quoted as saying: "There isn't a 'zero lower bound' to expenses. A negative management fee is certainly conceivable."

With the industry just 0.03 point away from the zero barrier, two forces could push it past: increased inflows of around $900 billion into the ETF index arena (which could happen within the year), or an increase in revenue generation from lending out shares to short sellers.

More assets, lower costs

One of the most salient features of the ETF and index mutual-fund industry is that as more money flows into a fund, the costs of operating the fund decrease.

Let's take a look at the average expense ratio of U.S. index mutual funds over the past 17 years. (Index funds, like ETFs, track indexes, but they have been around longer, making it easier to analyze cost trends.) Based on an analysis of data from **Morningstar** and the Investment Company Institute, the trend shows that a $290 billion increase in inflows into index mutual funds and ETFs that track indexes drives the average expense ratio of an index fund down by 0.01%.

This implies that one of the current low-fee ETFs could drop its 0.03% expense ratio to zero with as *little* as an additional $870 billion flows into the index mutual-fund/ETF arena. If current inflow trends continue, this could hypothetically happen within the year.

Another way to analyze this question is to isolate those three very low-cost ETFs—the aforementioned Schwab, iShares and Vanguard funds—by expense ratio over time.

Looking at these ETFs paints a similar, though slightly more conservative, picture. If the current assets/expense ratio relationship holds up, one of these ETFs could hit the zero barrier if there is $1.5 trillion more in industry ETF assets (aggregate), or approximately 2½ years at current inflow rates.

Share-loan revenue

ETFs also can generate revenue by lending the shares they hold (or shares of the ETF themselves) to borrowers who want to sell them short in a bet they will fall in price. The funds can make money by charging lending fees, as well as on the collateral that borrowers have to post for the shares they short.

Some funds do more of this than others. For example, while the Schwab U.S. Broad Market fund sat on $10.2 billion in assets in the third quarter of 2017, the fund held collateral for only $36.5 million in assets that it had lent out. This equated to just under 0.3% of its portfolio on loan, generating $100,000 in revenue. That would contribute little to the $3.42 million in annual operating expenses that the fund likely would need to save to operate at cost.

This pales in comparison to the lending behavior of many other ETF providers. For instance, **iShares Core S&P 500 index** (IVV) has averaged a loan rate of 1.5% to 2% of total assets since 2010. This slightly more-aggressive strategy over time has netted it between $1.2 million and $1.8 million a year in shorting fees. If Schwab decided to lend upward of 2% to 3% of its holdings (as opposed to just 0.3%), this could get it well on its way to the $3.42 million in shorting revenue needed to have a sustainable zero-fee ETF.

Charles Schwab Investment Management declined to comment other than to say it reinvests all net lending revenue directly back into its funds. IShares declined to comment.

The path to a zero-fee ETF seems possible with just a bit more time. It may take investors parking an additional $870 billion in the passively managed arena (or roughly $1.5 trillion, if the more-conservative estimates win out), but it appears entirely plausible that a sustainable zero-fee ETF will be offered within two years. Whether Vanguard, Schwab or **BlackRock** take the victory lap for the first offering remains to be seen.

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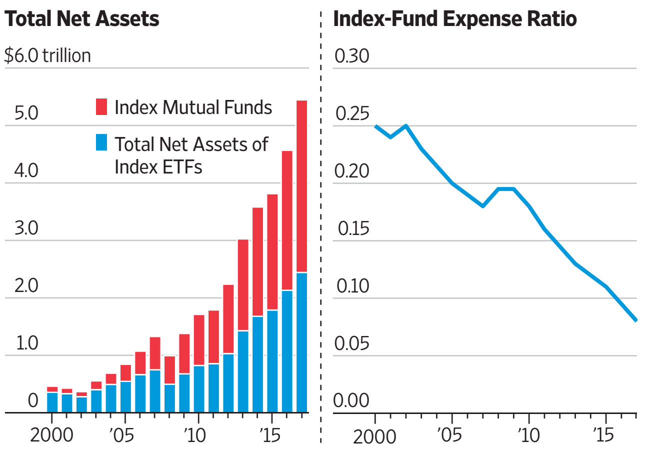
Out of Nowhere

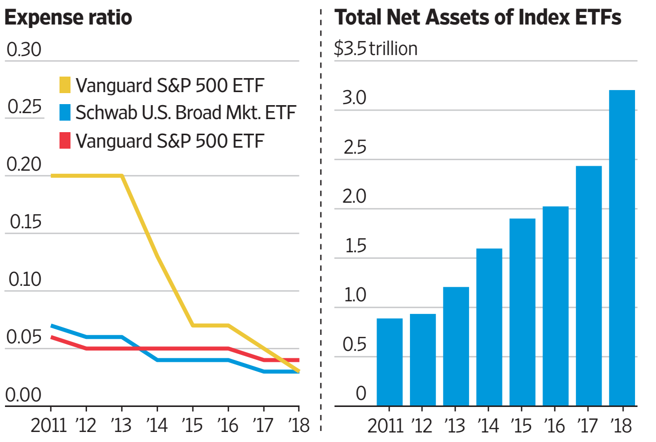
As fund assets increase, the cost of operating the funds decreases.



Sources: Investment Company Institute, Morningstar

On the Way to Zero?

Three ETFs' declining expense ratios, measured against assets.



Sources: Investment Company Institute, etfdb.com, Morningstar

THE WALL STREET JOURNAL.

SPOTLIGHT | ROBO GLOBAL ROBOTICS & AUTOMATION

AN ETF RIDES THE ROBOTICS WAVE

A robotics-focused ETF has surged over the past year, tapping into the growth of the technology across the global economy.

The $2.4 billion **Robo Global Robotics & Automation Index** ETF (ROBO) has generated returns of almost 50% since the end of January 2017. This is largely due to underlying growth of the companies in the industry, according to Travis Briggs, CEO of Robo Global, which oversees the index that is tracked by the exchange-traded fund. The median earnings-per-share growth of companies in the index was 25% in 2017, he says.

"People are interested in robotics as a theme, but the real story is the performance of the companies themselves," he says.

The Robo Global Robotics & Automation Index consists of companies in two broad categories: those that produce the technologies enabling robotics and automation, and those that use the applications in business and industry. A total of 12 subsectors are divided between these categories, such as sensing and actuation on the technology side, and manufacturing, health care and 3D printing on the applications side. Companies in the index are also weighted depending on their exposure to robotics, automation and artificial intelligence, or RAAI. About 60% of the index is made up of non-U.S. companies.

Each of the 12 subsectors has performed differently since the launch of the index in 2014, largely driven by broader economic factors. For example, while logistics automation has been the best performer—thanks to the growth of e-commerce—the energy subsector is the only one to have had a decline.

As robotics become increasingly embedded in the economy, ROBO will rise or fall with the broader market, Mr. Briggs cautions.

"The market is going to go up and down," he says, "but I feel strongly that over the next market cycle, companies with exposure to RAAI represent some of the best growth opportunities out there."

—Gerrard Cowan

Mutual-Fund Yardsticks: How Fund Categories Stack Up

Includes mutual funds and ETFs for periods ended Jan. 31. All data are preliminary. Data provided by LIPPER

Investment objective	January	1-yr	5-yr*	10-yr*
Diversified stock & stock/bond funds				
Large-Cap Core	5.5	**25.0**	14.4	8.8
Large-Cap Growth	8.0	**34.4**	16.4	10.3
Large-Cap Value	4.6	**20.3**	13.1	7.6
Midcap Core	3.3	**17.3**	12.5	8.9
Midcap Growth	5.6	**27.3**	13.7	9.4
Midcap Value	3.0	**14.5**	12.3	8.9
Small-Cap Core	2.4	**14.9**	12.2	9.2
Small-Cap Growth	4.2	**25.3**	13.4	9.9
Small-Cap Value	1.5	**10.8**	11.0	8.6
Multicap Core	4.9	**22.8**	13.6	8.4
Multicap Growth	7.1	**31.8**	15.3	9.9
Multicap Value	4.1	**18.5**	12.8	7.8
Equity Income	3.8	**18.8**	12.0	8.0
S&P 500 Funds	5.7	**25.9**	15.3	9.2
Specialty Divers. Equity	3.3	**12.9**	–3.0	–3.8
Balanced (BL)	2.9	**14.9**	8.0	5.9
Stock/Bond Blend	2.7	**14.5**	7.0	5.5
Avg. U.S. Stock Fund†	4.4	**21.3**	12.5	8.1
Sector stock funds				
Science & Technology	7.3	**35.9**	17.9	11.4
Telecommunication	3.5	**10.7**	9.5	5.0
Health/Biotechnology	7.3	**29.6**	18.2	13.8
Utility	–1.5	**9.3**	8.9	5.6
Natural Resources	2.0	**–0.5**	–1.8	–0.8
Sector Real Estate	–0.6	**7.0**	7.0	6.3
Real Estate	–3.2	**2.8**	7.0	6.5
World stock funds				
Global	5.3	**26.6**	10.9	6.1
International (ex-U.S.)	5.2	**28.8**	7.7	3.5
European Region	5.1	**28.3**	8.2	3.4
Emerging Markets	7.1	**36.5**	5.4	3.4
Latin American	9.9	**30.0**	–1.7	–0.2
Pacific Region	6.5	**39.3**	10.1	5.8
Gold Oriented	0.3	**–5.4**	–8.9	–5.1
Global Equity Income	3.6	**19.3**	8.6	4.4
International Equity Income	4.6	**24.7**	5.2	2.7
Taxable-bond funds				
Short-Term	–0.2	**1.2**	1.0	2.0
Long-Term	–0.9	**4.4**	3.0	4.8
Intermediate Bond	–1.0	**2.3**	1.9	3.6
Intermediate U.S.	–0.6	**1.0**	0.0	2.3
Short-Term U.S.	–1.0	**2.3**	1.9	3.6
Long-Term U.S.	–1.6	**0.9**	1.1	3.1
General U.S. Taxable	–0.4	**4.5**	3.2	5.3
High-Yield Taxable	0.6	**6.0**	4.5	6.7
Mortgage	–1.0	**1.2**	1.5	3.3
World Bond	1.3	**7.9**	1.3	3.6
Avg. Taxable-Bond Fund**	–0.1	**3.5**	2.1	3.7
Muncipal-bond funds				
Short-Term Muni	–0.4	**0.1**	0.3	1.2
Intermediate Muni	–0.9	**2.6**	1.7	3.1
General & Insured Muni	–1.0	**3.9**	2.5	3.8
High-Yield Muni	–0.6	**6.3**	3.7	4.3

Stock and Bond Benchmark Indexes All total return unless noted

Investment objective	January	1-yr	5-yr*	10-yr*
Large-cap stocks				
DJIA	5.9	**34.8**	16.4	10.4
S&P 500	5.7	**26.4**	15.9	9.8
Midcap stocks				
S&P MidCap 400	2.9	**17.6**	14.1	11.0
Small-cap stocks				
Russell 2000	2.6	**17.2**	13.3	9.8
Broad stock market				
DJ U.S. Total Stock Market	5.3	**25.2**	15.5	9.9
Russell 3000	5.3	**25.2**	15.5	9.8
Stock indexes				
DJ U.S. TSM Growth	6.7	**31.1**	17.1	11.5
DJ U.S. TSM Value	4.0	**19.6**	13.9	8.3
Taxable bond				
Barclays Agg. Bond	–1.2	**2.1**	2.0	3.7
Muncipal bond				
Barclays Muni. Bond	–1.2	**3.5**	2.7	4.2
International stocks				
MSCI EAFE†† (price return)	5.0	**24.3**	5.0	0.5
Dow Jones World (ex. U.S.)	5.5	**30.0**	7.7	4.0

*Annualized †Diversified funds only **Excludes money-market funds ††Europe, Australia, Far East

How the Largest Funds Fared

Data provided by LIPPER

Performance numbers are total returns (changes in net asset values with reinvested distributions) as of Jan. 31; assets are as of Dec. 29. All data are preliminary.

The Largest Stock Mutual Funds

Fund	Ticker	Assets ($ billions)	Total Return (%) January	1-year	Annualized 3-year	5-year	10-year
Vanguard TSM Idx;Adm	VTSAX	662.58	5.3	25.2	14.1	15.5	10.0
Vanguard 500 Index;Adm	VFIAX	391.43	5.7	26.4	14.6	15.9	9.8
Vanguard Tot I Stk;Inv	VGTSX	331.18	5.6	29.5	10.4	7.5	3.4
SPDR S&P 500 ETF	SPY	277.54	5.7	26.3	14.5	15.8	9.7
Vanguard Instl Indx;Inst	VINIX	232.16	5.7	26.4	14.6	15.9	9.8
American Funds Gro;A	AGTHX	177.46	8.2	30.5	16.4	16.9	9.8
American Funds EuPc;R6	RERGX	161.95	6.1	33.3	11.5	9.7	N.A.
iShares:Core S&P 500	IVV	141.49	5.7	26.4	14.6	15.9	9.7
Fidelity 500 Idx;Pr	FUSVX	139.52	5.7	26.4	14.6	15.9	9.8
American Funds Bal;A	ABALX	125.06	3.2	17.1	10.1	11.0	8.0
Fidelity Contrafund	FCNTX	122.58	9.3	38.5	17.3	17.6	11.0
American Funds Inc;A	AMECX	111.31	3.0	15.3	8.6	9.6	7.1
American Funds CIB;A	CAIBX	109.34	2.6	15.8	6.6	7.7	5.2
Vanguard FTSE Dev Mk ETF	VEA	106.64	4.8	27.8	10.3	8.4	3.7
Vanguard Wellington;Adm	VWENX	106.29	2.9	17.0	10.0	10.8	8.2
American Funds Wash;A	AWSHX	101.18	5.1	24.7	13.9	15.0	9.1
American Funds CWGI;A	CWGIX	98.38	6.0	28.2	11.2	11.5	6.4
American Funds FInv;A	ANCFX	96.47	6.2	27.4	16.1	15.8	9.4
Vanguard Md-Cp Idx;Adm	VIMAX	94.73	4.4	20.9	11.7	14.5	10.1
American Funds ICA;A	AIVSX	93.95	5.8	23.3	13.4	15.3	8.8
Vanguard FTSE Em Mkt ETF	VWO	91.72	8.4	35.7	10.2	5.1	3.3
iShares:MSCI EAFE ETF	EFA	84.80	5.0	27.5	9.3	7.8	3.4
Vanguard Sm-Cp Idx;Adm	VSMAX	84.63	2.9	17.7	11.7	13.7	10.7
Franklin Cust:Inc;A	FKINX	82.41	2.1	9.8	6.2	6.5	6.0
American Funds NPer;A	ANWPX	76.74	7.1	32.3	14.1	13.1	8.3

The Largest Bond Mutual Funds

Fund	Ticker	Assets ($ Billions)	Total Return (%) January	1-year	Annualized 3-year	5-year	10-year
Vanguard Tot Bd;Adm	VBTLX	195.87	–1.1	2.1	1.0	1.9	3.7
Vanguard Tot Bd II;Inv	VTBIX	148.48	–1.2	2.0	0.9	1.8	N.A.
PIMCO:Income;Inst	PIMIX	107.83	–0.3	7.4	6.5	5.9	9.0
Vanguard Tot Itl BI;Adm	VTABX	99.44	–0.5	2.8	1.9	N.A.	N.A.
Met West:Total Return;I	MWTIX	80.75	–1.0	2.1	1.1	2.3	5.3
PIMCO:Tot Rtn;Inst	PTTRX	73.82	–1.0	3.4	1.6	2.1	4.8
Vanguard Sh-Tm Inv;Adm	VFSUX	63.97	–0.4	1.4	1.6	1.7	2.8
Vanguard Int-Tm TxEx;Adm	VWIUX	56.64	–1.0	3.0	1.7	2.4	3.8
Dodge & Cox Income	DODIX	54.29	–0.4	3.6	2.5	3.0	4.9
iShares:Core US Agg Bd	AGG	53.01	–1.1	2.2	1.1	2.0	3.6
DoubleLine:Tot Rtn;I	DBLTX	52.88	–0.8	2.6	2.0	2.7	N.A.
Vanguard Sh-Tm Bd;ETF	BSV.IV	51.59	–0.5	0.4	0.7	0.9	2.1
Lord Abbett Sh Dur;F	LDLFX	41.18	–0.2	1.9	2.2	2.1	4.1
iShares:iBoxx $IG Corp	LQD	39.08	–1.2	5.7	2.4	3.5	5.6
Templeton Gl Bond;Adv	TGBAX	37.88	1.2	4.3	2.2	2.0	5.7
American Funds Bond;A	ABNDX	37.54	–1.2	1.6	0.9	1.8	2.8
Fidelity Str Adv Cre Inc	FPCIX	36.22	–0.9	3.1	2.0	2.4	4.6
Fidelity US B Id;IP	FXNAX	35.38	–1.2	2.1	1.1	2.0	N.A.
Vanguard Int-Tm Bd;ETF	BIV	34.88	–1.5	1.8	1.0	2.1	4.6
T Rowe Price New Inc	PRCIX	32.84	–0.8	2.8	1.3	2.0	4.0

Note: For funds with multiple share classes, only the largest is shown. N.A.: Not applicable; fund is too new or data not available

Tracking Exchange-Traded Portfolios

Performance figures are total returns for periods ended Jan. 31; for largest exchange-traded funds and other portfolios, ranked by asset size.

Fund	Symbol	Assets ($ billions)	Volume (000s)	Expense ratio	Launch date	Performance (%) January	1-year	3-year
SPDR S&P 500 ETF	SPY	**306.67**	109,922.0	0.09	01/22/93	5.7	26.3	14.5
iShares Core S&P 500 ETF	IVV	**156.03**	6,991.1	0.05	05/15/00	5.7	26.4	14.6
Vanguard Tot Stk Mkt Idx ETF	VTI	**97.20**	4,670.2	0.04	05/24/01	5.3	25.2	14.1
Vanguard 500 Index ETF	VOO	**90.97**	1,429.4	0.04	09/07/10	5.7	26.4	14.6
iShares MSCI EAFE ETF	EFA	**87.11**	38,496.5	0.32	08/14/01	5.0	27.5	9.3
Vanguard FTSE Emerging Markets ETF	VWO	**73.12**	23,959.2	0.14	03/04/05	8.4	35.7	10.2
Vanguard FTSE Developed Markets ETF	VEA	**73.02**	13,991.2	0.07	07/20/07	4.8	27.8	10.3
PowerShares QQQ Nasdaq 100	QQQ	**64.33**	40,131.0	0.20	03/10/99	8.7	37.0	19.9
iShares Core US Aggregate Bond ETF	AGG	**53.58**	8,066.5	0.06	09/22/03	–1.1	2.2	1.1
iShares Core MSCI Emerging Markets	IEMG	**49.53**	14,247.0	0.14	10/18/12	8.0	40.2	11.6
iShares Core MSCI EAFE	IEFA	**47.35**	10,615.9	0.09	10/18/12	5.0	28.9	10.5
iShares Core S&P Mid-Cap ETF	IJH	**45.88**	2,679.4	0.09	05/22/00	2.9	17.6	12.6
iShares MSCI Emerging Markets Index Fund	EEM	**45.85**	96,734.6	0.69	04/07/03	8.3	40.1	11.2
iShares Russell 2000 ETF	IWM	**42.70**	25,394.8	0.20	05/22/00	2.6	17.2	12.2
iShares Russell 1000 Growth ETF	IWF	**41.86**	2,625.5	0.20	05/22/00	7.1	34.6	16.8
iShares Russell 1000 Value ETF	IWD	**40.00**	2,843.8	0.20	05/22/00	3.9	17.0	11.4
Vanguard Value ETF	VTV	**38.43**	3,766.4	0.06	01/26/04	4.8	22.0	14.0
iShares Core S&P Small-Cap ETF	IJR	**37.16**	2,377.2	0.09	05/22/00	2.5	16.5	14.2
iShares iBoxx $ Inv Grade Cor B ETF	LQD	**36.85**	6,751.6	0.15	07/22/02	–1.2	5.7	2.4
Vanguard Total Bond Market ETF	BND	**36.75**	3,082.6	0.05	04/03/07	–1.1	2.1	1.0
SPDR Gold Shares	GLD	**36.37**	13,266.9	0.40	11/18/04	3.7	10.5	1.8
Financial Select Sector SPDR	XLF	**34.59**	49,504.5	0.14	12/16/98	6.5	29.6	19.0
Vanguard Growth ETF	VUG	**33.26**	2,272.0	0.06	01/26/04	6.9	31.8	15.0
Vanguard REIT ETF	VNQ	**32.50**	8,845.5	0.12	09/23/04	–4.2	0.6	1.5
Vanguard Div Appreciation ETF	VIG	**28.71**	857.4	0.08	04/21/06	5.1	26.1	13.4

*Expense charge is a maximum of 8 cents a share †Assets are estimated N.A.= Not applicable, fund is too new.
Note: Total returns are based on the change in the net asset values, not changes in market prices. Net asset values can vary from market prices, which therefore can reflect a premium or discount to the net asset values.
Source: Thomson Reuters

SAVING FOR RETIREMENT

Target-Date Funds Adjust For a Stock Pullback

Managers are diversifying their holdings to protect against a downturn, even as some add more stocks

BY MICHAEL A. POLLOCK

MANY TARGET-DATE FUNDS face a challenge in this long bull market for stocks: Their high exposure to equities could result in a sharp drop in their value during a major stock-market pullback.

To damp the possible impact of such a downturn, managers of many of these funds are diversifying into new types of investments—even as some also boost their stock exposure in hopes of getting better long-term returns and keeping up with competitors.

For example, **BlackRock** Inc., among the largest providers of target-date funds, with assets of more than $200 billion in them globally, recently recast one of its three fund series with higher equity exposure and investments in smart-beta exchange-traded funds—index-tracking funds that are designed to both boost returns and lower risk by using factors other than the traditional market capitalization to create their portfolio. **John Hancock** is diversifying its target-date funds' holdings with a modest allocation to alternatives to stocks and bonds, such as currency derivatives. And investors in **TIAA**'s target-date funds now own a portion of actual buildings—not just shares in real-estate investment trusts—such as a 24-story luxury condo structure near New York City's Madison Square Park.

Because some of these strategies are relatively new, it's uncertain how well they will bolster fund performance in another market downdraft, says Jeff Holt, who helps oversee manager research at fund tracker Morningstar. In 2008-09, the most equity-heavy target-date funds shed more than 30% of their value before eventually recovering.

Today, more working people than ever own target-date funds through employer-sponsored 401(k) plans or other tax-deferred accounts. These funds start with very high equity exposure when their investors are presumed to be relatively young and slowly shift toward more-conservative investments as they get closer to retirement—known as the equity glide path. U.S. target-date assets are approaching $1 trillion.

The need for stock risk

With life expectancies increasing and future returns in many asset areas projected to be lower than they have been in recent years, investors need more equity risk to save enough for retirement, says Fredrik Axsater, a senior executive at Wells Fargo Asset Management. Last year, the firm overhauled its flagship target-date funds, lifting the stock allocation modestly for investors approaching retirement and adding smart-beta ETFs that focus on factors such as valuations, price momentum, volatility and measures of financial health to determine the weightings of their investments.

Because many smart-beta ETFs focus on a relatively narrow slice of the stock market, they can make it easier for managers of target funds to tweak strategy in response to shifting market conditions by buying or selling them. And because the ETFs' fees are low, Wells Fargo has been able to trim expense ratios on its target funds to 0.19% of assets annually from 0.30%-0.37%.

BlackRock made some similar changes. The equity glide path for its LifePath funds, which had started to decline almost immediately from initial stockholdings in the high 90% area, now hovers around 99% for more than the first decade of an investor's participation. That doesn't materially boost risk and significantly improves returns, says Matthew O'Hara, global head of investments for LifePath funds.

BlackRock also revamped one of its three target-date series to put up to 90% of portfolios into smart-beta ETFs such as **iShares Edge MSCI Min Vol EAFE** (EFAV) and **iShares Edge MSCI Min Vol USA** (USMV). That enabled it to lower expense ratios to 0.21% to 0.22%, about half that of its actively managed target-date series.

Northern Trust Asset Management in 2016 lifted the peak equity exposure of target funds by 5 percentage points to 85%. But unlike most peers, its funds start in the low 80% area and don't hit peak stock allocation until a hypothetical investor is 45, when stock exposure starts declining again. That's to trim volatility early on, when people with smaller balances may be more inclined to cash out, says Sabrina Bailey, global head of retirement solutions. The firm further diversifies by putting some assets in markets that don't closely track stocks, such as commodities and global real estate.

Changes in tools

While it hasn't changed its equity glide path, **Principal Financial Group**, based in Des Moines, Iowa, recently made portfolio shifts intended to boost returns and damp volatility. Its target-date portfolios, which invest in other individual mutual funds, modestly increased holdings in non-U.S. stock funds. Some also added a fund that focuses on less volatile, dividend-paying stocks, a move that managers hope will "minimize a little of the downside" during any market corrections, says portfolio manager Randy Welch.

John Hancock's Multimanager Lifetime funds, which also use a fund-of-funds approach, try to steady the ride by shifting to more defensive stocks as the target retirement date grows near. The funds also have a modest allocation to alternatives, including funds that wager on gyrations in the global currency market. Portfolio manager Nathan Thooft says the allocation to alternatives totals around 4% to 5%.

Real estate for retirement

TIAA has taken an unorthodox step in its Lifecycle offerings: putting some fund money into the ownership of buildings. It began doing that in mid-2016 and eventually expects such holdings to represent about 5% of portfolios.

Although its target-date offerings already had real-estate exposure through holdings of real-estate investment trusts, TIAA tapped into a $100 billion global real-estate fund managed by one of its affiliates to invest directly in properties, says John Cunniff, who oversees two target-date series. "Having a diversifying asset like real estate could be a great benefit during a full market cycle" for stocks.

Mr. Pollock is a writer in Ridgewood, N.J. He can be reached at ***reports@wsj.com.***

VIW STUDIOS

TIAA's target-date investors own a piece of luxury condo 10 Madison Square West in New York.

SPOTLIGHT | PNC S&P 500 INDEX FUND

AN INDEX FUND'S SUDDEN DEATH

Investors in **PNC S&P 500 Index Fund** (PIIAX) late last year may have expected to continue reaping gains similar to those of the steadily rising stock market. Instead, they received a hefty capital-gains payout followed by the fund's liquidation.

Their plight illustrates the toll that redemptions can take on investors who stick with a mutual fund as others leave.

The fund gained 22.4% over the one-year period through the end of November, compared with the S&P 500's 22.9% return, according to Thomson Reuters Lipper data. But investors pulled $63 million from the fund, or 38% of its assets, over the 12 months through Sept. 30, research firm Morningstar estimates. With a net expense ratio of 0.44%, the fund was likely pressured by lower-cost competitors, including ETFs, says Mark Wilson, president of Mile Wealth Management in Irvine, Calif.

The redemptions forced the sale of assets by the fund's managers, resulting in a potentially taxable capital-gains distribution to remaining shareholders of nearly 22% of the fund's net asset value in December. The big payout, an unusual event for an index fund, was followed by even more bad news: PNC liquidated the fund on Dec. 27.

"PNC Funds' primary business strategy is to offer investors differentiated, actively managed mutual funds," and the passively managed S&P 500 Index Fund didn't align with its focus going forward, a spokesman for the firm said.

—Daisy Maxey

Category Kings in 16 Realms

Data provided by LIPPER

Top-performing funds in each category, ranked by year-to-date total returns (changes in net asset values with reinvested distributions) as of Jan. 31; assets are as of Dec. 29. All performance numbers are preliminary.

Large-Cap Core

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
EntrepreneurSh:ERS Etp30	...	11.1	N.A.	N.A.	N.A.
BlackRock:LC Foc Gr;A	645.4	10.9	39.0	17.8	18.3
Bail Giff US EG;K	1.4	10.8	N.A.	N.A.	N.A.
Pru Jenn Dvsfd Gro;A	236.9	9.5	31.8	14.7	15.7
Amer Cent:Foc DG;Inv	29.5	9.2	40.3	15.0	16.8
Direxion:iBillionaire Id	16.0	8.9	32.3	12.8	N.A.
Vulcan Value Partners	1,324.6	8.6	22.8	10.1	13.5
Fidelity Adv Dvs Stk;O	2,113.3	8.4	27.0	14.2	15.2
PowerShares S&P500 Momnt	5.1	8.2	35.8	N.A.	N.A.
BlackRock:IS USA MF;K	12.6	8.2	43.8	N.A.	N.A.
Category Average:	1,069.0	5.5	25.0	13.0	14.4
Fund Count	882.0	881	805	698	636

Small-Cap Core

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Royce Fd:Premier;Inv	2,359.8	5.2	27.3	14.8	11.6
Touchstone:SmCap;Inst	182.9	5.0	13.5	5.4	7.2
O'Shaughnessy S/M Gro;I	14.6	5.0	19.0	11.8	12.7
Empiric 2500;A	25.7	4.8	26.5	8.0	12.3
Bernzott US Sm Cap Val	77.9	4.6	27.3	13.2	12.8
WesMark:Sm Company Gro	101.0	4.6	17.2	9.7	11.8
Highland:Sm-Cp Eqty;A	54.2	4.5	15.0	13.6	13.4
Putnam Cap Opps;A	307.9	4.5	11.2	7.6	10.2
AMG RR SMid Val;I	44.8	4.4	20.1	15.7	12.4
Amer Cent:NT Sm Co;G	442.3	4.3	15.9	10.3	13.4
Category Average:	520.7	2.4	14.9	11.1	12.2
Fund Count	1,054.0	1059	1001	827	707

Large-Cap Value

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Oakmark Fund;Inv	19,556.2	7.0	28.0	15.5	16.4
Am Beacon:Alpha QV;Inst	2.4	6.6	N.A.	N.A.	N.A.
Barclays ETN+ShillerCAPE	95.1	6.6	25.3	17.7	18.4
Matrix Adv Value Fund	60.9	6.6	19.9	10.7	13.5
DoubleLine:Sh Enh CAPE;I	4,773.7	6.5	25.7	18.3	N.A.
Cullen:Value;I	34.7	6.1	22.7	13.3	13.8
Ivy:Value Fund;I	1,218.8	6.0	18.0	10.8	12.3
Thrivent Fds:LC Val;S	1,036.8	5.9	23.1	14.0	14.0
Hotchkis:Lg Cap Val;I	390.7	5.9	24.0	13.5	15.9
Hotchkis:Dvsfd Value;I	116.1	5.8	23.9	13.2	15.1
Category Average:	992.2	4.6	20.3	11.7	13.1
Fund Count	522.0	527	496	426	379

Small-Cap Value

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Invesco SC Value;Y	2,664.2	4.8	19.9	12.6	14.3
Orchard Sm Cp Val;I	5.9	4.6	17.2	N.A.	N.A.
Paradigm:Micro-Cap	49.4	3.9	19.9	12.9	13.8
CB Small Cap Value;A	175.8	3.8	14.6	11.1	10.5
AllianzGI:NFJ SCV;I	2,723.0	3.4	13.1	10.7	10.3
Aristotle SmCp Eqty;I	11.4	3.3	20.6	N.A.	N.A.
Pacific Adv:Sm Cap Val;A	23.3	3.3	13.2	5.3	2.9
Transam:Sm Cap Val;I2	300.8	3.3	13.5	7.7	9.5
Oppenheimer Sm Cap Val;A	32.1	3.1	8.8	N.A.	N.A.
Walthausen:Sel Val;Inst	85.3	3.1	19.2	10.2	12.0
Category Average:	433.6	1.5	10.8	10.4	11.0
Fund Count	292.0	289	273	240	207

Large-Cap Growth

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Berkshire:Focus	...	16.3	56.4	24.6	21.1
Pru Jenn Focused Gr;A	393.2	13.2	47.2	18.9	18.9
Touchstone:Sel Gro;Y	2,387.4	11.5	38.2	12.4	14.7
Touchstone Inst:Snd Gr	1,842.1	11.4	38.4	12.6	14.9
Marsico Inv Fd:Focus	548.7	11.1	40.9	12.5	15.5
Dunham:Focused LC Gro;N	77.1	11.1	32.6	13.0	14.4
J Hancock II:BC Gro;1	2,730.7	10.7	43.9	19.1	20.0
T Rowe Price BC Gro	45,802.7	10.7	44.2	19.2	20.2
T Rowe Price I LC Cor Gr	3,094.2	10.7	44.1	19.3	20.3
Baron Fifth Ave Gro;Inst	199.5	10.6	45.7	17.8	18.1
Category Average:	1,407.9	8.0	34.4	15.1	16.4
Fund Count	729.0	732	680	600	557

Small-Cap Growth

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Delaware Smd Cp G;A	1,001.0	8.9	39.4	15.1	15.2
Nysa Srs Tr:Nysa Fund	1.8	8.4	19.4	3.4	–4.2
Delaware Sm Cap Gro;Inst	7.7	7.5	39.2	N.A.	N.A.
Federated Kauf SC;A	888.1	7.2	42.7	18.7	17.9
Virtus:KAR Sm-Cap Gro;I	1,814.1	7.2	42.2	24.0	20.7
Jackson SMID-Cp Gro;Inst	390.8	7.2	25.8	N.A.	N.A.
Virtus:KAR Sm-Cap Cr;I	830.0	6.9	39.1	21.0	17.2
Victory:RS Sm Cap Eqty;A	76.2	6.4	40.7	14.8	18.2
Victory:RS Select Gr;Y	445.4	6.3	22.0	11.1	12.1
Victory:Sm Cap Growth;Y	1,710.7	6.3	40.3	14.8	18.0
Category Average:	284.2	4.2	25.3	12.3	13.4
Fund Count	607.0	607	553	498	453

Midcap Core

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Forward:Adapt US Eq;Inst	17.5	8.5	34.4	14.7	15.4
AlphaClone Alt Alpha ETF	25.7	7.7	25.9	3.5	9.7
MF&Var:Rtnl Dy Brnd;A	16.4	6.9	23.9	7.5	7.3
Ariel:Fund;Investor	2,249.3	6.6	20.2	11.9	15.2
Guggnhm S&P Spin-Off ETF	211.0	6.5	25.9	9.5	13.6
Schwartz Inv:Val Focused	22.7	6.2	17.5	8.3	6.3
RBB:Mtly SM Cap Gro;Inv	270.3	5.5	35.4	13.1	15.0
Fidelity Adv Mid Cp2;I	2,643.9	5.5	23.8	12.8	13.7
Sterling:Mid Value;Inst	763.2	5.4	16.3	12.5	14.2
CB Select;IS	30.0	5.4	35.3	15.8	18.9
Category Average:	942.5	3.3	17.3	10.5	12.5
Fund Count	456.0	458	435	345	299

Multicap Core

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Aptus Behavioral Momentm	36.3	9.0	25.2	N.A.	N.A.
Catalyst Insidr Buying;A	55.6	8.9	26.3	7.5	11.4
Federated MDT LCG;A	86.8	7.9	31.0	12.1	15.2
Nuveen LCG;I	332.0	7.9	31.5	14.0	N.A.
Glenmede:Strat Equity	217.6	7.6	33.2	16.6	16.7
BM&O Partners	38.4	7.6	23.0	8.1	5.7
Nuveen LC Core;I	563.8	7.3	26.5	13.5	N.A.
American Funds AMCP;A	60,962.5	7.2	26.6	13.5	15.9
Weitz:Partners Val;Inv	689.5	7.1	14.6	6.0	9.0
FPA US Value Fund	86.3	7.0	16.6	5.7	9.5
Category Average:	1,523.1	4.9	22.8	11.7	13.6
Fund Count	809.0	802	759	644	559

Midcap Value

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
TCW/Gargoyle Sys Val;I	1.5	5.5	19.6	N.A.	N.A.
AMG Mg Fairpt MC;I	4,189.7	5.5	14.4	11.0	14.1
TCW:Rel Value MC;I	102.2	5.1	22.5	13.2	13.3
Invesco Amer Value;A	1,531.6	5.0	13.0	7.5	10.7
Royce Fd:Div Value;Inv	183.4	4.6	25.5	13.6	11.3
CM:Advisors Fund;I	52.2	4.5	0.7	5.0	3.0
Pzena Mid Cap Value;Inst	12.8	4.4	17.8	15.0	N.A.
Fidelity Low-Prcd Stk	39,601.5	4.4	24.5	12.0	13.4
Rnhrt Mid Cap PMV;Adv	196.2	4.2	15.3	11.6	12.0
Artisan:Mid Cap V;Inv	3,932.5	4.2	14.6	9.8	10.6
Category Average:	739.4	3.0	14.5	10.1	12.3
Fund Count	183.0	183	166	142	121

Multicap Value

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Copley Fund	85.3	15.7	28.0	13.0	13.2
Deep Value	113.1	9.0	36.7	17.3	N.A.
Ariel:Focus;Inv	57.1	6.4	19.0	9.4	12.2
Oakmark Select;Inv	6,354.4	6.4	22.4	12.8	15.3
Invesco Val Opps;A	857.6	6.3	20.8	11.7	12.0
Federated MDT ACC;Inst	144.0	6.3	26.3	12.8	15.7
Main Sector Rotation ETF	...	6.0	N.A.	N.A.	N.A.
GW:Ariel MC Val;Inv	169.6	5.8	18.8	10.0	13.5
Ariel:Appreciation;Inv	1,693.6	5.7	18.2	9.9	13.3
Madison:Lg Cap Val;A	94.2	5.6	20.1	11.4	12.6
Category Average:	638.6	4.1	18.5	11.0	12.8
Fund Count	379.0	381	353	302	270

Midcap Growth

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Virtus:KAR Mid-Cap Gr;A	97.5	11.1	39.9	16.8	13.6
Baron Partners Fund;Rtl	1,972.1	9.4	36.2	14.2	16.9
Tocqueville:Opportunity	76.3	9.0	37.1	11.7	15.6
BlackRock:MC Gro;A	1,054.0	8.2	36.9	15.8	18.1
Am Beacon:Md Cp Gro;Inst	97.1	7.4	31.4	13.6	13.5
Carillon:Egl MC Gro;R-6	2,716.3	7.2	34.4	15.8	17.0
Baron Asset Fund;Rtl	3,061.5	7.1	30.6	13.8	15.2
MFS Mid Cap Growth;R6	2,589.5	7.1	31.9	15.0	15.9
PowerShares Russ MdCp PG	114.3	7.1	40.8	13.8	13.8
PowerShares DWA NASDAQ	56.1	7.1	34.5	15.4	16.8
Category Average:	604.6	5.6	27.3	12.2	13.7
Fund Count	387.0	387	368	340	302

Multicap Growth

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Zevenbergen Genea;Inst	9.3	17.3	62.0	N.A.	N.A.
Virtus:Zeven Inn Gr St;I	23.1	12.5	39.8	17.0	19.0
Zevenbergen Growth;Inst	8.2	12.2	39.3	N.A.	N.A.
Sparrow:Growth Fund;A	12.4	11.8	43.6	11.6	13.0
Jackson Sel 20 Gro;IS	5.8	11.7	28.9	9.8	12.0
Baron Opportunity;Rtl	252.8	11.7	46.1	15.9	14.4
SunAmerica:AIG Foc MCG;A	576.4	11.4	44.3	16.4	17.3
Rock Oak Core Growth	9.4	11.3	30.5	14.2	14.9
Fidelity Srs Gro Co	11,499.1	10.2	45.4	20.4	N.A.
Franklin Cust:Dyna;A	4,476.5	10.1	43.8	19.1	19.2
Category Average:	747.0	7.1	31.8	13.6	15.3
Fund Count	510.0	511	489	441	386

Pacific Region

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Matthews Asia:China;Inv	905.1	14.4	70.3	19.8	11.8
Neuberger Gr Chn Eq;Is	128.6	14.3	80.2	22.3	N.A.
iShares:China Large Cp	3,955.4	13.9	46.2	10.7	7.8
Clough China;I	61.3	13.4	52.1	12.4	10.2
CSOP FTSE China A50	7.2	13.3	54.3	N.A.	N.A.
Frst Tr ADex:China	7.4	13.1	67.3	17.1	8.9
Franklin ETF:FTSE China	...	12.7	N.A.	N.A.	N.A.
iShares:MSCI China	2,872.0	12.5	61.2	15.8	11.0
SPDR S&P China	1,084.5	12.4	58.7	17.2	12.3
Guggenhm China AC ETF	24.5	11.5	52.7	14.8	10.9
Category Average:	430.8	6.5	39.3	13.1	10.1
Fund Count	250.0	255	233	193	157

Science and Technology

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Direxion:CSI Ch Int Bl2X	102.0	26.0	181.8	N.A.	N.A.
PowerShares NASD Intrt	468.4	12.4	44.5	25.1	23.8
Glbl X Rob & Art Intel	1,505.9	11.7	62.7	N.A.	N.A.
WellsFargo:Sp Tech;A	412.7	11.5	50.0	22.0	22.1
Dreyfus Tech Growth;A	299.9	11.3	48.2	22.3	18.9
ARK Innovation	379.8	11.0	88.9	28.6	N.A.
Frst Tr:DJ Internet Idx	5,490.7	10.9	42.8	26.6	23.5
EMQQ EM Intrt & Ecom ETF	393.2	10.7	67.9	23.1	N.A.
Invesco Tech;Inv	843.7	10.4	41.0	16.7	16.0
Invesco Tech Sector;A	95.4	10.4	40.7	16.4	16.0
Category Average:	858.3	8.1	40.9	20.3	19.8
Fund Count	179.0	179	170	148	139

Emerging Markets

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Glbl X MSCI Nigeria ETF	70.0	19.5	59.1	–6.6	N.A.
iPath ETN LgEn MSCI EM	2.7	14.8	91.1	21.6	9.1
ICON:Emerging Mkts;S	63.6	11.9	30.4	9.8	7.1
iShares:MSCI Russia	668.8	11.7	15.7	23.4	–1.4
BLDRS:Em Mkts 50 ADR	163.1	11.6	38.6	13.0	5.5
Harbor:Emg Mkt Eqty;Inst	57.7	11.5	37.7	10.5	N.A.
RBB:Mtly Fl Emg Mkt;Inv	35.1	11.4	36.8	11.8	8.1
iShares:MSCI BRIC	304.1	11.4	47.5	14.3	6.0
Glbl X MSCI Greece	396.1	11.3	51.2	3.8	–8.7
PowerShares F R Em Mkt	1,034.6	11.3	31.8	13.3	4.5
Category Average:	646.1	7.1	36.5	10.3	5.4
Fund Count	883.0	881	823	674	477

Latin American

Fund	Assets ($ millions)	Total return (%) Jan	1-yr	3-yr*	5-yr*
Franklin ETF:FTSE Brazil	...	16.5	N.A.	N.A.	N.A.
iShares:MSCI Brazil	7,635.4	15.9	28.8	13.3	–1.3
iShares:Lat Amer 40	1,460.5	13.7	30.8	11.1	–0.7
Fidelity Latin America	601.0	12.8	37.3	9.2	–3.6
Frst Tr ADex:Lat America	17.4	12.4	24.3	14.0	–0.2
BlackRock:Latin Amer;A	181.7	12.0	30.2	9.3	–1.5
Xtrackers MSCI Br Hdg Eq	4.8	11.5	22.9	11.2	0.4
T Rowe Price Int:Lt Am	683.1	11.0	32.6	12.9	–0.4
Frst Tr ADex:Brazil	9.3	10.6	25.5	14.1	–1.6
iShares:MSCI Brz Sm-Cap	81.4	10.3	42.9	17.8	–6.1
Category Average:	443.7	9.9	30.0	10.7	–1.7
Fund Count	30.0	32	28	26	24

N.A.: Not applicable; fund is too new * Annualized Note: For funds with multiple share classes, only the largest is shown.

Leaders and Laggards

Data provided by LIPPER

Performance numbers are total returns (changes in net asset values with reinvested distributions) as of Jan. 31; assets are as of Dec. 29. All data are preliminary.

Best-Performing Stock Funds

Fund	Ticker	Assets ($ millions)	Total Return (%) January	1-year	Annualized 3-year	5-year	10-year
Direxion:MSCI Bra Bull3X	BRZU	167.7	49.3	47.1	–4.8	N.A.	N.A.
Direxion:China Bull 3X	YINN	257.5	46.3	186.7	13.7	20.7	N.A.
Direxion:Latin Bull 3X	LBJ	13.5	45.0	83.1	6.0	–22.4	N.A.
Direxion:Russia Bull 3x	RUSL	146.9	34.6	33.5	31.3	–32.2	N.A.
ProShares:Ult MSCI Braz	UBR	13.0	31.5	46.2	11.0	–13.9	N.A.
Direxion:S&P Btech Bl 3X	LABU	404.7	29.5	150.6	N.A.	N.A.	N.A.
ProShares:Ult FTSE Ch 50	XPP	56.6	29.4	108.4	17.0	10.6	N.A.
ProFunds:UltraLatin;Inv	UBPIX	32.7	27.5	51.9	9.8	–13.1	–15.2
ProShares:UltP QQQ	TQQQ	2,397.8	27.4	140.0	57.4	66.2	N.A.
iPath Bloomberg NatGas A	GAZ	1.2	27.3	–67.4	–52.1	–42.9	–44.4
Direxion:Semicnd Bull 3X	SOXL	633.7	26.1	171.6	85.1	85.5	N.A.
Direxion:CSI Ch Int Bl2X	CWEB	102.0	26.0	181.8	N.A.	N.A.	N.A.
Direxion:MSCI EM Bull 3X	EDC	305.9	25.9	149.1	21.3	2.0	N.A.
Direxion:Aero & Def Bl3X	DFEN	46.6	24.8	N.A.	N.A.	N.A.	N.A.
ProFunds:UltraEM;Inv	UUPIX	41.9	23.9	83.2	19.8	5.2	–7.0
Rydex:Emg Mk 2x Str;H	RYWVX	15.3	23.8	82.9	18.7	4.8	N.A.
Direxion:MSCI Mex Bl 3X	MEXX	3.1	23.3	N.A.	N.A.	N.A.	N.A.
USCF:US 3x Oil	USOU	4.5	22.7	N.A.	N.A.	N.A.	N.A.
VelShs 3x Long Crude ETN	UWTI	132.5	22.7	24.7	–54.1	–61.1	N.A.
VelShs 3x Long Crude	UWT	150.1	22.6	24.5	N.A.	N.A.	N.A.
UBS PS Daily 3x Lng Crd	WTIU	23.9	22.0	28.4	N.A.	N.A.	N.A.
ProShs II:UltPro 3x CO	OILU	11.3	21.9	N.A.	N.A.	N.A.	N.A.
Direxion:Tech Bull 3X	TECL	515.6	21.8	146.6	64.2	60.9	N.A.
Direxion:EU STOXX50 Bl3X	EUXL	3.9	21.4	N.A.	N.A.	N.A.	N.A.
ProFunds:UltraChina;Inv	UGPIX	45.8	21.2	113.5	25.1	22.7	N.A.
ProShares:UP Nasdaq Bio	UBIO	47.1	20.5	69.4	N.A.	N.A.	N.A.
Direxion:Hlthcre Bull 3X	CURE	142.1	20.0	91.3	20.5	47.2	N.A.
ProShares:UlP Fin Sel	FINU	44.8	19.9	99.8	51.5	50.4	N.A.
Direxion:CSI300 ChA Bl2X	CHAU	77.3	19.7	85.5	N.A.	N.A.	N.A.
VelShs Dly 4X L EURvsUSD	UEUR	4.2	19.6	N.A.	N.A.	N.A.	N.A.

Best-Performing Bond Funds

Fund	Ticker	Assets ($ millions)	Total Return (%) January	1-year	Annualized 3-year	5-year	10-year
iPath ETN Trs 10Y Bear A	DTYS	48.3	17.7	9.9	7.1	–5.3	N.A.
Barclays Inv US TC ETN	TAPR	14.9	16.2	–5.6	–0.5	N.A.	N.A.
iPath ETN Trs Lng Bear A	DLBS	15.8	16.1	–4.5	3.2	–9.1	N.A.
Direxion:20+Y Trs Br 3X	TMV	345.6	10.7	–16.7	–6.1	–20.0	N.A.
ProShares:UPSh 20+ Trs	TTT	80.8	10.5	–15.9	–5.5	–18.8	N.A.
iPath ETN Trs 5Yr Bear	DFVS	1.2	9.8	12.7	4.0	–2.5	N.A.
Mrkt Vctrs ETN Dbl Lg Eu	URR	...	7.3	30.1	3.3	–6.2	N.A.
UBS AG Enh Eur Gl HY ETN	FIHD	1,132.3	7.2	43.5	N.A.	N.A.	N.A.
ProShares:UlS 20+ Yr Trs	TBT	1,986.4	7.0	–10.0	–2.3	–11.8	N.A.
Direxion:7-10Y Trs Br 3X	TYO	28.0	6.9	–2.0	–3.2	–8.8	N.A.
Rydex:Wkn Dlr 2x Str;H	RYWBX	3.3	6.9	20.5	1.7	–6.5	–4.6
ProShs II:Ult Euro	ULE	9.6	6.7	26.7	2.5	–6.3	N.A.
iPath ETN Trs 2Y Bear A	DTUS	8.8	6.5	17.3	4.0	–1.6	N.A.
ProShs II:Ult Yen	YCL	2.9	6.2	3.0	1.3	–9.7	N.A.
Lazard Equity Fran;Inst	LZFIX	5.7	5.9	N.A.	N.A.	N.A.	N.A.
Barings:Emer Mkts LCD;Y	BXLYX	20.3	5.8	21.4	N.A.	N.A.	N.A.
iPath ETN GBP/USD ExRt A	GBB	3.8	5.5	13.6	–2.1	–2.4	–3.2
Goldman:Loc EM Dbt;I	GIMDX	302.3	5.4	20.5	4.1	–1.6	N.A.
Ashmore:EMs LC Bd;Inst	ELBIX	69.9	5.3	19.1	4.4	–1.0	N.A.
WisdomTree:Brz Real Str	BZF	18.3	5.2	6.8	4.3	–0.4	N.A.
Franklin Inv:Cv Sec;Adv	FCSZX	2,653.7	5.1	19.3	10.9	10.9	N.A.
CurShs:GBP Sterling	FXB	210.4	5.1	12.6	–2.1	–2.5	–3.4
Payden:Em Mkt Lcl Bd;Inv	PYELX	192.2	4.9	18.2	3.6	–1.7	N.A.
T Rowe Price Int:EM LC	PRELX	569.1	4.8	18.7	4.0	–1.0	N.A.
SPDR Bbg Barclays Cnv Sc	CWB	4,007.9	4.8	18.3	10.6	11.0	N.A.
Voya:EM Loc Curr Debt;P	ILCDX	99.8	4.8	17.3	3.1	–1.8	N.A.
Stone Harbor Loc Mk;Inst	SHLMX	1,178.4	4.8	17.7	3.7	–2.4	N.A.
Pru EM Debt Loc Curr;Z	EMDZX	33.0	4.7	18.7	3.8	–0.9	N.A.
ProShares:UlS 7-10Y Trs	PST	118.7	4.7	0.7	–0.4	–4.4	N.A.
CurShs:Swiss Franc	FXF	150.1	4.7	4.9	–1.5	–1.3	1.1

Worst-Performing Stock Funds

Fund	Ticker	Assets ($ millions)	Total Return (%) January	1-year	Annualized 3-year	5-year	10-year
Direxion:China Bear 3X	YANG	32.7	–34.3	–72.6	–48.5	–49.7	N.A.
Direxion:S&P Btech Br 3X	LABD	85.2	–28.8	–75.8	N.A.	N.A.	N.A.
Direxion:Russia Bear 3x	RUSS	22.8	–27.6	–44.3	–67.3	–42.6	N.A.
ProShares:UlS MSCI Brz	BZQ	22.5	–26.2	–53.9	–46.8	–26.1	N.A.
ProShares:UlS FTSE Ch 50	FXP	28.4	–24.2	–57.3	–32.7	–27.8	–39.5
Direxion:Semicnd Bear 3X	SOXS	39.8	–24.2	–73.4	–65.5	–64.0	N.A.
ProFunds:UltSh Latin;Inv	UFPIX	9.1	–23.1	–47.6	–35.3	–14.9	–31.8
ProShares:UltP Sht QQQ	SQQQ	487.9	–22.4	–62.6	–48.9	–51.0	N.A.
VelShs 3x Inv Nat Gas	DGAZ	157.5	–22.4	–3.5	–19.2	–26.4	N.A.
Direxion:MSCI EM Bear 3X	EDZ	74.5	–21.9	–65.9	–42.6	–31.0	N.A.
ProFunds:UltSh EM;Inv	UVPIX	7.6	–20.3	–50.8	–30.4	–20.3	–27.9
VelShs 3x Inv Crude	DWT	179.4	–20.1	–52.8	N.A.	N.A.	N.A.
VelShs 3x Inv Crude ETN	DWTI	10.9	–20.1	–52.7	–45.8	–10.9	N.A.
USCF:US 3x Short Oil	USOD	1.1	–20.1	N.A.	N.A.	N.A.	N.A.
ProShares:UPS Nasdaq Bio	ZBIO	5.1	–20.1	–54.9	N.A.	N.A.	N.A.
Rydex:Inv EM 2x Str;H	RYWYX	0.4	–20.1	–50.5	–30.2	–19.9	N.A.
ProShs II:UltPro 3x SCO	OILD	21.2	–19.7	N.A.	N.A.	N.A.	N.A.
UBS PS Daily 3x Inv Crd	WTID	15.1	–19.7	–54.0	N.A.	N.A.	N.A.
Direxion:Tech Bear 3X	TECS	18.5	–19.1	–64.4	–51.6	–49.8	N.A.
ProFunds:UlSh China;Inv	UHPIX	1.5	–18.9	–59.4	–37.5	–35.8	N.A.
VelShs Dly 4X L USDvsEUR	DEUR	3.8	–17.5	N.A.	N.A.	N.A.	N.A.
ProShares:UlPS Fin Sel	FINZ	1.2	–17.4	–57.6	–49.4	–47.6	N.A.
VelShs Dly 4X L USDvsCHF	DCHF	3.8	–16.5	N.A.	N.A.	N.A.	N.A.
Direxion:Reg Bnk Bear 3X	WDRW	3.1	–16.1	–44.9	N.A.	N.A.	N.A.
ProShares:UlS Cons Sv	SCC	1.5	–16.0	–38.5	–27.5	–31.6	–32.4
ProShares:UltP Sht Dow30	SDOW	143.7	–15.8	–59.0	–43.3	–40.9	N.A.
Rydex:Inv NAS 2x;H	RYVNX	15.4	–15.7	–47.9	–35.2	–37.1	–34.8
ProFunds:UltSh NAS;Inv	USPIX	13.8	–15.5	–48.0	–35.4	–37.3	–35.2
ProShares:UlS QQQ	QID	319.0	–15.4	–47.5	–34.7	–36.7	–34.8
Direxion:S&P 500 Bear 3X	SPXS	302.6	–15.4	–50.3	–38.9	–41.2	N.A.

Worst-Performing Bond Funds

Fund	Ticker	Assets ($ millions)	Total Return (%) January	1-year	Annualized 3-year	5-year	10-year
Direxion:20+Y Trs Bl 3X	TMF	95.5	–10.3	8.7	–11.0	4.4	N.A.
FX Strategy;I	FXFIX	24.0	–9.3	–21.3	–12.1	–2.1	N.A.
ProShares:Ult 20+ Yr Tr	UBT	35.5	–6.8	7.0	–5.5	4.8	N.A.
Mrkt Vctrs ETN Dbl Sh Eu	DRR	...	–6.8	–23.8	–6.7	2.8	N.A.
Rydex:Stg Dlr 2x Str;H	RYSBX	10.4	–6.6	–19.1	–5.5	2.4	–1.2
Direxion:7-10Y Trs Bl 3X	TYD	8.8	–6.6	–1.9	–3.8	1.7	N.A.
ProShs II:UlS Euro	EUO	202.6	–6.4	–23.0	–7.0	2.1	N.A.
ProShs II:UltSht AUD	CROC	13.7	–6.4	–14.2	–8.5	2.9	N.A.
ProShs II:UlS Yen	YCS	131.1	–6.0	–5.6	–6.3	4.6	N.A.
ProFunds:US Gov Pl;Inv	GVPIX	14.7	–4.8	4.4	–4.7	2.8	5.3
Rydex:Gv LB 1.2x Str;H	RYHBX	74.3	–4.8	4.1	–4.1	N.A.	N.A.
iPath ETN Trs 5Yr Bull	DFVL	4.7	–4.7	–5.1	–2.4	0.7	N.A.
Direxion:M7-10Y T 2x;Inv	DXKLX	8.7	–4.6	–2.1	–3.6	0.3	5.0
ProShares:Ult 7-10 Yr Tr	UST	31.6	–4.5	–1.7	–2.3	1.3	N.A.
PIMCO ETF:25+ Yr US Tres	ZROZ	189.9	–4.3	8.3	–3.1	5.4	N.A.
VnEck Vctrs:CEF Muni Inc	XMPT	99.9	–4.3	1.2	2.6	2.6	N.A.
Vanguard Ext Dur T;Inst	VEDTX	1,875.0	–4.2	8.0	–2.5	5.1	7.8
iPath ETN Trs 10Y Bull A	DTYL	5.3	–4.1	–2.5	–2.3	1.1	N.A.
PIMCO:Extend Dur;Inst	PEDIX	1,351.3	–3.9	8.5	–2.3	5.3	8.7
Wasatch:Hois US Tr;Inv	WHOSX	351.2	–3.9	5.9	–2.2	3.7	6.8
iPath ETN Trs 2Y Bull A	DTUL	4.1	–3.7	–8.6	–2.9	0.1	N.A.
ProFunds:Rs USD;Inv	RDPIX	11.0	–3.5	–10.6	–3.1	0.7	–0.6
WisdomTree:Blm USD Bull	USDU	106.1	–3.4	–8.7	–1.5	N.A.	N.A.
Frst Tr VIII:Mun CEF IO	MCEF	13.1	–3.4	0.6	N.A.	N.A.	N.A.
Vanguard Lg-Tm Trs;Adm	VUSUX	3,602.2	–3.4	4.3	–1.3	3.4	5.8
iShares:20+ Trs Bd ETF	TLT	7,133.8	–3.3	4.9	–1.3	3.7	6.0
iPath ETN Trs Lng Bull A	DLBL	4.6	–3.3	1.3	–1.3	2.5	N.A.
ProShs II:Short Euro	EUFX	8.0	–3.3	–12.0	–3.3	1.2	N.A.
Vanguard LT Trs;ETF	VGLT	1,457.9	–3.2	4.5	–1.2	3.4	N.A.
SPDR Ptf LT Treasury	SPTL	741.5	–3.2	4.5	–1.2	3.4	5.8

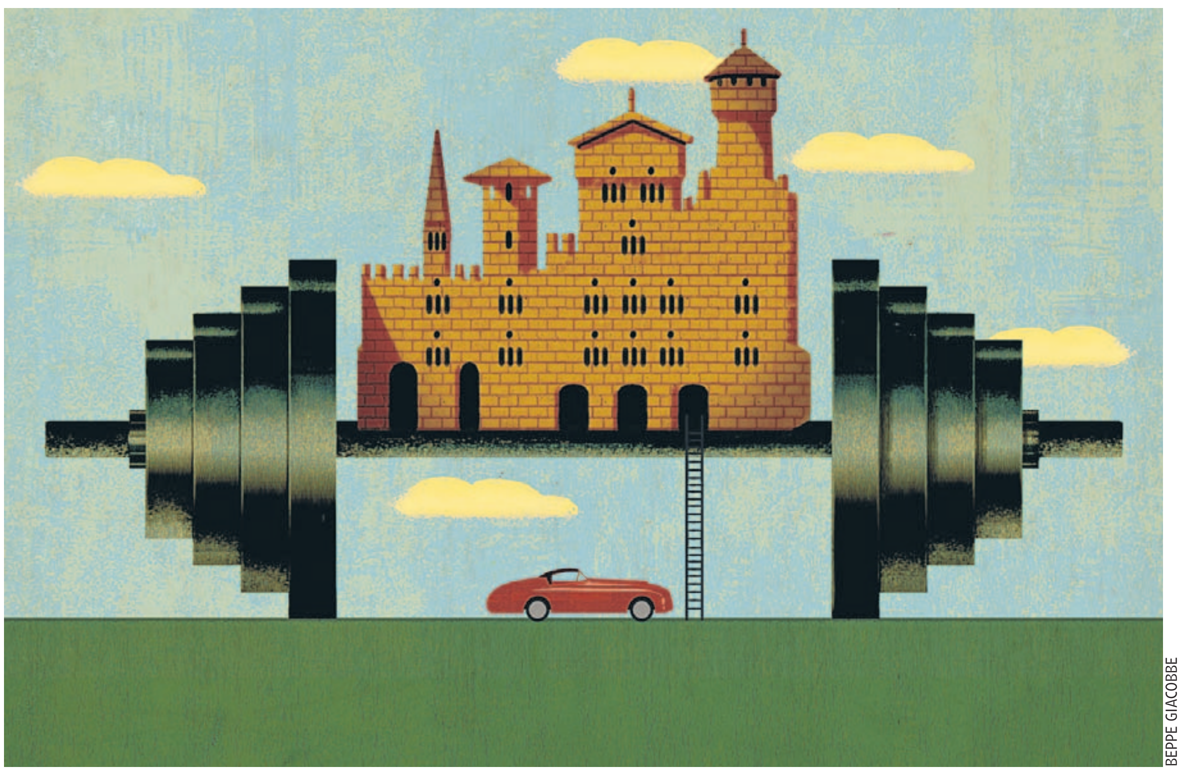
Note: For funds with multiple share classes, only the largest is shown. N.A.: Not applicable; fund is too new or data not available

NEED TO KNOW

The Benefit of Buying Both the Best and Worst

Exchange-traded funds make it easier to follow a 'barbell' strategy

BY SIMON CONSTABLE



BEPPE GIACOBBE

SHOULD YOU INVEST in last year's underperformers or continue with last year's winners? The answer is yes, according to a recent analysis.

Buying both the top three and bottom three market sectors in terms of the prior year's performance is known as a barbell strategy—a strategy that has been made easier to follow thanks to the plethora of exchange-traded funds. An investor who followed a barbell strategy over the past 25 years would have beaten the broader market *and* done better than an investor pursuing either individual strategy alone.

Both individual strategies—buy the worst or stick with the best—have adherents in the investing world. Buying the worst performers involves buying stocks that are beaten down, in the belief they are poised to bounce. Sticking with the winners is a strategy centered on momentum—the idea that rising prices tend to attract buyers until something stops that from happening.

A compromise?

But by combining the two methods, an investor can do even better, a new analysis shows. Such a strategy followed each year from 1991 through 2017 would have returned a compounded 10.7% including dividends, versus 10.3% for the S&P 500. It also would have made money 78% of the time, according to the analysis conducted by Sam Stovall, chief investment strategist at research firm CFRA in New York. The best and worst sectors were allocated 50% each and rebalanced each year. Taxes and transactions costs aren't included.

"It's called winning through compromise," Mr. Stovall says.

He notes that buying the three winning sectors and sticking with them would have beaten the market 63% of the time and yielded compounded returns of 10.3%, in line with the S&P 500. The strategy to buy the three worst sectors would have produced compounded returns of 10.4%, but beaten the market only 44% of the time over the same period.

The combination of the two produces something even better. "When one part zigs the other zags," he says, referring to the idea that the performance of each part of the strategy isn't correlated, smoothing out overall returns.

While the difference in percentage returns (at four-tenths of a percentage point) seems small, the nature of compounding means that it adds up. Investing $10,000 in the barbell approach for 30 years would produce $22,000 more than investing the same amount in the S&P 500. Again, taxes and transactions costs aren't included.

"A barbell approach makes an awful lot of sense," says Chris Bertelsen, chief investment officer of Aviance Capital in Sarasota, Fla. "If you just have a portfolio that is loaded with everybody's favorites, then it is either too late or getting too late" to see a lot of gains, he says.

The risks

Investors should note that a barbell strategy is riskier than investing in a broader basket of stocks.

"Anytime you deviate from a diversified portfolio, or you deviate from holding investments in the 11 economic sectors, then you will have a concentrated portfolio," says Vinny Catalano, global investment strategist at Blue Marble Research. "This is closer to what investors like Warren Buffett do. He doesn't have a diversified portfolio and is making big sector bets."

That said, investors might need a strong stomach to tolerate the volatility of a barbell strategy. Sometimes there will be years when buying into one of the worst or best categories will create immediate losses. For instance, in 2007 the financial-services sector was the worst-performing group, down 18.6%. In 2008 it stayed at the bottom of the pack, losing a further 55.3%, according to total-return data from Novel Investor. Likewise, energy was the best performer of 2016 but the second worst a year later.

"Even if you have something that works, it won't work all the time," says Mr. Catalano. "If it works 70% of the time," he says, "then you are doing great."

This year's approach

For fund investors interested in creating a barbell portfolio, last year's three worst-performing sectors in the S&P 500 were telecom (which includes phone companies), energy (which includes oil drillers) and real estate, according to data from Novel Investor. The best three were technology (which includes **Apple**), materials (such as mining firms) and consumer-discretionary stocks.

The seemingly ever-increasing variety of low-cost specialty ETFs makes it easier for fund investors to follow the strategy analyzed by Mr. Stovall.

For instance, **Energy Select Sector SPDR** (XLE) tracks energy-sector stocks and has annual expenses of 0.14%. There are many other sector ETFs, as well. What's more, some broker web platforms allow commission-free trading of some ETFs, so the transaction costs may not be a problem if you can find the right sector funds.

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INTERNATIONAL INVESTING

Robo Advisers Start To Take Hold in Europe

ALEX KRAUS/BLOOMBERG NEWS

Typical of the new ventures is Commerzbank's service called Cominvest.

BY GERRARD COWAN

THE EUROPEAN robo-adviser market is a long way behind its U.S. counterpart. But it is growing fast.

Robo advisers are algorithm-based digital platforms that offer automated financial advice or investment-management services. They usually use exchange-traded funds in stocks or bonds for portfolio construction, though human advisers often remain involved in the advice or investment process to varying extents.

Estimates differ, but according to TechFluence, a technology research firm with offices in Frankfurt and London, the European market had assets under management of about $3.5 billion at the end of 2017. That compares with an estimated $200 billion to $250 billion in the U.S., according to Burnmark, a fintech research firm. Estimates of the number of services range from 98 to 126 in Europe, compared with about 200 in the U.S.

The European side is growing rapidly, says Michael Mellinghoff, managing director at TechFluence. The number of robo-adviser services is expected to grow to around 500 by 2022, he says.

"It's a bit like a second ETF story," he says. "ETFs went after actively managed funds. Now we have robo advisers that target actively managed funds and wealth managers."

Robo advisers are generally far cheaper than traditional financial advisory services, as everything is done online. This also makes them easy to access. The cost of entry is also much lower: generally €5,000 to €10,000 (about $6,200 to $12,400), versus hundreds of thousands at least for a discretionary service through a bank, says Timo Pfeiffer, head of research and business development at **Solactive** AG, an index provider that has researched the growth of robo advisers in Europe.

Two markets dominate the growth of the trend in Europe: the U.K. and Germany. While the British market is the largest by assets under management, Germany is having the fastest growth, says Mr. Mellinghoff.

The low-interest-rate environment is a driver, he says. This has a particular impact in Germany, traditionally a market of strong savers. As the interest from bank deposits becomes negligible or even negative, demand is growing for investment services, with robo advisers providing an inexpensive and convenient platform.

"If people have to pay interest, which is happening with a number of banks in Germany, then they are likely to accept at least a low level of risk and move toward investing," he says.

Popular with banks

This has led to a number of banking groups preparing robo-adviser offerings, Mr. Mellinghoff says. One example is Comdirect, a subsidiary of **Commerzbank**, which launched a robo-advisory platform in May. This service, called Cominvest, had gained assets of more than €200 million as of end of December and is expected to grow rapidly in the coming years, says Sabine Schoon, head of corporate strategy and consulting at Comdirect.

The European market has also attracted interest from major U.S. providers; **BlackRock** Inc. announced in June 2017 that it was taking a minority stake in **Scalable Capital**, a robo-adviser specialist that operates mainly in the German and British markets.

Scalable Capital was founded in 2014 and has been open to investors since 2016. It now has assets under management of more than €600 million, making it the second-largest robo-adviser service in Europe, behind U.K.-focused Nutmeg. Scalable Capital's products are also available in Austria and Switzerland, and the company has plans to move into other European countries, says U.K. Chief Executive Officer Simon Miller.

Mr. Miller expects the market to expand quickly in the coming years, as large banks and other well-known names ramp up their own offerings.

"It almost feels like the coming of age for robo advice, because all of the incumbent firms have woken up to it," he says.

The differences

There are significant differences between the retail investor markets in Europe and the U.S., says Shaun Port, chief investment officer of Nutmeg. His firm roughly doubled its investor base in 2017, reaching more than 50,000 investors and assets of more than £1.1 billion ($1.55 billion). However, this is "relatively small in the U.S. context," he says, something he attributes to lower demand for self-directed investing in general and for ETFs in particular.

"The concept of using ETFs is still very new here," he says, though he expects their market penetration to greatly expand in the years ahead.

There are numerous other differences between the U.S. and European robo advisers, says Solactive's Mr. Pfeiffer. For a start, the average robo-adviser offering in the U.S. is less expensive than European products, partly because ETFs themselves are less expensive in the U.S.

Additionally, European and U.S. robo advisers behave differently. In a recent report, Solactive published research that showed the average U.S. robo adviser leans more toward stocks than its German equivalent, which has a stronger preference for fixed income. The services also demonstrated a home bias, with investments weighted toward their domestic markets.

This comes down to the way the robo advisers are designed, says Mr. Pfeiffer; for example, a U.S. service is likely to have a higher exposure to the S&P 500. Additionally, the designers might build certain restrictions into the models—in terms of exposure to stocks and fixed income and so on—that reflect a particular investment culture.

Automation is likely to play a growing role in financial advice in the future beyond simply the choice of investment, says Tony Gillett, director, enterprise platform, at financial services firm Morningstar in the U.K. Still, its potential should not be overplayed, he says: While it can help financial advisers, it is unlikely to ever entirely replace them.

"Automation is going to have a big impact on many aspects of our financial lives, but at the same time, it's easy to overhype," he says. "People will still want elements of human contact. Automation will need to complement this rather than replace it."

Mr. Cowan is a writer in Northern Ireland. He can be reached at reports@wsj.com.

Q&A

BAD AT MARKET PREDICTIONS, GOOD AT INVESTING

BY CHUCK JAFFE

A LOT OF investment managers write up their investment philosophy. Chuck Akre wrote his on the crown molding in the board room at **Akre Capital Management**, the investment firm he founded in Middleburg, Va., in 1989.

Painted there are the words, "The Bottom Line of All Investing is Rate of Return."

Staying focused on compounding capital at an above-average rate, while incurring below-average risk, has produced superior returns for the $7.4 billion **Akre Focus Fund** (AKREX). The fund has finished in the top third of its Morningstar peer group for the past seven consecutive calendar years and is up 17.8% annualized over the past five—with minuscule turnover.

Chuck Akre

Here are edited excerpts from a recent interview:

WSJ: *You have said that what the market is doing doesn't really matter to you. Why?*

MR. AKRE: It's not that we don't care what the market is going to do. It's that there is nothing in our record that suggests we have any skill in making those predictions, so we don't bother. We just focus on what it is that we do well. That has been successful for a long period, and we do that because we think it is logical, repeatable, simple and straightforward.

WSJ: *Many say buy-and-hold investing will no longer beat the market the way it did in the past. How challenging is it to stick with the long view—and with your securities—in these times?*

MR. AKRE: Buy and hold is not our philosophy. What we want to do is own businesses that are exceptional until they are no longer exceptional.

This is a dynamic business, and we are slow movers. We're nibblers when we are buying. And we're not afraid to sell, but we want to know that the company really isn't exceptional anymore, because it has often taken me a long time to understand just how good the really good ones are.

If you are selling because of a missed earnings report or the trend of the market or something, you've stopped looking at the rate of return the company can achieve over time.

WSJ: *How do you stay focused?*

MR. AKRE: In the fourth quarter of 2016 and the first quarter of 2017, the mutual fund was behind the market. We were not participating in the so-called Trump rally. It would have been easy to get distracted, to try something else. Yet at the end of a spectacular year for the market, our fund was up 31%, significantly more than the market, and it wasn't because we changed what we do. While we wouldn't have predicted such a big return, we took advantage of what the market was giving us.

One example is **O'Reilly Automotive**; we had owned it for a long time but hadn't put any more money in for years. As 2017 started, we heard arguments about electric cars, about Amazon replacing auto-parts stores and everything else, and the stock plummeted from its high of $290. We started buying on the way down—starting at $240—and bought more as it fell into the $160s. Ultimately, we tripled our position at an average cost in the $190s, and it's now back in the $260s. Everyone else believed the stories and the short-term thinking, and we focused on putting capital to work when the valuation was attractive to us.

WSJ: *Some say your expense ratio is high, especially given how little turnover and activity you have.*

MR. AKRE: I think it's the wrong comparison. You're suggesting that the cost of owning a fund relates to how many times you trade the shares; that is not an idea that makes sense to us.

A person paying an expense ratio which is greater than the average does so with the expectation that they'll get a return that is greater than the average. That has been what actually happened with our fund for years.

Mr. Jaffe is a writer in Boston. He can be reached at reports@wsj.com.

NEWS CHALLENGE: FUNDS AND INVESTING

Test Your Smarts on...the Fiduciary Rule

BY SUZANNE MCGEE

LET'S SAY YOUR financial adviser, who has a clean record, has won your trust with a series of compelling presentations, showing how he generated healthy returns for other clients like you. He has promised to manage your money as carefully as if it belonged to his family, with only appropriate investments. But did he use the magic word "fiduciary"?

If not, there is a chance that, regardless of what professional title he uses, he doesn't hold himself to a fiduciary standard—meaning he isn't obligated to always put your interests ahead of his own.

In some circumstances, some investment advisers are required only to recommend mutual funds and other products that are "roughly suitable" for their clients. By that standard, those funds could be more attractive to the adviser than to you, because of the fees he can earn if you buy them.

New Labor Department rules, which started to come into effect last year, require that in some instances you must be advised by a fiduciary. But Wall Street is pushing back, and the final definition of what makes someone a fiduciary remains contentious.

With all this in flux, what do you know about the fiduciary rule? Let's find out...

ANDREW HARRER/BLOOMBERG NEWS

Labor Secretary Alexander Acosta inherited his role in the 'fiduciary' rule on retirement savings.

1. *Being a fiduciary means that my financial adviser promises:*

A. Never to let me invest in anything very risky so that I won't lose money
B. Not to be a crook
C. To put my interests first and fully disclose any potential conflicts of interest
D. To help ensure I get access to all the best investments, and maximize returns

ANSWER: C. Financial advisers acting as a fiduciary can't work magic. They do promise that your dealings with them will be in your best interests, not necessarily in the interests of the adviser or the firm.

2. *In 2015, the White House Council of Economic Advisers calculated that Americans forfeit about ______ a year, or ____ percentage points in annual returns, as a result of advisers and brokers recommending funds and other products with relatively high costs and low returns, with hidden incentives being offered to those recommending those investments.*

A. $17 billion and 2 percentage points
B. $19 billion and 1 point
C. $23 billion and 1.5 points
D. $17 billion and 1 point

ANSWER: D. It said American investors could be earning $17 billion more a year if all financial advisers were under a fiduciary standard. Wall Street disputed the figure. Earning 1 percentage point less a year could mean $10,000 in savings would grow to only $27,500 instead of $38,000 over 35 years.

3. *The origins of the fiduciary standard primarily lie in:*

A. The Securities Exchange Act of 1934
B. The Investment Advisers Act of 1940
C. The Employee Retirement Income Security Act (Erisa) of 1974

ANSWER: B. An investment adviser operating under the 1940 act represents the buyer and is paid by the latter to represent the buyer's interests.

4. *The new fiduciary rule, which began to come into force in mid-2017:*

A. Requires advisers who make investment recommendations on clients' retirement assets to do so as fiduciaries
B. Requires all stockbrokers and financial planners to register as fiduciaries
C. Means that your investment adviser can't sell you insurance or any products on which he or she earns a commission
D. Prevents your investment adviser from committing fraud or making bad investment choices

ANSWER: A. The rule requires anyone advising you on your retirement assets to offer the best investment options possible and to act as a fiduciary. Your adviser is still free to don a nonfiduciary hat when consulting with you on nonretirement assets.

5. *True or false: When my financial consultant says he is acting in my best interests and is selecting suitable investments, he is acting as a fiduciary.*

ANSWER: False. A fiduciary doesn't select merely suitable investments, but the best available ones, with the lowest costs, and manages (while disclosing to clients) any potential conflicts. What is suitable, on the other hand, is open to interpretation.

6. *Which of these provides you with investment advice under a fiduciary duty to place your interests first?*

A. A registered representative
B. A financial adviser
C. A wealth manager
D. A financial planner
E. All of the above, always
F. All of the above, sometimes
G. Some of the above
H. None of the above

ANSWER: F. While anyone advising you on your retirement accounts is required to act as a fiduciary under the new rules, none of these titles should assure you that the advice you're getting on other accounts adheres to the fiduciary standard. Indeed, these titles are often interchangeable: Over the years, many individuals who used to call themselves brokers and were also known as registered representatives have shifted to calling themselves wealth managers or financial advisers. (Some spell it advisors—there is no legal or regulatory distinction based on the spelling.)

7. *True or false: The designation of Certified Financial Planner, or CFP, is meaningful if looking for advice and/or a financial adviser who is a fiduciary.*

ANSWER: True. The CFP Board has ruled that Certified Financial Planner professionals providing financial-planning services must abide by the fiduciary standard. But to protect yourself in case of a dispute, it's best to get that commitment in writing.

8. *At present, the big push among many lawmakers and others with objections to the new rule concerning the fiduciary standard is:*

A. To repeal any and all rules requiring anyone to act as a fiduciary
B. To harmonize the proposals and produce a single new definition and set of requirements
C. To toughen up the fiduciary standard and provide greater protection to investors
D. To get more input from the industry and study the matter for more years

ANSWER: B. Given that the Trump administration in its first weeks ordered the Labor Department to reconsider the rule, the SEC is pushing for a compromise. That has triggered fears among those who have argued the need for the new fiduciary rule that "harmonization" will lead to a watered-down compromise.

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