Bloomberg Businessweek
July 16, 2018

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◀ Tesla's Model 3 factory in Fremont, Calif.

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How to Contact *Bloomberg Businessweek*

Editorial
212 617-8120
Ad Sales
212 617-2900
731 Lexington Ave., New York, NY 10022
Email
bwreader@bloomberg.net
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212 617-9065
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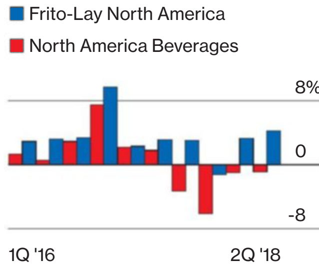
By Kyle Stock

● President Recep Tayyip

Erdogan of Turkey named his son-in-law finance minister and claimed exclusive power to pick rate setters at the central bank.

● Rising snack sales helped PepsiCo beat earnings expectations in the second quarter, even as soda sales continued to slump.

Pepsi revenue, year-over-year change



● Supreme Court nominee Brett Kavanaugh made the rounds in the Senate, visiting John Cornyn of Texas. Democrats have called for a hold on his confirmation hearings until special counsel Robert Mueller completes his Russia investigation.

● The U.K. Information Commissioner's Office fined Facebook

£500k

($660,250) for its role in the Cambridge Analytica data breach. A trivial sum for a company with $40 billion in annual sales, the penalty is the maximum allowed under U.K. law. Facebook said it will respond to the judgment "soon."

● India's top court took up a case that may overturn a 158-year-old ban on gay sex.

The law in question mandates a 10-year prison term but arguably violates the country's constitution, which guarantees nondiscrimination.

● Comcast and 21st Century Fox submitted dueling offers for the U.K.'s Sky. The two companies were previously involved in a bidding war when Comcast went toe-to-toe with Disney over Fox assets.

● Ethiopia and Eritrea formally declared an end to their 20-year border war.

Flights between the two countries resume on July 17, and Ethiopia has requested that the United Nations lift sanctions against Eritrea imposed in 2009.

● "Dear America, appreciate your allies. After all, you don't have that many."

European Council President Donald Tusk sent Donald Trump a message a day before the NATO summit, after the U.S. president posted a series of tweets scolding European nations for negligent defense spending.

● Tim Hortons said it would open 1,500 coffee-and-doughnut shops in China over the next decade under a franchise agreement with Cartesian Capital, a private equity group.

● Israel Prime Minister Benjamin Netanyahu flew to Moscow on July 11 to discuss the Syria conflict with Vladimir Putin, a major backer of Syrian President Bashar al-Assad. The fighting has encroached on Israel's border in the Golan Heights in recent months, heightening tensions between the two Middle Eastern powers.

● Twelve youth soccer players and their coach were rescued after more than two weeks trapped in a cave in Thailand.

● Trump's personal driver of 25 years sued the Trump Organization for 3,300 hours of unpaid overtime.

● Electric scooter rental company Lime raised $335 million from the likes of Uber and Alphabet, valuing it at $1.1 billion.

● Warner Bros. said it would build a $100 million, mile-long tram from its studio lot to the Hollywood sign.

ERDOGAN: DURSUN AYDEMIR/ANADOLU AGENCY/GETTY IMAGES; KAVANAUGH: CHIP SOMODEVILLA/GETTY IMAGES; COFFEE: COURTESY TIM HORTONS

▶ A New Face at the People's Podium

Spain's People's Party gathers on July 20 and 21 to choose a replacement for Mariano Rajoy, who resigned as prime minister after a June 1 no-confidence vote. Socialist party leader Pedro Sánchez will continue as prime minister until national elections are called, no later than 2020.

▶ The U.S. Department of Commerce holds hearings to decide whether auto imports are a national security threat and therefore subject to tariffs.

▶ The European Commission is poised to impose new antitrust fines on Google over its dominant Android mobile operating system.

▶ Group of 20 finance ministers meet in Buenos Aires on July 21 and 22 and are expected to issue recommendations on cryptocurrency regulation.

▶ Leaders at the China-EU summit in Beijing will attempt to preserve trade relationships amid disruptions brought on by the U.S.

▶ Nigeria plans to launch a national airline by the end of the year and will disclose the name at the Farnborough air show in London on July 18.

▶ Some Whole Foods items will be discounted for Amazon Prime Day, on July 16, for the first time since the online retailer acquired the grocer last August.

■ THE BLOOMBERG VIEW

Give May a Chance

● Europe shouldn't dismiss the U.K. prime minister's Brexit plan. Damage control is in the interest of all sides

Britain's endless self-inflicted turmoil over Brexit has taken a fresh turn with Prime Minister Theresa May's new plan for a post-Brexit trade agreement and the resignations of key ministers from her government. She's accused of betraying those who voted for the U.K. withdrawing from the European Union, and her leadership might soon be challenged (page 35). The prospect of a maximally disruptive "hard Brexit" draws closer.

Yet May's plan, despite the ructions in Westminster, might be the best hope for avoiding the chaos of such an exit.

After months of dithering, she's finally thrown her support behind a "soft Brexit"—one that leaves much of the U.K.'s economic relationship with the EU intact. She wants a free-trade area based on the union's rulebook for goods. Together with a customs partnership (which would require the U.K. to collect tariffs on the EU's behalf), this could remove the need for a physical border between Ireland and Northern Ireland—avoiding one of the greatest dangers unleashed by this ill-conceived project—and allow close-to-frictionless trade of goods between Britain and Europe.

Services wouldn't be covered—an enormous drawback for an economy like Britain's, which depends on that sector. And the movement of people between the U.K. and Europe would remain contentious. For both reasons, May's plan is plainly inferior to simply reversing the Brexit vote and remaining in the EU. Unfortunately, with time running out before the exit next March, there's little public support for a second referendum and no plausible path to that result. For now, a close economic partnership such as the one May is proposing might be the best that can be done.

Assuming May can survive the attempts of Brexit zealots to force her from office, her future and that of the country will depend on the response of Europe's leaders. Her plan splits the difference between a stripped-down free-trade deal and the so-called Norway option of full single-market membership. That isn't to the liking of Europe's leaders. They've said it must be one or the other and that a deep and frictionless free-trade arrangement must be bundled with the single market's free movement of people. They also argue that the customs scheme to resolve the Irish border while letting Britain strike trade deals with other countries just isn't practicable.

They might be right, but Europe's leaders should be flexible. As the resignations attest, May has given ground—as much as the politics allow, for the moment. If talks move forward in a constructive spirit, there will be scope for additional U.K. concessions on the movement of people, customs arrangements, and other matters.

Abruptly dismissing May's plan could spell the end of her government and make a no-deal Brexit more likely. That would hurt Europe as well as Britain and could poison relations for years. Europe should be willing to talk. Ⓑ

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ILLUSTRATION BY CHARLOTTE POLLET

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Brother From Another Motherland

● The EU and NATO beware! Years before Trump became president, he and Putin were already simpatico

● By Marc Champion

Forget for just a moment the allegations of Russian meddling in U.S. elections or of collusion by President Trump. His summit with Vladimir Putin has American allies in a state of high anxiety, because the two men have emerged as natural partners in the culture wars sweeping the globe.

There can be few more contrasting personalities than Putin, the disciplined ex-KGB agent, and Trump, the flamboyant former reality TV star. And the two men are unlikely to strike any grand bargain when they meet in Helsinki on July 16, if only because the rest of Washington would block it. Even so, Europe is counting the things that can go wrong.

Trump's fascination with Russia's strongman is longstanding. Putin, for his part, has never disguised his interest in this new kind of American leader, one who appears hostile to decades of foreign policymaking based on the promotion of U.S. leadership and shared democratic values. And when it comes to protecting the international rules and institutions that underpinned the American century, liberal supporters of the status quo fear the current White House occupant is more likely to take sides with the illiberal in the Kremlin than with them. Putin and Trump "would agree that the most detested four words in the world right now are 'international rules-based order,'" says Alexander Vershbow, a former deputy secretary general of NATO, now with the Atlantic Council, a Washington think tank. "In terms of values, Trump is much more attracted to what Putin describes as Russian values."

At this month's duo of summits—first at North Atlantic Treaty Organization headquarters in Brussels, and then with Putin in Helsinki—a few misplaced words from Trump could prove deeply destabilizing for U.S. allies. He could rattle faith in NATO's collective defense commitment, damage already politically fragile U.S. allies in Europe, or trigger the collapse of sanctions against Russia that have been in place since its 2014 annexation of Crimea.

Any or all of that would suit Putin. Like other Kremlin leaders before him, he would like to see NATO dissolved and the U.S. military presence withdrawn from Europe. When Trump called the alliance "obsolete" in January 2017, Putin's spokesman, to nobody's surprise, said Russia agreed. Trump has at times also expressed his commitment to NATO, but no modern U.S. leader has been as equivocal. "There is widespread nervousness in Europe right now regarding the trans-Atlantic relationship in general," says Thomas Gomart, director of the French Institute for International Relations, or IFRI, in Paris.

Those concerns are most acute in Poland and the Baltic states because of their exposure to potential Russian aggression, he says. Germany—suddenly aware it can no longer rely on the U.S. for its security—is close behind. Indeed, whether Trump actively shares Moscow's goals of dividing the European Union and seeing Germany's long-serving Chancellor Angela Merkel removed from power "is a relevant question," Gomart says. "If Donald Trump wants to divide Europe, it would be very easy to do so in his discussions with Putin."

Merkel has kept the EU united behind the Russia sanctions, which were renewed again on July 5. But with a new Italian populist government joining Austria, Hungary, and Slovakia in support of ending them, Trump has an opportunity to swing the debate just by providing rhetorical cover. It would take only one of the EU's 28 members to prevent the next renewal in January. "There is an unsettling commonality of certain views" between the two leaders, says Dan Fried, a former U.S. ambassador to Poland and assistant secretary of state for European and Eurasian affairs under George W. Bush. He also served under Barack Obama. "It is a profound problem that the president of the United States and the leader of Russia share a kind of principled contempt for the free world."

That kinship was clear already in speeches the two men made back in 2013. In a landmark address, Putin effectively changed Russia's strategic goal from creating a common European space with the likes of Germany and France to carving out a new Eurasian civilization that would be centered on Russia and defined against a declining and decadent, though still hegemonically inclined, West. The vocabulary Putin used goes a long way toward explaining his popularity with conservative and nativist movements that have rallied to Trump in the U.S. and to populist parties in Europe. "We can see how many of the Euro-Atlantic countries are actually rejecting their roots, including the Christian values that constitute the basis of Western civilization," Putin said in the speech. "They are denying moral principles and all traditional identities: national, cultural, religious, and even sexual."

Earlier the same year, Trump had criticized the U.S. for excessive international meddling and expansionism. It costs $5 million just to turn on the engine of an aircraft carrier sent to protect U.S. ally South Korea from North Korea's periodic saber rattling, he complained. "What do we get out of it? We get nothing," Trump said in his trademark scattergun style. "What are we doing? What are we thinking? And this is ▶

◀ whether it's Obama or Bush or whoever. What the hell are we thinking?"

As president, Trump has also echoed Putin's culturally conservative language, calling for the U.S. to be run again on allegedly lost "Judeo-Christian values." He's been more vocal than the Kremlin in targeting Muslim immigrants for exclusion; Russia has large and potentially restive Muslim minorities.

None of this means the two men share a strategic vision, according to Nikolai Sokov, a former Russian nuclear negotiator and senior fellow at the James Martin Center for Nonproliferation Studies in Monterey, Calif. From a Russian perspective, the whole U.S. claim to be the protector of the rules-based international order is false, he says. For Putin, that order took shape during the global rivalry between the U.S. and the USSR, which divided the world into spheres of superpower influence. Putin sees himself as a guardian of institutions such as the United Nations Security Council and the World Trade Organization, which set common rules but allow Russia to stand on the crucial principle of sovereignty—which, in Moscow's eyes, has been under attack by the U.S. and its allies since the collapse of the Soviet bloc.

For most U.S. policymakers, by contrast, the rules-based order is the one that emerged since the Cold War ended, leaving the U.S. as the sole superpower. That order places some fundamentally liberal values above sovereignty. Until 2005, for example, there was no international "right to protect" victims of genocide from their own governments. Similarly, NATO's claim to international legitimacy for its 1999 intervention in Kosovo, without UN Security Council backing, would have been hard to imagine during the Cold War.

Trump appears to despise the UN and the WTO, but what makes the American president interesting to Putin is that he's a throwback to a realist, if not isolationist, approach to U.S. foreign policy: He has no desire to spread liberal or democratic values around the globe. That, Sokov says, makes him a man Russia can at least do business with.

If a different president were in the White House, U.S. allies probably would have relished both summits. Even the sequence would be right: First consult with allies, then talk to Putin, says Fried, the former U.S. diplomat. As NATO Secretary General Jens Stoltenberg said recently, the trans-Atlantic alliance has a good story to tell. Defense spending has reversed post-Cold War declines, with the European NATO members, plus Canada, collectively adding $87 billion to their military budgets since 2014. The alliance has deployed a deterrent force to Poland and the Baltic states in response to Russia's continued military intervention in eastern Ukraine. NATO is due to announce the start of accession talks with another prospective member, the former Yugoslav Republic of Macedonia, potentially lifting the alliance roster to 30 nations.

The U.S. under Trump, contrary to what his tweets imply, has boosted spending on defense deployments in Europe by an impressive 40 percent. U.S. Secretary of Defense James Mattis is offering up plans to thicken the new tripwire presence along NATO's eastern frontiers, so it can be reinforced more quickly in the event of attack.

Europeans also have good reason to want U.S. and Russian leaders to meet. They're concerned by the erosion of arms-control agreements and breakdown in communications between the two dominant military powers, which between them control more than 90 percent of nuclear weapons on the planet. Merkel and French President Emmanuel Macron routinely meet and speak with Putin, so why not Trump? "The point is that this is the world we have," says Des Browne, a former U.K. defense minister. Together with Igor Ivanov, a former Russian foreign minister, former German Ambassador to the U.S. Wolfgang Ischinger, and former Chairman of the Senate Armed Services Committee Sam Nunn, Browne co-authored an open letter to Trump and Putin ahead of their first encounter, on the sidelines of the Group of 20 summit in Hamburg last year. The short text proposed the first steps the two leaders should take to reduce the risk of nuclear catastrophe.

Those proposals are unchanged now that the two men are about to meet again. "Nothing will happen unless the dialogue between these two leaders happens," Browne says. On July 5, U.S. Ambassador to Russia Jon Huntsman Jr. told reporters that nuclear arms control would be high on the agenda in Helsinki.

The U.S. president could, of course, decide to embrace NATO allies in Brussels and hold Putin's feet to the fire over Russia's military presence in Ukraine or tactics in Syria. But in recent weeks he seemed to be gearing up for the opposite.

During off-camera discussions at the diplomatic car crash of a G-7 meeting in Toronto last month, Trump called NATO "as bad as Nafta," saying the alliance's July 11-12 meeting in Brussels would be "an interesting summit," according to the Axios news service. Since then he has fired off blunt letters to NATO members including Germany, which he attacked for not boosting defense spending fast enough (it rose 6.6 percent last year) and for free riding on the tax dollars of U.S. citizens and the lives of its soldiers. "Sometimes our worst enemies are our so-called friends and allies," Trump told supporters at a rally in North Dakota on June 28. His signals to Putin have been friendlier. At the G-7 he said Russia, which was expelled for annexing Crimea, should be invited back into the club, while on Fox News he recently repeated his belief that people in Crimea are happier being governed by Moscow than Ukraine.

As Trump proved at his summit with North Korea's dictator, Kim Jong Un, anything is possible. In Singapore, Trump went off-script to describe U.S. military exercises with South Korea as provocative "war games" that should stop. A verbal attack like that on NATO exercises or the economic sanctions against Russia could prove profoundly destabilizing to the U.S. alliances Mattis once described as "the greatest gift of the greatest generation." Like Putin, Trump appears to see that gift as more of a curse. Ⓑ

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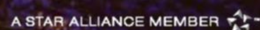


A STAR ALLIANCE MEMBER

A Trade War's Collateral Damage for China

● Beijing's actions against American brands could hurt their mainland partners, too

In a fight with China, ending up on the wrong side of the country's consumers or bureaucrats can be very costly. Consider the case of Lotte Group, the South Korean retail-and-food conglomerate that was a target last year in China's fierce campaign against a Korea-based missile defense system. Inspired by harsh coverage in the state-controlled media, Chinese consumers boycotted Lotte and other Korean brands. Some Chinese stores emptied their shelves of Lotte products. Regulators cited alleged safety violations to shut most of Lotte's 99 Chinese hypermarkets as well as a joint venture with Hershey Co. Revenue at Lotte Shopping Co. plunged 25 percent in 2017, and the company logged its first loss in its 16 years as a public company. Lotte this spring agreed to sell its money-losing superstores in northern and eastern China.

China's patriotic consumers and obedient bureaucrats could again prove valuable weapons in the trade war with the U.S. that erupted on July 6. But deploying the strategy used against South Korea and other countries risks collateral damage at home: The China operations of all-American brands including Coca-Cola Co. and Walt Disney Co. are co-owned by state-backed Chinese companies.

One of Coke's two Chinese bottlers is

Edited by James E. Ellis

ILLUSTRATION BY CÉSAR PELIZER; DATA: BLOOMBERG INTELLIGENCE ESTIMATES

government-backed Cofco Corp. Shanghai Disneyland is majority-owned by a local consortium. McDonald's Corp.'s China franchise is controlled by state-backed conglomerate Citic Ltd. and private equity firm Citic Capital Holdings. And the China operations of General Motors, Ford Motor, and Fiat Chrysler Automobiles are all joint ventures with state-owned mainland companies.

"The perfect Stars and Stripes corporate victim doesn't exist," says Tom Orlik, chief economist in Beijing with Bloomberg Economics. "The number of clean wins in terms of striking against the other guy—without accidentally punching your own guy in the face—is extremely small."

Even when Chinese companies don't have direct ownership links with U.S. brands, Orlik says, boycotts or other nontariff retaliation would hit local partners or suppliers of those American companies, and that could lead to losses and layoffs on the mainland. In the northeastern city of Qingdao, seafood importer Chang International Inc. employs 350 workers and gets about half its supply from the U.S. Those imports will now be 25 percent pricier. "We've spent so many years promoting American seafood, and just when consumers start to appreciate it, this happens," says Ye Hong, the chief executive officer. "I don't want to think about it."

The U.S. started the trade war by imposing tariffs on $34 billion of Chinese exports. Beijing retaliated with levies on an equal value of American goods. On July 10 the U.S. threatened duties on an additional $200 billion in imports from China. In early July the U.S. had moved to block China Mobile Ltd. from entering its telecommunications market. Around the same time, some U.S. businesses trying to import goods into China were already complaining privately of increased border checks, customs delays, and audits, says Jon Cowley, Hong Kong-based trade partner at law firm Baker McKenzie. "One of the most effective ways to put pressure on companies during a trade war is more selective enforcement of existing laws and regulations," he says.

Before fully deploying his legions of consumers and bureaucrats against American brands, Chinese President Xi Jinping seems willing to wait and see if Trump will follow through on threats to escalate the fight by imposing tariffs on all Chinese exports to the U.S. Instead of explicitly calling for boycotts of U.S. goods, the government-controlled media has presented China as a bulwark of the global trade system and an object of American bullying. "The Trump administration is behaving like a gang of hoodlums," the official *China Daily* said on July 5. "China, which is in the crosshairs of the Trump administration's racketeering gun sights, has no choice but to fight back."

Unlike overt actions such as tariffs, boycotts by Chinese consumers usually appear suddenly following angry rhetoric by government-controlled publications and social media. "Chinese consumers should become the main force in teaching Seoul a lesson," the state-controlled *Global Times* thundered in 2017 during the conflict with South Korea. In that dispute, many Chinese stopped buying Korean cars. That caused the combined sales of Hyundai Motor Co. and its affiliate Kia Motors Corp. to suffer 14 months of year-over-year declines in China. Chinese travel agents stopped booking trips to South Korea, contributing to a 60 percent decline in tourist arrivals from the mainland in eight months. And Seoul-based cosmetics maker Amorepacific Corp., a favorite among Chinese consumers, suffered a 9 percent drop in revenue and a 37 percent decline in earnings in 2017.

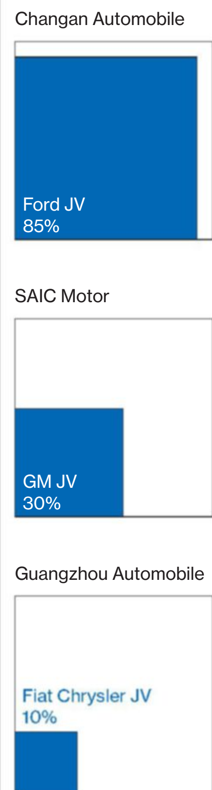
South Korea hasn't been the only recipient of mainland consumer ire. When relations with Taiwan soured in 2016, Chinese tourists stayed away, leading to a 16 percent decline in visitors from the mainland. And following the escalation of a territorial dispute with Japan in 2012, total vehicle sales in China by Toyota, Nissan, and Honda declined for four consecutive quarters.

At first glance, the big imbalance of trade between the U.S. and China—imports of Chinese goods into the U.S. totaled $505 billion in 2017, while China imported only $130 billion in goods from the U.S.—would seem to limit Xi's ability to respond with tit-for-tat penalties. However, American companies sold $280 billion of goods and services in China last year through their local subsidiaries, according to Deutsche Bank AG. "No U.S. product sold in China, or U.S. company invested in China, can be considered safe from its retaliation," says Yanmei Xie, a policy analyst for Gavekal Dragonomics in Beijing.

Prominent brands such as McDonald's and KFC, with thousands of restaurants across the country, have in the past been easy targets. But since 2016, when anti-U.S. protesters, angered by an international arbitration body's ruling against China's claims to islands in the South China Sea, called for boycotts of both chains, the fast-food giants have sold their controlling interests in their Chinese operations. Now, McDonald's owns only 20 percent of its Chinese namesake, having sold the rest last July to Citic and other investors. And Yum! Brands Inc. no longer owns the KFC and Pizza Hut businesses in China, having spun off Yum China Holdings Inc. in 2016. Meanwhile, in April 2017, Coca-Cola sold ▶

"No U.S. product sold in China, or U.S. company invested in China, can be considered safe from its retaliation"

● Share of Chinese automakers' total profits from joint ventures with American companies



◀ its China bottling assets to Cofco and Hong Kong-based Swire Pacific Ltd. Local consumers trying to punish Trump by staying away from Disney's $5.5 billion theme park in Shanghai would end up hurting state-run consortium Shanghai Shendi Group, which owns 57 percent of the resort.

And state-owned SAIC Motor Corp. stands to lose big from any consumer backlash against GM. A GM venture with SAIC operates eight vehicle factories and four powertrain plants. GM, which also works with two other mainland partners, sold about 4 million vehicles in China last year, double the amount it sold there in 2009. Some car buyers in China may already be starting to shun U.S.-branded vehicles. Retail sales of U.S. marques were down 13 percent in the first five months of 2018, compared with a 7.5 percent increase for total passenger vehicle sales in China. The steepest drop occurred in May, about when trade tensions heated up.

Starbucks Corp. and Apple Inc. own their Chinese stores, while the $2 billion in revenue Tesla Inc. recorded in China last year came from vehicles it imported from the U.S. So Beijing could decide to single out some U.S. companies without suffering much domestic damage. But if relations deteriorate sharply, many Chinese looking to do their part probably won't be too concerned about who owns what, according to Bruno Lannes, a Shanghai-based partner with consultancy Bain & Co. "If they're told this is a U.S. company or a U.S. product," he says, "then they would accept that even if the majority share is owned by a Chinese company." *—Bruce Einhorn, with Enda Curran and Rachel Chang*

THE BOTTOM LINE Chinese shoppers often boycott goods from countries involved in disputes with Beijing. That may backfire in a trade war with America, since many U.S. brands have local partners.

The Arnaults Try to Refashion LVMH for Millennials

● The luxury brand powerhouse is trying to court younger buyers

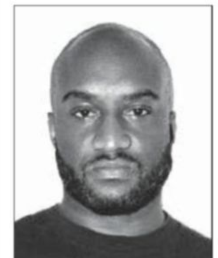
At the Louis Vuitton menswear show in Paris last month, designer Virgil Abloh sent hoodie-clad models down the runway toting duffel bags made from gleaming high-tech plastic, all to the latest Kanye West album. West, who embraced the tearful Abloh as he took his bows, was joined by his wife, Kim Kardashian. Seated steps away: Bernard Arnault, head of parent LVMH Moët Hennessy Louis Vuitton SE, and four of his adult children.

The duffels were a far cry from the classic monogrammed brown bags that the senior Arnault long relied on to help LVMH define and dominate the global luxury industry. But the updated totes are one of the ways the next generation of Arnaults—four of Bernard's five children hold senior positions at LVMH—are helping remake their father's company to adapt to a changing luxury environment.

Arnault's long-time strategy of acquiring iconic European brands and enhancing their exclusivity has been wildly successful. The portfolio of 70 brands he's amassed, including Vuitton, Christian Dior, Moët & Chandon Champagne, and Tag Heuer watches, brought LVMH about $48 billion in sales in 2017. Lately the company has been expanding its playbook. With the encouragement of the younger Arnaults, LVMH in the past year has shaken up its managers and designers, rolled out e-commerce platforms, and started a makeup line with the singer Rihanna. It's also generated buzz far from the runway by becoming a patron of French technology, subsidizing a startup incubator, and handing out awards to young entrepreneurs.

"Luxury companies are required to engage the consumer in ways they never did before," says Mario Ortelli, who runs a London-based luxury strategy firm. "It's become more of a collaboration" because response on social media can either boost or sink collections. The younger Arnaults, Ortelli says, "can look at this market with the eyes of someone who is closer to it" than their 69-year-old father.

Abloh's hiring as men's artistic director at Vuitton in March illustrates the transformation. A Ghanaian American streetwear designer with 2.6 million Instagram followers, he was a creative consultant to West when he was spotted by Delphine Arnault, 43, Vuitton's executive vice president, and Alexandre Arnault, 26, head of German luggage unit Rimowa. "What's exciting about him is his approach and the fact that he's so open to the world," Alexandre said, standing on the rainbow-painted runway at Abloh's show. "It's about redefining the codes of luxury, making it more accessible for young people."



● Abloh

ABLOH: CLAIRE GUILLON/REDUX; VUITTON: GETTY IMAGES; DATA: BAIN LUXURY GOODS WORLDWIDE MARKET STUDY

Arnault doesn't plan to retire for at least a decade, and there's no clear front-runner to replace him at LVMH, which is 47 percent owned by the family. But as his children expand their influence—and as the serial dealmaker runs out of companies to buy—the luxury group is reshaping brands it already owns.

The luxury business "is not about 'it' bags anymore," says Federica Levato, a partner at Bain & Co. in Milan. "Streetwear, T-shirts, puffy jackets are becoming an important part of the core collection." Marketing such items to customers, luxury houses have to focus on "communication, visuals, social media—all the touch points."

LVMH can afford to move cautiously. Its sales are almost three times those of its nearest rival, Kering SA. And Arnault, the world's sixth-richest person with a $75 billion fortune, "has a sixth sense about what's next" in luxury trends, says Ron Frasch, a former president of Saks Fifth Avenue who works in private equity at Castanea Partners in New York.

Yet there are worrisome signs. Gucci, owned by Kering, is outpacing LVMH in the race for younger customers—an urgent concern, as 85 percent of growth in the sector comes from shoppers under age 38, according to Bain. Designer Alessandro Michele has rebooted Gucci with collections that pile on crystals, embroidered flowers, dragons, and cartoon cats. And Gucci, which says 55 percent of its sales are to millennial shoppers, reported revenue up 49 percent in the first quarter of 2018, to €1.87 billion ($2.2 billion). Revenue for LVMH's fashion and leather goods division, dominated by Vuitton, increased by 16 percent for the same period.

Starting in the 1980s, Arnault snapped up dozens of mostly family-owned companies, scaling them up and finding markets in the developing world, especially China. But now there are few opportunities for game-changing deals. In 2010 family shareholders of luxe handbag maker Hermès International SA, for example, rebuffed Arnault's advances.

To spur organic growth, LVMH has been recruiting talent. It recently replaced the longtime head of Christian Dior with Pietro Beccari, former head of the Fendi fur and handbags unit. Beccari won acclaim there for his e-commerce savvy and for whimsical shows, including one where model and reality-TV star Kendall Jenner appeared to walk on water as she traversed a transparent runway over Rome's Trevi Fountain. The Arnaults have hired designer Hedi Slimane, a menswear trendsetter known for bringing back skinny jeans and suits at Dior Homme in the early 2000s. He's set to show his first collection at Céline in September. Designer Kim Jones, who first brought streetwear to Vuitton last year, is now introducing it to Dior Homme.

▲ Abloh's take on a Louis Vuitton men's duffel was shown during Paris Fashion Week in June

The Arnault children increasingly are leaving their mark on the company. Abloh caught Delphine's attention in 2015 when she picked him as a finalist in an annual competition she runs to spot promising young designers. Antoine, 41, was named LVMH's communications director in June. Alexandre helped persuade his father to bring aboard Ian Rogers, a former Apple Inc. executive, as the company's chief digital officer in 2015. Alexandre also helped seal the acquisition of Rimowa in 2016. Frédéric, 23, became head of "connected technologies" at Tag Heuer last year.

Still, LVMH's track record in e-commerce, a retailing format key to serving younger consumers, is mixed. While Vuitton and Sephora have successful online boutiques, a designer site called Eluxury was shut down in 2009 after failing to gain traction. Last year, LVMH started an online boutique and mobile app called 24 Sèvres, but it's struggled to catch up with leaders such as Net-a-Porter and Matchesfashion.com. LVMH's leaders "have been slow over the years to grasp the importance of the digital channel," Castanea's Frasch says. "But they're going full steam now." —*Carol Matlack and Robert Williams, with Hayley Warren*

THE BOTTOM LINE About 85 percent of growth in luxury spending comes from shoppers under age 38, according to Bain. So LVMH, the No.1 luxe company, is trying to get hip.

● Share of consumers in the global personal luxury-goods market born in 1980 or later

30%
2017 estimate

45%
2025 forecast

Where the Web Really Rules Retail

British shoppers make 18 percent of their purchases online, almost double the U.S. level

▶ Burslem's Queen Street, where a third of the shops are boarded up

The streets of Burslem, a once-prosperous market town in the rolling hills of the English Midlands, are lined with grand Victorian-era edifices built to house tailors, tea shops, butchers, and greengrocers. But about a third of the storefronts are boarded up. Inside a deserted travel agency, a heap of unopened letters clutters the floor. A shuttered video game store showcases titles for the PlayStation 2, a console Sony Corp. stopped making a half-dozen years ago.

The town center has suffered as shoppers have defected to places like the Wolstanton Retail Park 2 miles to the south, where big-box stores such as Walmart Inc.'s Asda sprout from a sea of parking lots. Lately those problems have been compounded by another newcomer, 25 miles farther on: an Amazon.com Inc. distribution center the size of 10 football fields, one of 16 the company has in the U.K. E-commerce accounts for 18 percent of retail sales in the country—almost double the U.S. level and higher than anywhere else in the western world. "Why would you bother going to a shop when you can get it cheaper online?" Paul Dykes, a 65-year-old roofer, says as he sips a pint of Guinness in the Bulls Head pub in Burslem. "You'll save on bus fare, too."

Britain's quality road network, high-speed internet connections—93 percent of households have them, vs. about two-thirds in the U.S.—and tens of millions of consumers packed into an area half the size of California have helped e-tailers thrive. Amazon's U.K. revenue grew 19 percent last year, to $11.4 billion. Online sales at web grocer Ocado Group Plc jumped 12 percent, to £1.3 billion ($1.7 billion). U.K. revenue at internet fashion retailer Asos Plc rose 16 percent, to £698 million, and the company's stock market value is higher than that of department-store chain Marks & Spencer Group ▶

Edited by David Rocks, Bret Begun, and Dimitra Kessenides

PHOTOGRAPHS BY LOLA PAPROCKA AND PANI PAUL

◀ Plc, even though Asos's clothing sales are half as large. "The U.K. is miles ahead in terms of consumer choice online," says Richard Hyman, managing director of retail consultancy RAH Advisory. "It's the shape of things to come elsewhere."

Tesco Plc, the U.K.'s biggest retailer, has been a leader in the shift, launching its first e-commerce effort in 1995. Company executives, enthused by an exhibit on the "future of retail," figured Tesco's nationwide network of stores could serve as warehouses. Tesco mailed out floppy disks loaded with its catalog to households in west London and began taking dial-up-modem orders. It shifted to the internet around the turn of the century, offering deliveries to more than 90 percent of U.K. homes. Although the operation is barely profitable, Tesco has become the world's largest online grocer, with web sales last year topping £3 billion. "Grocers were quite dismissive about online, but Tesco was so far ahead of the curve," says Bryan Roberts, an analyst at researcher TCC Global NV. "They were happy to take a chance."

Online retailers typically benefit from lower overhead than their store-based counterparts, but in the U.K. that advantage is bigger than just about anywhere. The country has the developed world's highest commercial property taxes, and in many areas those levies have jumped even as store sales decline, because land values have risen since the financial crisis. Last year, Tesco paid £700 million in property taxes, and J Sainsbury Plc, the No. 2 chain, paid £550 million. Amazon's bill: £14 million. "We start the year £500 or £600 million behind Amazon before we've even opened our doors," says Kevin O'Byrne, Sainsbury's chief financial officer. "We're fighting them with one hand tied behind our back."

The shift to e-commerce has devastated Britain's high streets, or central shopping districts. Until a few years ago, opening an outlet in a desirable area meant a 25-year lease with rent that could only be revised upward. Today it's hard for many landlords to get commitments for more than three years as chains such as Toys "R" Us, department store BHS, and electronics retailer Maplin shut down and dozens of other retailers close locations across the country. Jeremy Corbyn, leader of the opposition Labour Party, in March accused the government of "tearing the heart out of the country's high streets." Chancellor of the Exchequer Philip Hammond on July 5 said Britain "needs to find a better way of taxing the digital economy" to help level the playing field with traditional retailers. "Retailing is going through a generational change," says Charlie Mayfield, chairman of the John Lewis Partnership, which owns department stores and supermarkets. "The pace and the impacts it's having are greater than ever." —*Sam Chambers*

● Amazon's U.K. revenue in 2017

$11.4b

THE BOTTOM LINE The growing strength of online stores has devastated shopping districts across Britain and contributed to the woes of traditional retailers.

Click Here for Hip Surgery And a Holiday

● Medical tourism sites are working with Uber and Airbnb to help patients recuperate

About 14 million people spent $68 billion on medical tourism in 2016, according to consulting firm PwC. A growing number are Westerners headed to developing countries for cosmetic surgery or dental work, procedures that are less expensive and invasive than major operations and often aren't covered by insurance. PwC predicts that by 2021 the medical tourism market will reach $125 billion. The growth will be built not on nose jobs and dental implants but on costlier and riskier procedures with longer recovery times, such as knee replacements and heart surgeries.

Startups from Berlin to Bangkok are trying to do for medical tourists what Airbnb or Hotels.com does for the general public. Instead of searching for a place to stay, users type in a medical procedure and get a list of clinics or doctors in nations that offer the surgery–scroll and click on a link to make an appointment. The companies charge providers a commission for bookings or a flat subscription fee to be on the platform. And they're working on additional revenue streams, such as planning beach vacations for recuperating patients and their families, most likely by integrating their platforms with popular travel sites.

One of the ripest markets is the U.S., where the average household spent more than $10,000 on health care in 2017, the first time that number hit ▶

For more on the future of health care, go to Bloomberg.com/prognosis

ILLUSTRATION BY ANDREA CHRONOPOULOS

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Unnecessary ER visits, ineffective treatments, unmanaged conditions — these are just a few of the factors driving up today's health care costs. As a health services and innovation company, Optum is tackling the biggest challenges in health care by partnering across the entire system. Our integrated, data-driven solutions help increase quality and consistency of care while controlling costs, which improves outcomes for everyone.
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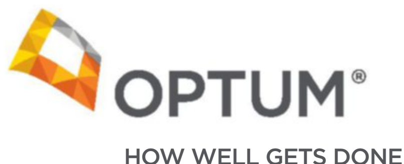


Data and Analytics | Pharmacy Care Services | Population Health Management | Health Care Delivery | Health Care Operations

◀ five figures anywhere in the world, according to the Organization for Economic Cooperation and Development. A knee replacement that costs about $35,000 in the U.S. could run $8,200 in Poland, $7,200 in Colombia, or $6,600 in India, the U.S.-based Medical Tourism Association reports.

Berlin-based Medigo GmbH has served 125,000 patients, says co-founder Ugur Samut. Many just want a second opinion, but Samut says "critical illness treatments" account for 30 percent of business, and he expects that number to hit 80 percent in five years. That could stem from Medigo's allowing patients to leave reviews. ("I have no hesitation in recommending Silverline hospital and Medigo," Peter wrote in February, referring to a hospital in the Indian city of Kochi. In June, Carol wrote of Silverline: "People were overall accommodating.... The nurses in ICU had very limited skills in English.") "The more patients we get, the more experiences we are able to list," Samut says.

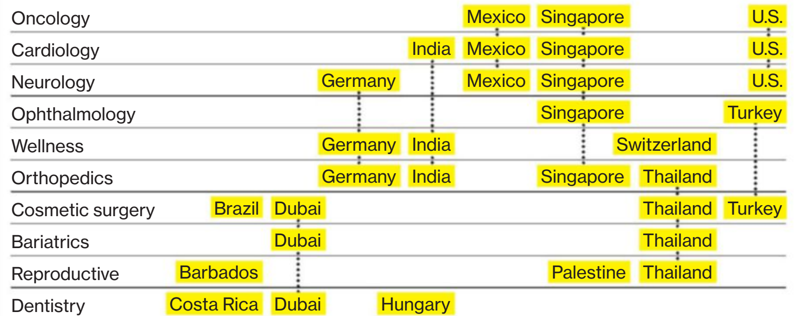
For invasive procedures, Medigo puts prospective patients in touch with someone who had the operation in the same hospital. It also teams up with insurers. In Russia, Medigo works with Allianz SE. For Allianz's Russian customers, Medigo will pay the cost of treatment abroad upfront and get reimbursed, saving someone from having to pay out of pocket. Getting more insurers on board is key to the growth of the industry, Samut says, because it would let the sites tap into the corporate market.

Paul McTaggart began to see the possibilities of the medical tourism business while living in Seattle, where he worked for travel booking site Expedia Group Inc. In 2014 he moved his family first to Mexico and then to Bangkok to start Medical Departures International. McTaggart says the site is seeing 40 percent growth annually. It's profitable, he says, based on its dental and cosmetic surgery business, and he's moved into heart care; knee, hip, and joint replacements; and cancer treatments. "Health care is opaque and basically an oligopoly," he says. "It's the consumer who's unfortunately the one who has to pay a huge premium for this."

BookDoc caters to a different clientele: wealthier citizens in developing countries who travel to get more reliable care. Chevy Beh, whose family runs Malaysia's BP Healthcare Group, founded the site, which he says gets 20,000 to 30,000 visitors a day who are interested in medical tourism. He decided he needed to do more than just match patients with doctors. "We can't just start BookDoc and say, 'It's a booking platform, you just use it,'" says Beh. Medical tourists have the same concerns as other travelers, he says, and BookDoc needed to address

The Most Popular Places for the Most Popular Procedures

Locations across the world have carved out niches in the medical tourism market



DATA: PWC

those. So Beh partnered with TripAdvisor and Agoda for accommodations, Airbnb for longer stays, and Uber and Grab for ground transport.

Dhiraj Joshi, a PwC health-care strategist in Dubai, says the industry needs to get more people comfortable with the idea of getting major surgeries abroad by showing them that the care is as good and safe as at home. "For somebody to let someone else 3,000 miles away open their chest and do a heart surgery, that decision is never taken solely on convenience or cost alone," he says. "This is a trick the medical tourism industry is grappling with and hasn't yet been able to get past." —*Ari Altstedter*

THE BOTTOM LINE Medical tourism sites catering to patients looking for cheaper cosmetic and dental procedures are working to attract people who will travel for more costly surgeries.

Facebook Makes Moves On Instagram's Users

● The power dynamic between the social media platform and its photo-sharing app is shifting

In late June, Spencer Chen got an unusual notification from Instagram. The app prompted him to check out a friend's new photo—on Facebook. Chen grabbed a screenshot and posted the notification on the internet, calling it a cry for attention by the older social network. It felt like a cheap trick, he says, like "placating big brother in the Facebook building."

Chen is one of the tens of millions of people who used Instagram before Facebook Inc. acquired the photo-sharing app in 2012. Ever since, he says, he has anticipated the day when Facebook would start

messing with the photo app to suit its needs. That day, he says, has come.

There's no denying the power dynamic between Facebook and Instagram is shifting. Instagram has 1 billion users, more than Facebook had at the time of the acquisition. The property is worth more than $100 billion, according to a recent analysis by Bloomberg Intelligence. And Instagram keeps growing among a younger set of users who are critical to Facebook's growth. Also, Facebook users have been flocking to Instagram's photo- and video-based app as an escape, tired of the political bickering and privacy scandals that plague the parent company. Users averaged 53 minutes a day on Instagram in June, just five minutes less than on Facebook, according to Android data from analytics company SimilarWeb. As growth of its user base slows, Facebook's future is more certain with Instagram than without it.

"We would not be this confident in Facebook's future if it wasn't for Instagram," says Rich Greenfield, an analyst at investment bank BTIG. "They've done a really good job with the cross-pollination." That's a big change from the years right after the $715 million acquisition, when Instagram depended on Facebook for advertiser relationships and the infrastructure needed to grow.

Instagram says what Chen experienced was a product test with a small contingent of users. Still, Instagram feeds Facebook in other ways. Last year, Facebook launched its own version of an Instagram tool called Stories, which lets people post videos that disappear within 24 hours. (The feature was initially copied from Snap Inc., a competitor.) Greenfield noticed the Facebook version became more popular once it became possible for Instagram users to post their stories in both places with the click of a button.

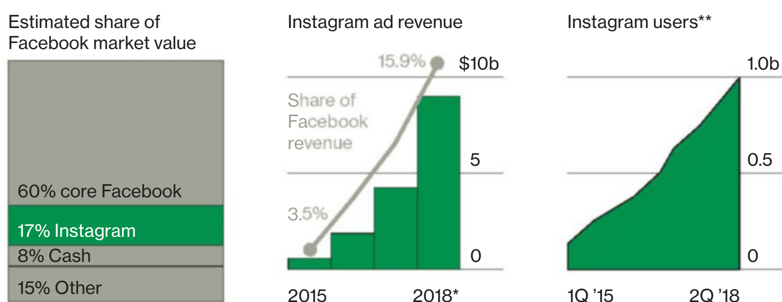
Instagram Stories' 400 million users present a significant opportunity for Facebook's advertising business, according to Ken Sena, an analyst at Wells Fargo Securities. Instagram is on track to provide Facebook with $20 billion in revenue by 2020, about a quarter of Facebook's total, he wrote to investors. And cross-posting could help Facebook's video ambitions. The company recently launched Facebook Watch, a television-like platform that it's spent hundreds of millions of dollars on, mostly for content. That was followed by the rollout of Instagram's IGTV, an app that allows anyone to produce and post longer-form videos. Instagram has a more natural relationship with influencers, who have built up huge followings on the platform, so it hasn't had to pay for them to use the new feature. Any of them can decide to cross-post their videos to Facebook. "Maybe that becomes a driver for Facebook Watch over time," Greenfield says.

So far the company hasn't taken advantage of that opportunity, according to Krishna Subramanian, who works with top digital celebrities at Captiv8, a firm that measures influencer marketing. While "it does seem like Facebook is continuing to test notifications within Instagram," he says, "from what we see on our side, it still looks like Facebook and Instagram are very separate products."

What could lead to closer ties in the short term are some executive moves that went into effect in May. As part of the shuffle, the biggest in Facebook's history, Chris Cox, its chief product officer, took charge of Instagram, WhatsApp, and Messenger, in addition to the main app. Adam Mosseri, the former head of Facebook's news feed, was named vice president for product at Instagram, reporting to Cox. Mosseri has been at the company 10 years and has deep relationships with Cox and Chief Executive Officer Mark Zuckerberg. "Adam has personally helped build a lot of the Facebook experience you use on your phone today," Zuckerberg wrote about Mosseri on his Facebook page this week.

"We would not be this confident in Facebook's future if it wasn't for Instagram"

What Instagram Means to Facebook



*FORECAST BASED ON CONSENSUS ESTIMATES AND BLOOMBERG INTELLIGENCE ANALYSIS; **USER FIGURES RELEASED AT IRREGULAR INTERVALS; DATA: BLOOMBERG INTELLIGENCE, EMARKETER, COMPANY FILINGS

The company often talks to advertisers about all its products collectively. According to a person familiar with the matter, Facebook recently started an incentive campaign with some brands that covered three products at once: ads on Instagram Stories, on Facebook Messenger, and in the middle of Facebook videos. The person, who declined to be named for fear of losing the Facebook relationship, says it was the first time his client had received such an offer.

"The promo you heard about is not unique," Instagram said in a statement. "We are continuously working with advertisers to help them find and discover the best formats for ads across the Facebook Inc. family." —*Sarah Frier*

THE BOTTOM LINE As Facebook's growth starts to slow, Instagram—with a $100 billion valuation and 1 billion (younger) users—could be critical to the company's future.

Who's Still Waiting For the Aramco IPO?

● The stock market debut of Saudi Arabia's oil company will be historic—if it ever happens

It was the moment Saudi Arabia's reforming young prince told the world he meant business. In early 2016, Mohammed bin Salman said he planned to sell shares in the kingdom's crown jewel: Saudi Aramco, the giant energy company that produces 10 percent of the world's oil and finances the Saudi state. The initial public offering—planned for 2018—would be the deal to end all deals, raising more than $100 billion for a new sovereign wealth fund, creating the world's most valuable listed company, and funneling hundreds of millions of dollars in fees to Wall Street's elite banks. MBS, as the 32-year-old crown prince is known, said the company would be worth at least $2 trillion—more than double the current market valuation of Apple Inc.—and perhaps as much as $2.5 trillion.

Two years later, things look very different. A combination of hubris on the valuation, an overambitious timetable, and indifference—if not derision—from global investors has forced Riyadh to delay the sale until at least 2019. And many observers, including members of the company's senior leadership, doubt that it will happen at all. Aramco has become the zombie IPO.

Add Donald Trump to the mix. While the U.S. president has said he's excited about the idea of

PHOTO ILLUSTRATION BY 731. PHOTOGRAPHS: GETTY IMAGES (3)

Edited by Pat Regnier and David Rocks

Aramco selling shares in New York, keeping the price of gasoline under control seems far more important. With Republicans facing tough midterm elections in November, he's pressured Saudi Arabia to pump more oil, and cheaper crude means a lower valuation for the company.

For MBS, the IPO has faded in importance as he grapples with an agenda crowded with social and economic reforms at home and an assertive foreign policy. He may also not need the money as much as he did at the outset of his mission to change the country. Saudi authorities this year reached agreements to recover more than $100 billion (the same amount the Aramco IPO was supposed to provide) from a controversial corruption investigation that saw many of the kingdom's most prominent subjects imprisoned at the Riyadh Ritz-Carlton.

Already, senior officials have started to soften expectations for the IPO. "The timing isn't critical for the government of Saudi Arabia," Khalid al-Falih, the energy minister, told an industry conference in June. While "it would be nice if we can do it in 2019," the minister said, "there is a lot more at stake than just ticking a box and say, 'We got this out of the way.' " Aramco didn't respond to requests for comment for this story.

Delaying the IPO beyond 2019—or even shelving it—would be a setback to MBS's plan to transform Saudi Arabia and leave the kingdom open to suggestions that it's not truly serious about overhauling its economy. But it would also be a victory for environmentalists in Europe and America who say international investors should begin turning their back on oil to prepare for the switch to an electric transport system.

Aramco is a company like no other. Its profits easily outstrip those of every other company on Earth, from Apple to Exxon Mobil Corp. The billions of petrodollars it pumps out every month underpin the kingdom's decades-old social contract: generous state handouts in return for the political loyalty that maintains stability in the birthplace of Islam. Those dollars also finance the lavish lifestyles of hundreds of princes. For decades diplomats have joked that Saudi Arabia is the only family business with a seat at the United Nations. As the world's largest petroleum producer, Aramco is key for global economic growth and international security. At one point during the Arab oil embargo in the 1970s, the U.S. even considered the possibility of seizing the company's oil fields by force, according to declassified British intelligence papers.

The company finds itself caught in geopolitical crosswinds once again. Riyadh needs higher oil prices to fund its national budget and get the Aramco valuation closer to the $2 trillion target MBS wants. But that's antagonizing Trump—Saudi Arabia's most important ally—and other customers, notably China and India, the world's second- and third-largest oil consumers. On April 20 the U.S. president took to Twitter to lambaste the Saudis' push for higher oil prices. "Looks like OPEC is at it again," Trump tweeted. "Oil prices are artificially Very High!" Since then, Trump has issued more tweets about oil, Saudi Arabia, and the Organization of Petroleum Exporting Countries. In one, he said he'd persuaded Saudi King Salman to raise production in order to lower prices.

The problem isn't just Washington, Beijing, and New Delhi. Moscow, which for the last two years has supported the Saudis in boosting oil prices by curbing oil output, has called time on the production cuts. Vladimir Putin said at the end of May that Moscow would be happier with $60 a barrel than the $80-plus the Saudis are aiming for.

The Saudis duly delivered. In late June they announced that OPEC and its allies will increase production by as much as 1 million barrels a day—equal to about 1 percent of global demand. At the St. Petersburg International Economic Forum, al-Falih pledged to do "whatever is necessary to keep the market in balance."

All of a sudden, Riyadh couldn't push for the higher oil prices it needs to achieve the Aramco valuation it wants. "This is a pivotal change from recent months," says Olivier Jakob, managing director of consultant PetroMatrix GmbH. "We are back to the days when Saudi Arabia had to respond to U.S. requests for a cap on gasoline prices."

The IPO process started in January 2016, when MBS told the *Economist* that Riyadh was considering selling shares in Aramco, which the kingdom nationalized in 1976 when it took over the stake of its American owners. "Personally, I'm enthusiastic about this step," he said. "I believe it is in the interest of the Saudi market, and it is in the interest of Aramco." Nowhere was the surprise greater than at Aramco itself, where senior officials weren't expecting the announcement, according to people with direct knowledge of the events who asked not to be named to avoid damaging their relationships with the kingdom.

For months, Saudi officials said again and again the IPO was "on track, on time" for the second half of 2018, with a sale on both the Tawadul, the local stock market, and a foreign stock exchange, most likely New York or London. Late last year, Saudi officials poured cold water on the foreign exchange sale, sketching a plan for a far less ambitious IPO just in Riyadh. ▶

● Aramco's net income before taxes for the first half of 2017 was

$33.8b

◀ Then, earlier this year, when it became obvious the process was delayed, officials shifted their narrative, saying the sale would happen "most likely" in 2019. Now the guidance has weakened again. The Saudis are adamant the IPO has simply been delayed rather than canceled. Yet signs the deal is deep in the long grass abound.

Inside Aramco, key executives working on the project have left or moved. Abdullah bin Ibrahim al-Saadan, a 30-year veteran who as chief financial officer was the most senior executive working on the IPO's day-to-day preparations, left in June to become the chairman of the Royal Commission for Jubail and Yanbu. Aramco has yet to announce a permanent replacement for al-Saadan; another executive is working in an acting capacity as CFO. Motassim al-Maashouq, another key executive on the IPO project, has been asked to take on new responsibilities.

Wall Street is also feeling the delay. In January, Aramco asked global banks to pitch for IPO roles, joining the lenders that have so far done most of the preparatory work–JPMorgan Chase, Morgan Stanley, HSBC Bank, Moelis, and Evercore. Almost six months later, banks hoping to win new mandates, including Goldman Sachs Group and Citigroup, are still waiting for a call from the company. "Without explanation, they've gone quiet," says a banker who'd hoped to participate.

The main problem is valuation. There's a wide gulf between MBS's ambitious $2 trillion target–which the prince says is nonnegotiable–and the $1 trillion to $1.5 trillion that most analysts and investors see as more realistic, according to two people directly involved in the internal discussions. The gap between what the market thinks Aramco is worth and what the Saudi royals want is so wide that even at the narrowest end it would overshadow the combined value of America's two largest oil companies–Exxon Mobil and Chevron Corp. In May, al-Falih said the company was ready for an IPO but investors weren't. "We are ready," he said. "We're simply waiting for a market readiness for the IPO."

The valuation problem became more visible after Bloomberg News disclosed the first accountings of Aramco since its nationalization almost 40 years ago. The leaked documents included the company's tax regime, until now secret. The accounts showed that Aramco was the world's most profitable company, churning out $33.8 billion in net income in the first six months of 2017–before taxes. Much of the cash the highly taxed company generates is channeled as royalties into the Saudi budget. How can investors be sure the state won't raise taxes on the company to pay for more social or military spending, especially when the government already needs a price of about $80 a barrel to break even?

Even higher oil prices won't help the valuation as much as they might, because Riyadh has overhauled the royalty system to mean the government gets more cash as crude rises. A marginal rate of 20 percent of revenue is due for oil prices up to $70 a barrel, 40 percent between $70 and $100, and 50 percent above $100. The government also widened the volume of crude covered by the royalties. Previously, the royalty was applied to exports. Now, it's on production.

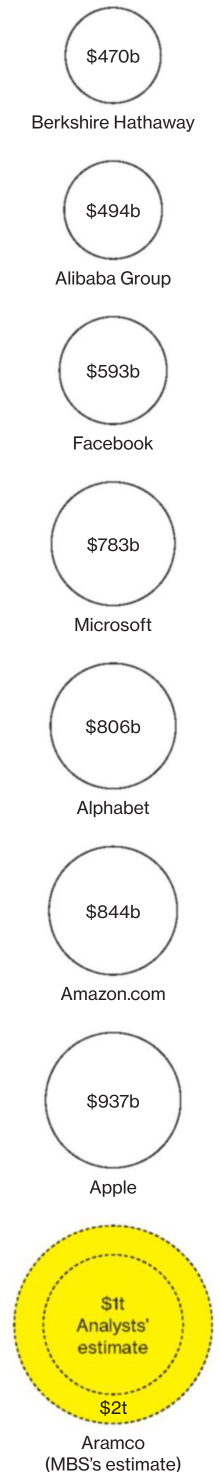
For potential investors, the Aramco conundrum goes beyond the valuation. They may also be spooked by the politics involved in the way oil is priced. Aramco's production has always been determined by the state; it must fit into what's decided by OPEC, where Saudi Arabia is the leading member. That creates potential conflicts between what works for the government in Riyadh and what maximizes investor returns.

Fund managers also worry that the value of oil fields could dwindle as governments ramp up their efforts to reduce fossil-fuel consumption to fight climate change. The spread of electric vehicles, for example, will reduce demand growth over the next two decades. In May a group of investors including Standard Life Aberdeen, Fidelity Investments, and Legal & General Group warned oil companies about the risk of global warming. "As long-term investors, representing more than $10.4 trillion in assets," they said in an open letter, they'd come to the opinion that "the case for action on climate change is clear."

The government has options should it decide to get the IPO done quickly. It could slash tax rates on the company to juice its valuation and look to take the money back in dividends. A face-saving private placement is also possible, with the state selling a stake in Aramco to a Chinese enterprise without public exposure of how much money was actually raised in the transaction. Officials have openly discussed a sale–in effect, a distribution of a few shares each to Saudi citizens–that would take place only in the country's stock market. "I'm sure there will be a form of sale of Saudi Aramco in a market, but it's unclear which market and exactly how," says John Browne, who ran British oil giant BP Plc for more than a decade. "I'm reluctant to use the word IPO."

The once-in-a-generation deal MBS promised in 2016 seems a long way off. *—Javier Blas and Will Kennedy*

THE BOTTOM LINE Crown Prince Mohammed thinks Aramco is worth $2 trillion. Analysts and investors think it could be worth only half as much.



DATA: COMPILED BY BLOOMBERG

The Fight For a Big Bitcoin Stash

● Victims of the Mt. Gox hack could get back some of their virtual currency

Mark Karpelès learned in June that he's probably not going to become a Bitcoin billionaire. He calls that good news. If it had happened, he says, he would have been "one of the most hated people on Earth." And Karpelès already has plenty of people who are angry with him.

He presided over the collapse of Japan-based Mt. Gox—once the world's largest cryptocurrency exchange—and he's now on trial in Tokyo for embezzlement and manipulation of records. But in a weird twist, it had seemed that Japan's bankruptcy rules also put Karpelès, who is French, in line to receive a huge windfall.

Mt. Gox shocked the world when it went bust in 2014 after falling victim to a yearslong hack. About 850,000 Bitcoins had gone missing. Mt. Gox later found about 200,000 of the digital tokens in storage. Bitcoin was worth less than $500 at the time of the bankruptcy, but it's worth about $6,300 today. Some of those found coins—and some Bitcoin Cash, another cryptocurrency that split off from Bitcoin—have already been sold by the bankruptcy trustee for about $387 million, while the value of what's left is around $1.2 billion. There's more than enough to pay off the thousands of people who'd lost their Bitcoins at Mt. Gox—based on the price their Bitcoins were worth in 2014, that is. In a bankruptcy, the surplus of more than $1 billion would have gone to Mt. Gox shareholders. Karpelès, through a company he controls, owns 88 percent of Mt. Gox.

People were up in arms. Karpelès himself opposed the idea. He'd already received some "very specific" death threats, he says. Some creditors petitioned the Tokyo District Court to change from bankruptcy to a process called civil rehabilitation, which may allow them to be reimbursed in Bitcoin. Although they'd get back fewer Bitcoins than they'd lost, with the currency's appreciation they could still end up making money in dollar terms. On June 22, the court approved the switch. "I was quite happy about this," Karpelès says.

Still, the 33-year-old, once dubbed the Baron of Bitcoin, has other things on his mind. He's not accused of being behind the hack but of spending company and customer money and of fiddling with trading records on his exchange. If found guilty, he could face years in prison. He already spent almost a year in detention in Japan before he was released on bail. The food was so bad he lost 77 pounds in four months, after putting on weight around the time of Mt. Gox's collapse. He can't leave Japan, he's divorced from his wife, and he can't see his young son.

"I am innocent of all charges," Karpelès said in a plea to the Japanese court on July 11, 2017. "I never once improperly used any funds during my work at Mt. Gox." Karpelès said the money he's accused of embezzling was borrowed, and was recorded as such in the books. As for the charge of manipulating records, he said he wasn't doing anything nefarious or enriching himself—he was simply managing the company's debts.

As Karpelès tells it, Mt. Gox was having trouble as early as 2011. He says it had lost 80,000 of its customers' Bitcoins around the time he acquired the exchange from its founder, Jed McCaleb, that year. McCaleb says that happened after the deal. As the price of the cryptocurrency rose, so did the value of the missing Bitcoins Mt. Gox owed its customers. Being upfront about the missing Bitcoins wasn't an option, Karpelès says, because if he told people, there could have been a run on the exchange.

Karpelès argued in his plea that he was trying to save Mt. Gox with what he dubbed an "obligation exchange." Here is how that appears to have worked, according to Kim Nilsson, a software developer who had about a dozen Bitcoins in Mt. Gox when it went bankrupt and took it upon himself to investigate Mt. Gox's troubles: Karpelès credited a Mt. Gox account with money that didn't exist and used it to buy Bitcoins on the exchange. Therefore, Mt. Gox was no longer missing those Bitcoins. It had, however, credited dollars it didn't have to whomever it bought the Bitcoins from. That might have been trouble if too many customers had tried to cash out dollars at the same time but potentially less trouble than having to come up with ever-more-expensive Bitcoin.

"How he handled things initially was pretty awful," says Kolin Burges, a creditor who flew to Tokyo from the U.K. in 2014 to protest and try to get back his Bitcoins. "That's, of course, a massive breach of trust to the users of the exchange." Karpelès insists he had no choice. "With today's knowledge and the way things are done today, ▶

● Karpelès

PHOTOGRAPH: KYODO NEWS/GETTY IMAGES

◀ well, of course everything would be done differently," he says. "But at the time, I did with whatever information I had available to me and whatever advice I had available."

Karpelès overestimated his ability to get out of the situation, according to Nilsson. He calls it a unique combination of arrogance and naiveté. "At every point he seems to have made the choice that 'I must keep this secret for the greater good, because otherwise I would upset the community and that would crash Bitcoin's price, and that would be even worse for Bitcoin holders,'" Nilsson says. "I personally believe that you should just tell the truth."

Three judges will decide Karpelès's fate. He doesn't expect a verdict until next year. He has little reason for optimism: In Japan, prosecutors win 99 percent of the time. Creditors, meanwhile, have until October to file claims in the new process. Mt. Gox must submit a proposed rehabilitation plan by February. Making one that works for everyone won't be easy. "I guess the celebrations will be when the distributions finally happen and creditors see something coming their way," Karpelès says. *—Tom Redmond and Min Jeong Lee*

THE BOTTOM LINE Hundreds of thousands of Bitcoins went missing from the busted Mt. Gox exchange. Now the question is, what will happen to the digital currency left over?

Shortchanging the German Treasury

● Prosecutors are examining deals by bankers and brokers at dozens of global finance houses

The maneuver was brilliant, a virtually risk-free transaction that guaranteed hefty returns after only a few days. Then the taxman caught on.

For the better part of a decade, German authorities say, dozens of banks and brokerages helped investors snatch billions of euros from the national treasury by exploiting an interpretation of the tax code that appeared to let multiple people claim ownership of the same shares of stock and—crucially—the right to a refund of taxes withheld from dividends. "They seemed to be creating money from nothing," says Tobias Rudolph, a criminal defense lawyer in Nuremberg. "Common sense should have told anyone that this couldn't be right."

The deals involved a type of short sale made just

before a company was due to pay a dividend. (In conventional short sales, investors sell stock they don't own, hoping to profit by repurchasing it later at a lower price.) When German companies pay dividends, they withhold about a quarter of the money to cover any taxes the shareholder might later owe. Shareholders get certificates showing how much was deducted, and the amount can be credited against their tax bill or, if they owe no additional taxes, refunded. In the case of the short sales in question, two parties claimed to own the same stock and got certificates. Prosecutors say that in some instances, three or more investors may have received certificates for the same withholding tax.

Financial houses, accounting companies, and law firms across Europe and the U.S. participated on some level: doing the deals, arranging them for clients by acting as custodians, issuing tax certificates, or financing transactions. The practice—known as "cum/ex," a Latin phrase that means "with/without," a reference to the vanishing dividend payments in the trades—is widely reported to have cost German taxpayers more than €10 billion ($11.7 billion).

Frankfurt prosecutors in May said they had charged six people, including former investment bankers at UniCredit SpA's HVB unit in London. Investigators in Cologne are preparing their first indictments in a parallel probe, according to people familiar with the matter. That inquiry has been under way for about a half-decade but is picking up speed as suspects begin to cooperate. The cases involve hundreds of individuals at banks including Barclays, Macquarie, Bank of America, and BNP Paribas, say the people, who declined to be identified because they're not authorized to discuss the matter. A third team, in Munich, is looking into a fund that specialized in such transactions. "A shockingly large number of players sought to unscrupulously enrich themselves at the public's expense," German opposition lawmaker Gerhard Schick said in a report to parliament. "It was a glittering party."

Commerzbank, Deutsche Bank, HVB, German private lender M.M. Warburg, and Clearstream,

"Common sense should have told anyone that this couldn't be right"

ILLUSTRATION BY SARAH MAZZETTI

the unit of Deutsche Börse that settles trades, have acknowledged that transactions they were involved in are being investigated. Deutsche Bank AG says it didn't participate in cum/ex trades as a short seller or buyer, but it worked on deals for some clients. M.M. Warburg & Co. says any trades it made were in line with the law. Clearstream Banking AG says it's cooperating with prosecutors. The other banks declined to comment.

The practice came to light about a decade ago when officials at various tax offices started questioning requests for refunds on murky transactions totaling hundreds of millions of euros. As they dug more deeply, they stopped honoring the certificates and alerted prosecutors. A 2012 reform of the tax code brought the practice to a halt, but authorities had accepted the certificates for years, and lawmakers did little to tighten the rules despite repeated warnings, so the debate today centers on whether the trades were legal before 2012. Banks, funds, and investors that participated in the trades relied on legal opinions from lawyers that said the transactions were allowed. But prosecutors say those documents oversimplified the matter and that it was clear the transactions involved double-dipping on the refunds.

The probes have led to raids in more than a dozen countries over the past four years, and investigators have reviewed thousands of emails, voicemails, and Bloomberg chat sessions that traders used. They got a breakthrough last year when a handful of participants agreed to provide details of the deals. This summer the Bonn Regional Court is set to rule on whether the prosecutors can offer leniency to key witnesses. The Bonn court, which will hear cases resulting from the Cologne probe, has beefed up capacity and added an extra chamber to handle an expected wave of charges.

Prosecutors have settled cases with several banks and individuals, and others are seeking to cut deals, but given the magnitude of the tax damage, the investigators are reluctant to do so, says one of the people. Settlements, though, are inevitable because the system doesn't have the capacity to try hundreds of suspects. German law doesn't allow for criminal charges against companies, but prosecutors can add them as associated parties to probes of their employees, and they can face substantial sanctions. "Many banks have started to explore cum/ex internally," says Heiko Gemmel, an attorney at Hogan Lovells in Dusseldorf. "Those who haven't need to start now. The noose is tightening." —*Karin Matussek*

THE BOTTOM LINE German prosecutors are on the verge of indicting people at dozens of banks for deals that used short sales to claim multiple refunds of withholding taxes on dividends.

Markets Trade Angst

Despite talk of a trade war between the U.S. and China, the S&P 500 is still up for the year. Here's how money managers and strategists are thinking about the risk.
—*Olivia Carville and Charles Stein*

yikes

"Markets are crazy to ignore the risks and consequences of a #tradewar. This rally in #stocks is the last hurrah!"

—Scott Minerd, chief investment officer, Guggenheim Partners LLC, in a tweet

"This is bad news for business.... It could derail the Fed's moves toward higher interest rates, although probably not right away. We are asking our analysts to keep their eyes out for signs that companies are pulling back or slowing hiring. In my experience, you don't see economic slowdowns until they are under way."

—Dan Fuss, manager, Loomis Sayles Bond Fund

"With the economy as tight as it is, it seems to me that any restriction on the flow of goods and services will be inflationary no matter what.... I don't know why more people aren't concerned about this."

—Richard Bernstein, chief executive officer, Richard Bernstein Advisors LLC

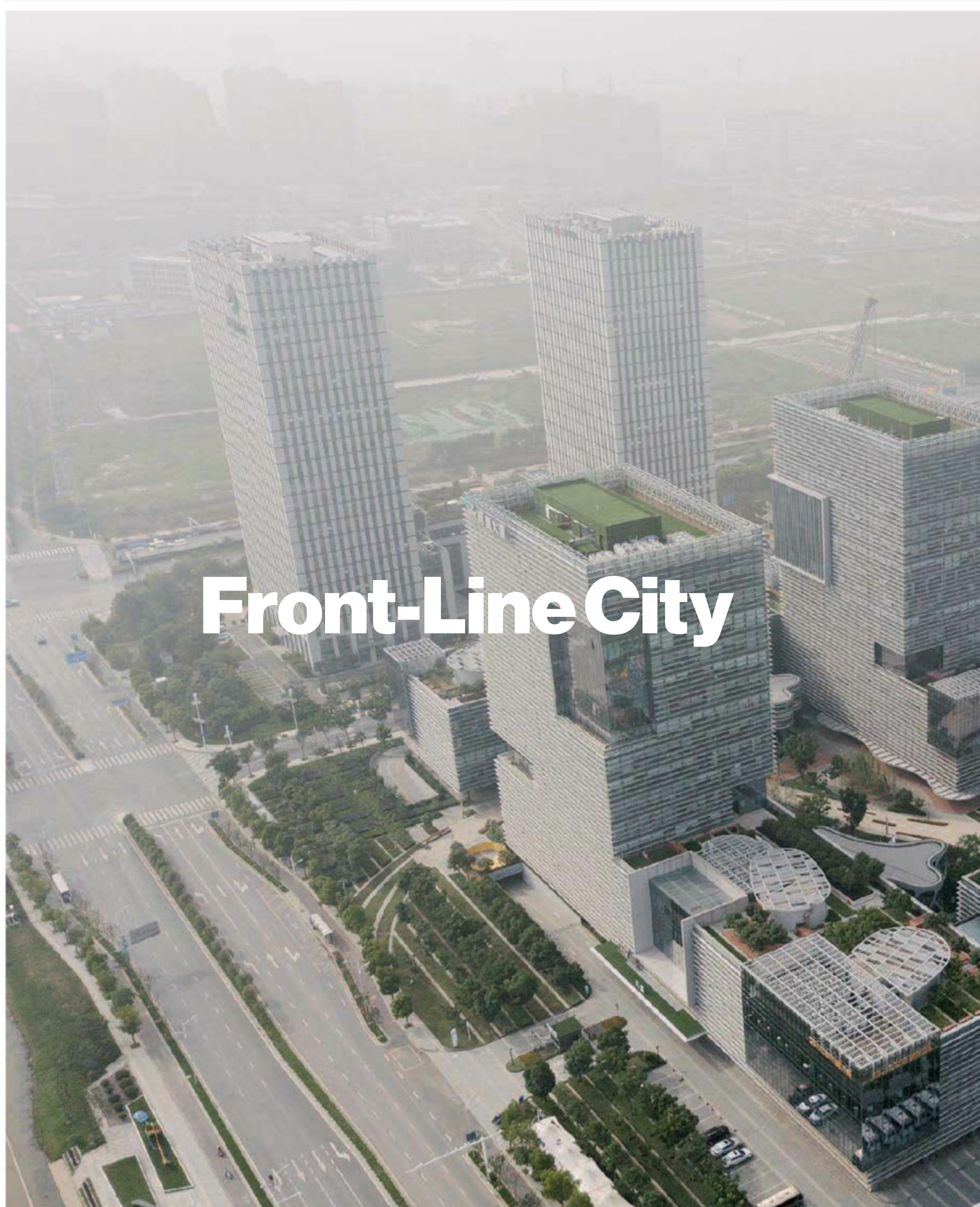
"Trade tensions are a headwind, but the market has been able to shrug it off because the tailwind from the earnings boom is so big."

—Jurrien Timmer, director of global macro, Fidelity Investments

"We earn higher returns by not freaking out when the market gets choppy.... Right now there is lots of news and noise and chest pumping, which is a normal part of the current administration's way of negotiating, and a key thing to remember is if you try to react to the news, the markets will react far, far faster than you."

—Dan Egan, director of behavioral finance and investments, Betterment LLC

meh



Front-Line City

● Nanjing is a key player among China's high-tech zones going head-to-head against Silicon Valley

About 300 kilometers (186 miles) up the Yangtze River from Shanghai, the city of Nanjing is developing a research park to foster China's next generation of technology giants. The zone stretches 216 square kilometers along the city's north side, housing dozens of high-profile companies as well as a multitude of startups. Across the river is a newer park where roads, sewers, and electrical grids stand ready for even more tech tenants to move in.

Edited by
Cristina Lindblad

in the Trade War

“If you come to Nanjing to find a job or create your own startup, you can enjoy favorable policies”

PHOTOGRAPH BY FAN SHI SAN FOR BLOOMBERG BUSINESSWEEK

Nanjing is on the front line of the government’s effort to compete with Silicon Valley, and the city is playing a brash role in the clash among global trading superpowers. One sunny June morning, a crowd gathers in Building B of the Nanjing park to celebrate the arrival of a startup. “Please put your hands on the screen to officially ignite the opening of our business,” the emcee says to government officials and executives invited onstage. “Three, two, one, ignite!” Simulated lightning shoots up 5 meters from each person’s palm, converging in a phantasmagoria. Music blares.

The startup—Chuangxin Qizhi, or AInnovation—will use government largesse to expand faster than it could on its own. Hocking Xu, an International Business Machines Corp. and SAP veteran who runs AInnovation, is working with companies in retail, manufacturing, and finance to boost ▶

◀ operations using artificial intelligence, a priority for the government. "We can move very fast," Xu says. "We experiment, then change course as needed."

The growing might of China's tech sector is at the heart of the trade war with the U.S. Just hours before the Chuangxin Qizhi ceremony, President Trump's administration released a 35-page report blasting China for "economic aggression" that threatens U.S. technology and intellectual property, taking aim at everything from cyberattacks and theft to government backing for startups such as AInnovation.

Along with tariffs on Chinese goods, the Trump administration is planning tougher scrutiny of Chinese investments in sensitive U.S. industries and technology imports. The measures are aimed at preventing Beijing from achieving its goals of leading the world in fields including AI and electric vehicles.

It may be too late. Alibaba Group Holding Ltd. and Tencent Holdings Ltd. have already climbed into the ranks of the 10 most valuable companies in the world, alongside Apple Inc. and Amazon.com Inc., while a flood of venture capital has fostered billion-dollar startups in China at roughly the same pace as in Silicon Valley. Among the four most valuable startups in the world, three are Chinese, led by payments giant Ant Financial, at $150 billion.

China is pursuing perhaps the most ambitious and unorthodox industrial policy in history. Nanjing alone is spending billions of dollars to move beyond old-school manufacturing. The city of Beijing is building a technology center with $2.1 billion allocated solely for AI research. A total of 156 state-level tech zones scattered across the country are providing similar facilities to support industries deemed national priorities. As part of the central government's Made in China 2025 economic program, cities, municipalities, and provinces—with support from the central government—offer subsidized rent, tax-free status, and rebates to cover worker salaries.

China still trails the U.S. in key areas, including semiconductors, search engine technology, and social networking. Its technology companies are also far less international than Apple, Google, or Microsoft. But Mike Moritz, a venture capitalist at Sequoia Capital who backed Google and PayPal, argues that China is already surpassing the U.S., in part because its entrepreneurs are hungrier and harder-working. "China is winning the global tech race," he wrote in a *Financial Times* column in June. "For Westerners, it should be disconcerting."

Yasheng Huang, a professor of international management at MIT's Sloan School of Management, says the country is playing by a different set of rules than the U.S. The American government has legitimate complaints about China's protectionism and Chinese companies' attempts to steal trade secrets. But the central lesson from the clash may be that the U.S. needs to learn from China about alternative strategies for development. "I applaud the Chinese government for supporting science and technology," Huang says. "The U.S. should be doing that, too."

China's tech industry began with little hint it would threaten American hegemony. The sector emerged with the founding of three internet companies during the dot-com boom of the late 1990s—Alibaba, Tencent, and Baidu—modeled on foreign pioneers. But the trio grew into giants and, along the way, proved they could innovate. Out of their success came a slew of startups. As Alibaba prepared for the largest-ever initial public offering in 2014, U.S. and Chinese venture capital firms woke up to the potential of China. The amount of money invested in the country's startups soared from $4.2 billion in 2013 to $63.1 billion in 2017.

Kai-Fu Lee is one of the pioneers. A Taiwanese national, he began a Beijing venture firm in 2009 after working for Microsoft Corp. and Google. He says the government plays a supporting role in China that's hard to translate for Westerners used to traditional free markets. One important example, he says, was the official blessing that preceded the surge in startups. In 2014, Premier Li Keqiang gave a speech in which he called for "mass entrepreneurship and mass innovation," giving explicit approval for people to start companies and make their fortunes. More than 1,200 startups have raised venture money since that speech. The best and the brightest no longer wanted to be Communist Party apparatchiks; they wanted to become Steve Jobs—or Jack Ma, the richest man in China.

"That made a tremendous difference," says Lee over pizza and beer in Nanjing, where his venture firm and its portfolio companies have set up offices. "It was the mother-in-law effect. Before that, the best job a prospective husband could have was in the government. After that, it was OK for a daughter to marry someone starting their own company."

The tech sector has become a key force in the economy. Technology services grew 29 percent in the first quarter, faster than any other segment, as gross domestic product expanded 6.8 percent. The country has gained ground against the U.S. in everything from smartphones and supercomputers to missile technology.

Chinese officials tend to be more forceful in supporting new technologies than their American counterparts—what Lee calls "techno-utilitarianism." In autonomous driving, for

● Value of Chinese payments startup Ant Financial

$150b

example, U.S. states have shut down experiments after pedestrian fatalities. In a single-party system like China's, startups can push full speed ahead without losing the support of politicians. "In China, it's clear you need to keep going because thousands of lives will be saved," Lee says.

In his forthcoming book, *AI Superpowers: China, Silicon Valley, and the New World Order*, Lee argues China will catch up to the U.S. in AI. He contends the U.S. holds several advantages, including the best universities and a better ability to draw international talent. But China has equal strengths because of its strong entrepreneurs, capital resources, and government support. He points out that when then-President Obama released his plan for AI in 2016, it had little impact. China published a three-step road map to lead the world in AI by 2030 that was immediately put into action. "The government's AI plan was like President John F. Kennedy's landmark speech calling for America to land a man on the moon," Lee writes.

Behind closed doors, some Chinese business leaders express concern about the government's stepped-up involvement. Centrally planned efforts in steel and solar fueled similarly ambitious expansion—followed by overcapacity and bankruptcy. "The risk is that money goes to political favorites, then the bad drives out the good," says Steven Kaplan, a professor of entrepreneurship at the University of Chicago.

Nanjing, a proud city of 8 million, has fallen from prominence in recent years. Although it twice served as China's capital, it now stands in the shadow of Shanghai and Beijing. It suffered a blow in 2015 when its mayor, Ji Jianye, nicknamed the "Bulldozer," was convicted of taking $2 million in bribes.

The current mayor, Lan Shaomin, and party chief, Zhang Jinghua, are trying to transcend that legacy, and Made in China 2025 gives them a chance to do just that. They're clearly in sales mode. "If you come to Nanjing to find a job or create your own startup, you can enjoy favorable policies on talent recruitment, housing, loan-interest deductions, free office space, and so on," Zhang said during a forum for prospective business clients in April. "If you set up new R&D facilities in Nanjing, we will award you up to 5 million yuan each year. We will give up to 15 million yuan for those who set up angel capital or VC firms. If you invest in Nanjing-based startups, we will reward up to 5 million yuan. If the investment fails, you can get up to 6 million in compensation."

The city provides tax breaks and incentives to create jobs, not unlike U.S. cities competing for Amazon's second headquarters. The Nanjing Economic and Technological Development Zone, which has annual tax revenue of 9.5 billion yuan ($1.4 billion), has budgeted 1.9 billion yuan in spending for 2018, including incentives for business, according to government filings.

North of the Yangtze in Nanjing's Jiangbei New Area, state-backed Tsinghua Unigroup Ltd.'s chip design subsidiary Unisoc has set up a research lab to work on semiconductor technologies, another priority for Beijing. China sees itself as particularly vulnerable in chips, because they're essential for every kind of computing and the country so far can't produce competitive products. Chinese smartphone maker ZTE Corp. shut down this year when the U.S. cut off access to American components, including Qualcomm Inc.'s processors. Only an appeal to Trump from President Xi Jinping saved the business.

Yongsan Li moved to Nanjing 18 months ago to open the wireless technology research lab for Unisoc. His team, which started with a staff of 20, now has 120 employees and is projected to expand to 600 in five years. Li says in the second generation of wireless technology, China was 10 years behind, then it closed the gap. Now, as wireless operators move to the fifth generation, China is setting standards alongside the U.S. and South Korea. "We are roughly at the same starting line as the rest of the world," he says. "That's the first time in China telecommunications history."

Li says the progress of Tsinghua and China's Huawei Technologies Co. means companies such as Qualcomm have to accept lower royalties. He thinks the trade tensions between the U.S. and China stem from shifts in the balance of power. "U.S. companies have fears because Chinese companies are catching up," he says. Li shows off Unisoc's offices like a proud father. One wall is covered with plaques for patents. In a nearby room, a half-dozen staffers test the latest 5G designs.

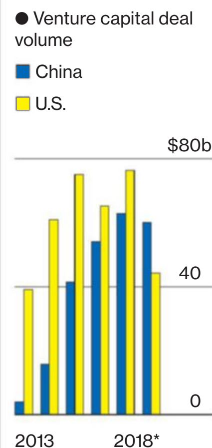
Kaplan, the University of Chicago professor, says China's government appears to have gotten the big factors right. "The key thing is to let people start businesses and then benefit from starting those businesses," he says. "They can get rich." Still, it's always clear which half of the public-private partnership holds sway. At Building B there was one important absence in the AInnovation ceremony: The mayor of Nanjing couldn't make it. Once the music died down, the business leaders headed to city hall to get his blessing. —*Peter Elstrom and Yuan Gao, with Xiaoqing Pi*

THE BOTTOM LINE A former capital of China, Nanjing wants to shine as the nucleus of the country's tech enterprises as it takes on the U.S. behemoths of the industry.

● Venture capital deal volume

■ China

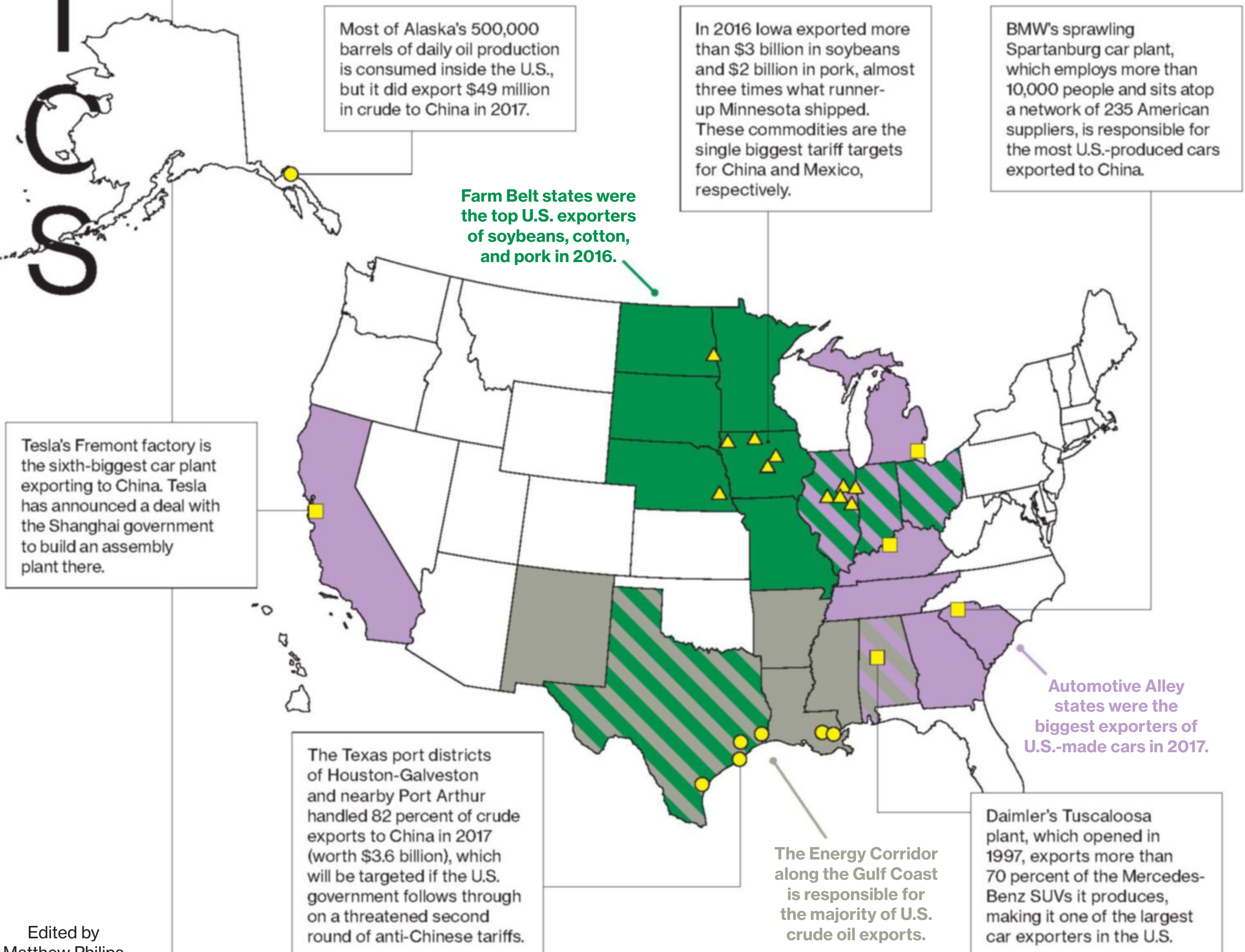
■ U.S.



*YEAR-TO-DATE; DATA: PREQIN

Can the GOP Survive A Trade War?

Over the past month, retaliatory tariffs on as much as $80 billion in U.S. exports have been levied by Canada, Mexico, the European Union, and China. The effects will be felt throughout the U.S.—in the Farm Belt, the Automotive Alley, and the Energy Corridor. Areas that are particularly threatened are those with the highest concentration of △ soybean silos, □ car plants that export to China, and ○ ports that ship crude oil there. Voters in these districts tend to be among Trump's core supporters. The economic hit will have political consequences for Republicans at every level of government.



Edited by Matthew Philips

DATA: U.S. CENSUS BUREAU, U.S. DEPARTMENT OF AGRICULTURE, U.S. ENERGY INFORMATION ADMINISTRATION, DATA TRANSMISSION NETWORK, CENTER FOR AUTOMOTIVE RESEARCH, BMW GROUP, DAIMLER

On July 6, Donald Trump carried out his vow to slap tariffs on $34 billion worth of Chinese goods, and China immediately reciprocated by penalizing U.S. imports, from soybeans to Teslas. The European Union, Canada, and Mexico also imposed retaliatory levies in response to Trump's provocations. Four days later, he escalated the feud, threatening tariffs on an additional $200 billion in Chinese products, including auto parts, refrigerators, and electronics, as well as baseball gloves and handbags. The global trade war is on.

Trump says trade wars are "easy to win." Economists think differently, although most expect the U.S. to emerge without serious damage. A bigger question is: Will Republicans? That will depend on the scale of the conflict and the damage it causes U.S. companies and workers. Early signs are ominous. Trump alarmed GOP lawmakers on July 5 by threatening to impose tariffs on all $500 billion of Chinese goods imported to the U.S. "Members hate what the president is doing," says a former Republican leadership aide. "None of them thinks this is a good idea."

Maximalist threats are the foundation of Trump's approach to governing. He's betting that when he menaces trade partners around the globe, they'll be forced to capitulate to his will—and the greater the threat, the larger the eventual foreign concessions will be. "No president before Trump would dare threaten China with half a trillion dollars in tariffs," says Steve Bannon, the former White House chief strategist and an early architect of Trump's "America First" trade policies. "He's laid his six-guns on the table, and there's bullets in every chamber."

Trump's decision to start a trade war four months before the midterm elections carries a heavy risk for his party because many of his most loyal followers will bear the brunt of the fallout. This wasn't the case with his major actions before now. The crackdown on refugees and immigrants didn't hurt the white, blue-collar voters who make up the core of his support. And although they got little benefit from his tax cut, aimed primarily at corporations and the wealthy, neither were they directly penalized.

Trade is different. The bulk of punitive tariffs from around the globe falls heavily on Farm Belt and Rust Belt states that went for Trump. Many of the new measures are designed, with almost surgical precision, to harm his supporters. Of the 30 congressional districts hit hardest by Chinese tariffs on U.S. soybeans, 25 are represented by Republicans, five by Democrats—but all 30 voted for Trump.

Canada, Mexico, and the EU have targeted specific Republican politicians, including House Speaker Paul Ryan of Wisconsin and Senate Majority Leader Mitch McConnell of Kentucky, by pinpointing items such as cheese, Harley-Davidson motorcycles, and whiskey that are produced in their states and districts. Rank-and-file members and their constituents won't be spared economic pain either. U.S. Census Bureau data show that the states whose economies are more dependent on exports—and thus most exposed to foreign retaliation—skewed Republican in 2016.

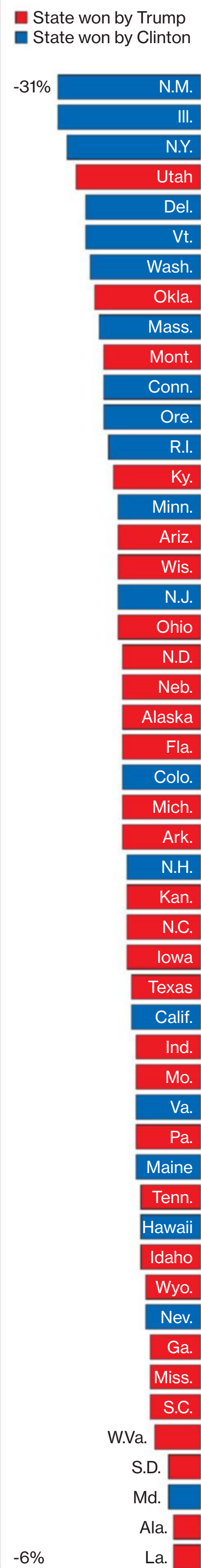
Trump and his party may already be experiencing early tremors. While it doesn't get much attention, the president's net approval rating in Morning Consult's monthly surveys has fallen almost as much in deep-red, agriculture-heavy states such as Kentucky (down 21 percent), Montana (21 percent), and Oklahoma (25 percent), as it has in the bright-blue coastal states of California (15 percent), Rhode Island (21 percent), and Massachusetts (22 percent). "Trump is underperforming in ag states," says Jennifer Duffy, who tracks Senate and governor races for the nonpartisan Cook Political Report. "In places like North Dakota and Nebraska, which he won by double-digit margin, he's now barely above 50 percent approval, and in Iowa, which he won by 9 points, he's well below that, at 44 percent."

Economists warn that Trump's trade war will cause prices to rise for U.S. consumers and hurt U.S. companies that import intermediate goods such as semiconductors. But while the macro effect of the new foreign tariffs so far looks to be limited, their impact will be keenly felt by specific industries and businesses around the country, many of them large employers critical to state economies, and as a result will be certain to cause political disruption.

That spells trouble in the Farm Belt, where agricultural staples have been hit by tariffs. U.S. farmers are already dealing with lower prices for corn and wheat. Total farm profits are at their lowest level since 2006, falling from $123 billion in 2013 to less than $60 billion this year as forecast by the government by the U.S. Department of Agriculture. Making U.S. agricultural exports less competitive in some of their largest foreign markets will only worsen matters.

Coastal states will also suffer. In Alaska, the world's top supplier of wild-caught salmon, new Chinese seafood tariffs could cut income for the state's 16,000 commercial fishermen and harm its largest manufacturing sector, seafood processing. In Maine, those tariffs are costing lobstermen business that's moving to Canada, while steel tariffs have made their lobster traps more expensive. Florida's boating industry will be slowed by taxes on motorboats imposed by Canada, the EU, and Mexico.

States with large automotive industries are also in the crosshairs, including a swath of the ▶



DATA: MORNING CONSULT

◀ country from Michigan to Mississippi where foreign carmakers have built some of the biggest plants in the U.S. Many of the vehicles those plants produce are shipped overseas. In Alabama, Daimler AG's Tuscaloosa plant exports more than 70 percent of the Mercedes-Benz SUVs it produces. Automakers are also major regional employers. South Carolina's BMW AG plant in Spartanburg, with 10,000 workers, sits atop a sprawling network of 235 American suppliers and is responsible for most of the U.S.-produced cars sent to China.

Kentucky and Tennessee, home to the U.S. whiskey industry, are targeted by the four largest U.S. trading partners: Canada, China, the EU, and Mexico. And along the Gulf Coast, which accounts for 80 percent of U.S. crude exports, tariffs will hit local economies from Gulfport, Miss., to Houston. Since Congress lifted the ban on U.S. oil exports in 2015, foreign demand has helped the domestic oil industry recover from recent low prices. New tariffs could make U.S. crude less competitive and slow the double-digit growth in exports.

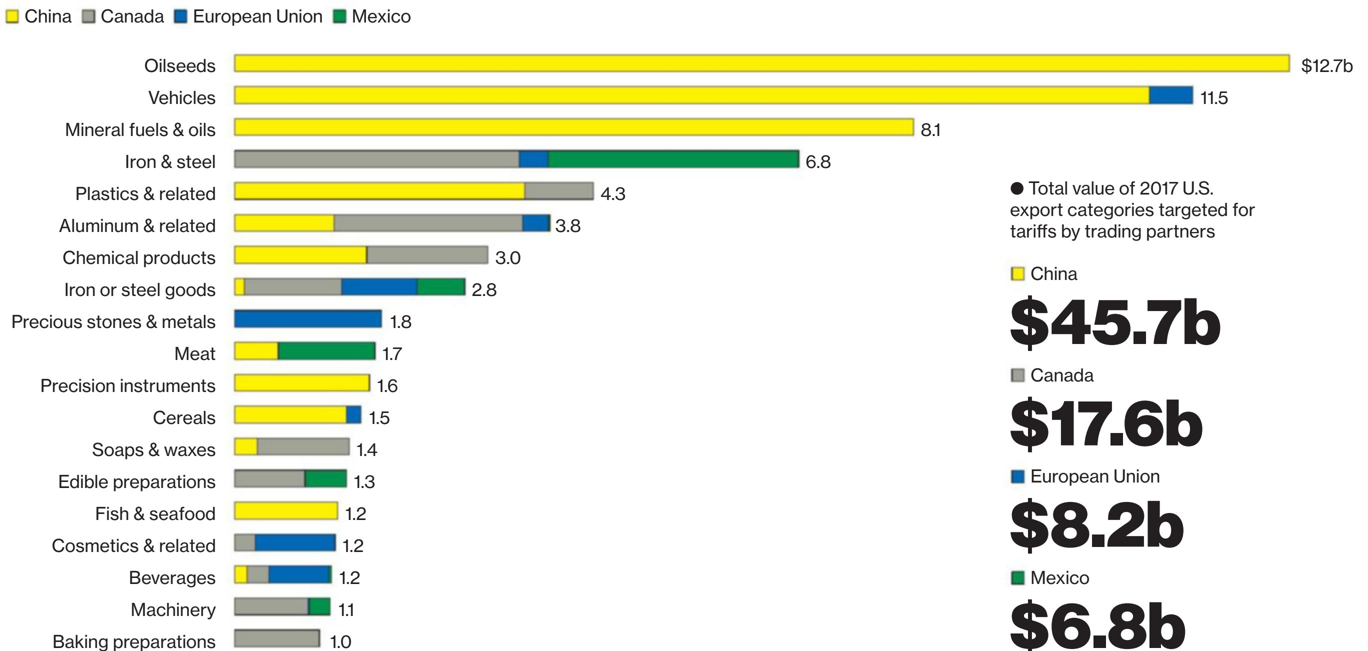
The impact of this global retaliation is spread wide enough that even Republicans in safe seats have cause for concern. Not only do Trump's actions offend GOP lawmakers' free-market principles, their political costs are also difficult to gauge, because he hasn't explained when or on what terms he's willing to bring hostilities to a close.

In the meantime, GOP strategists say they'll have a harder time beating back Democratic challengers in Senate races in Tennessee, Arizona, and Nevada, where a business-friendly message has long been the basis of Republicans' appeal. They'll also have a tougher time knocking off vulnerable Democratic senators in North Dakota, Montana, and Missouri. "The places where members are most concerned are states where it's effectively a one-industry economy," says a Republican strategist who requested anonymity to share internal party fears. Trump and some of his top trade advisers are willing to bear these costs, because they believe the showdown will eventually create domestic manufacturing jobs that will benefit the president's working-class base. But most other Republicans recognize that many of those same workers will be among the first to suffer

▲ Daimler's plant in Tuscaloosa

Where Tariffs Will Hit Hardest

U.S.-made product categories targeted by foreign tariffs, as measured by 2017 export sales to the relevant trading partner



DATA: U.S. CENSUS BUREAU

now that tariffs have started to bite. "It's stupid policy," Nebraska Senator Ben Sasse complained publicly in March, "but he has the authority." Even Trump's staunchest defenders don't pretend that U.S. workers won't get caught in the crossfire. "This is not going to be without some perturbations," Bannon concedes. "Trump never promised otherwise." With threats escalating and Trump showing no sign he'll back down, events could get out of hand. In early July, China's Ministry of Commerce accused the U.S. of igniting "the largest trade war in economic history." A March report from Bloomberg Economics estimated that a full-blown trade war, in which the U.S. raises import costs by 10 percent and is met with similar retaliation, would hurt global gross domestic product by $470 billion—roughly the size of Thailand's economy.

The political fallout would be commensurate. A Peterson Institute for International Economics study found that such a scenario would cause a 2- to 3-percentage-point rise in the U.S. jobless rate, a plunge in asset prices, and disruption of supply chains and productivity. Even actions short of an all-out trade war would create huge disruptions. In a July 2 interview with Fox News, Trump, previewing what he planned to tell foreign leaders at the NATO summit, threatened what he called "the big one"—a global tariff on imported cars and trucks. Last year the U.S. imported $192 billion in vehicles and an additional $143 billion in auto parts. "The imposition of high tariffs on U.S. auto imports would represent an existential threat to Nafta," Brian Coulton, chief economist at Fitch Ratings Inc., warned in a research note.

Caught between their fear of challenging the president and their desire to protect constituents, Trump supporters in Congress are playing for time. "What I'm saying to constituents is, give President Trump some room," Republican Representative Steve King, whose Iowa district contains 18,000 soybean farms, told the *Washington Post* on July 9. "Give him some room to freely negotiate here, and let's see how it comes out. Don't undercut the president and take the leverage away."

But as the impact of retaliatory tariffs grinds its way through local economies in states across the country, it won't be Trump who has to show up at town hall meetings and answer questions from angry voters. The longer the trade war goes on, the larger the backlash is likely to be. The question that will preoccupy Republican politicians is how long they'll have to endure it. —*Joshua Green*

THE BOTTOM LINE Trump's trade war threatens to upend local economies across the U.S. and cause headaches for Republican candidates up and down the ballot this fall.

FROM LEFT: CAROL M. HIGHSMITH/BUYENLARGE/GETTY IMAGES; SIMON DAWSON/BLOOMBERG

Brexit U.K. Drama

In less than two days, Prime Minister Theresa May lost two key members of her team, Brexit negotiator David Davis and Foreign Secretary Boris Johnson, both of whom opposed her plan to keep the U.K. closely bound to the European Union after Brexit. The loss of two senior figures would normally spell the end for any leader, but conventions no longer apply. If May can get through mid-July, she can look forward to calmer political weather in August. Yet another crisis looms in October, this time in Parliament, when she has to present her Brexit deal to lawmakers.

The Maths

May's Conservative Party does not have a majority in Parliament

Party	Seats
Conservative	316
Labour Party	259
Scottish National Party	35
Liberal Democrats	12
Democratic Unionist Party	10

1. That leaves her vulnerable on several fronts. While the numbers aren't in her favor, ousting her outright could prove difficult.

2. A leadership challenge can be triggered when 15 percent of Conservative lawmakers dispatch a letter saying they have no confidence in their leader.

3. Under the current Parliament that would translate to 48. But to actually force her out, more than half of the Tories in the House of Commons would have to vote against her. That would require 159, making it much more difficult to oust her because not that many party members are angry enough to want her out.

4. If May survives that confidence vote, she could paradoxically emerge stronger, as party rules forbid another challenge within a year.

The Offer

Domestic challenges aside, May still has to present her Brexit plan to EU negotiators. She wants access to the EU's single market for goods but not services and has proposed a customs setup that the EU has already rejected. By October the two sides need to agree only to the basic terms of the exit and a plan for the Irish border. They can hash out the finer details later, leaving the really unpalatable concessions for another day—and possibly another prime minister.
—*Emma Ross-Thomas and Flavia Krause-Jackson*

Harder Than R

The Model 3 production line

Can Elon Musk make Tesla into a real car company?

Photographs by Balazs Gardi

ocket Science

By Tom Randall, Josh Eidelson, Dana Hull, and John Lippert

On July 1, Elon Musk went home to sleep. The chief execu-tive of Tesla Inc. had been camping out at his electric car factory in Fremont, Calif., for much of the past week. He'd been sleeping on a couch, or under a desk, as part of a companywide push to get out of what he calls "production hell" by manufacturing at least 5,000 of Tesla's new Model 3 sedans in a week. "I was wearing the same clothes for five days," Musk says in an interview with *Bloomberg Businessweek*. "My credibility, the credibility of the whole team," was at stake.

Musk initially promised as many as 200,000 Model 3s by the end of 2017. To get there he planned an unprecedented investment in factory robots, calling the production line "the machine that builds the machine." He'd said it would look like "alien dreadnought"—a manufacturing process so futuristic, unstoppable, and cost-effective that it would seem extraterrestrial.

It hasn't worked out that way. Tesla ended 2017 having made not quite 2,700 Model 3s. As of the end of June it had turned out about 41,000, and some analysts express doubts about whether it will ever be able to show a profit on the car, and Tesla hasn't even started selling the $35,000 base model.

Making matters worse, Tesla has $10 billion in debt and suffered a credit downgrade in March. It's spent about a billion dollars more per quarter, on average, than it has taken in over the past year, and the cost of a recently announced factory in China is still unknown. Tesla is running out of cash at a time when competition is heating up—Volkswagen, BMW, Daimler, and others plan to release dozens of electric car models.

In early June, at Tesla's annual meeting, Musk tried to project calm, but at times seemed close to tears. "This is like—I tell you—the most excruciatingly hellish several months that I have ever had," he said, before noting that Tesla's assembly lines were being further upgraded, making the company "very likely" to hit the weekly goal of 5,000. He also revealed he'd asked employees to build a third general assembly line that would be "dramatically better than Lines 1 and 2." That sounded even more alien-dreadnoughty.

A week later, Musk posted a picture of the new facility on Twitter. There were no fancy robotic systems, nor fixed walls, even—just a large tent outside the factory built from scrap from the other lines. The automotive world winced. "Insanity," said Max Warburton, an analyst with Sanford C. Bernstein & Co., in an email to Bloomberg News. "I don't think anyone's seen anything like this outside of the military trying to service vehicles in a war zone."

The tent sufficed. "I think we just became a real car company," Musk wrote in a July 1 email to employees announcing that Tesla had made 5,031 Model 3s the previous week. Even so, it's unclear whether Musk has put Tesla on a path to lasting greatness or just staved off collapse. The company is the most shorted U.S. stock, and a higher percentage of Wall Street analysts give TSLA a sell rating than for all but one stock on the S&P 500. The story of Tesla's sprint to release the Model 3, based on interviews with 20 members of Tesla's design and engineering teams, suppliers, and dozens of current and former workers, is a case study in brilliant design and unbelievable hubris.

The prize for Musk is enormous: If he gets the Model 3 right, he will remake a trillion-dollar industry and do more to reduce carbon emissions than any person on the planet. But it may turn out that mass-producing cars is the one challenge that simply defies him.

In early 2015, Musk convened a meeting of his top engineers in a windowless conference room at the factory. There were 12 people, including experts in batteries, design, chassis, interiors, body, drive systems, safety, and thermodynamics. Musk had gathered them to figure out what the Model 3 would be.

Over the course of the meeting, the engineers filled a whiteboard with dozens of requirements, including a range of at least 200 miles and an affordable price. The last of these criteria made the project especially daunting. Even scarier, Tesla would begin selling it in mid-2017, giving the company 2½ years to design, test, and build a new vehicle, compared with about five years at a traditional automaker.

Creating a low-cost electric car is about maximizing range in every possible way. For instance, Tesla's designers added plastic covers, costing $1.50 each, to hide four pads on the underside of the car where a jack goes. The decision reduced wind resistance and improved the car's range by 3 miles. They also opted for four-piston monoblock caliper brakes, which are usually reserved for more expensive cars. But since the brakes are lightweight, they lower the car's battery requirements and overall cost. "Every single decision like that was put back into the context of an electric car," says Doug Field, a former Apple vice president Musk recruited as a top engineer in 2013. In other words, electric cars require new ways of thinking about cost and performance.

Musk decreed that the Model 3 would have a single central screen for all controls and information, which would both cut costs and allow Tesla to push the front seats forward to allow for more rear legroom. Tesla's design chief, Franz von Holzhausen, spent the 2015 Christmas holiday figuring out how to design a car interior without a traditional dashboard.

Musk declared he didn't want visible air vents. "I don't want to see any holes," von Holzhausen recalls him saying. Von Holzhausen paired engineer Joseph Mardall with designer Peter Blades to figure that one out. Blades's sketch called for a recessed gap across the entire width of the car from which the air would flow, with a long strip of wood instead of the dash. Mandel pointed out that to make the approach work, the entire ventilation system would need to be redesigned. "Are we serious about this?" he recalls asking.

Musk was serious, but a second problem soon appeared: The wooden strip, just below the air gap, worked like an airplane wing, sucking cold air down and shooting it into the driver's lap. Mardall, an aerodynamics specialist, proposed adding a second, hidden gap from which air would shoot straight up, lifting the main blast of cold air above the piece of wood and away from the driver's crotch. "It was one of those eureka moments," Blades recalls, still in awe of the elegance of the solution. "The spine still tingles."

Tesla's new production line, a tent

The system Blades and Mardall designed combines all the components of a standard HVAC system into a single basketball-size glob of molded plastic tucked under the hood, which Tesla calls the Superbottle. The glob is stamped with a logo of a bottle wearing a superhero cape.

Blades and Mardall relay all this with pride. "I had to negotiate with my wife: I'm going to do seven days a week for the next half-year," Blades recalls. "And that's not just me—everybody's wives or partners—it's just part of the story of Tesla. At this company if you don't ask those silly questions and ask to do something crazy, then it's not really the right place for you."

If such loyalty seems extreme, it's partly the result of Musk's reputation for defying odds (and, some would say, common sense). He was mocked in 2002 when, as a 31-year-old software entrepreneur with no aerospace training, he founded SpaceX. It now launches more rockets a year than any other company.

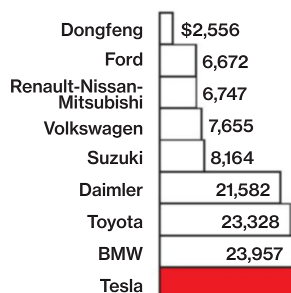
Mass-producing a car isn't rocket science; in some ways, it's harder. Rockets can essentially be built and checked by hand; a perfect car must come off the production line every minute or so if you have any prayer of keeping pace with the world's leading manufacturers. Cars are composed of tens of thousands of individual parts and have to withstand snow, potholes, and highway speeds, performing flawlessly for years. They are the largest purchase most people make besides a home, and they're also heavily regulated lethal weapons that contribute to more than a million deaths each year.

At a typical plant run by Toyota Motor Corp., widely seen as the most capable carmaker, a new car requires about 30 hours of labor. Even with all the robots, Tesla spends more than three times that number of hours on each car, says Michelle Hill, a manufacturing expert at management consulting firm Oliver Wyman. And Toyota would never, as Musk has, try a new manufacturing system and all-new workforce on a never-before-built car. Successful carmaking is "the orchestration of so many things that have to play together in unison," she says.

Musk's disregard for precedent, of course, is part of his appeal. In the weeks before the March 2016 public unveiling of the Model 3 design, employees took bets on how many prospective buyers would pay a refundable $1,000 deposit to reserve one. The most optimistic prediction was around 200,000; the actual number was twice that. Field recalls opening his staff meeting the following week with a warning: "You are now working at a different company," he said. "Everything has changed."

According to one supplier, Tesla had said it expected to spend 28 months to reach large-scale mass production, but after seeing demand for the car, Tesla moved up the timeline by 15 months. It had previously said it would build 500,000 cars per year by 2020, a goal skeptics called outlandish. But in May 2016, Musk said the plan was to do that in 2018.

Market Cap Per Vehicle Produced



DATA: COMPILED BY BLOOMBERG; CURRENT MARKET CAP DIVIDED BY VEHICLES PRODUCED IN THE LATEST AVAILABLE FINANCIAL YEAR

In an unconventional move, Musk restructured Tesla, assigning the engineers who designed the Model 3 to invent its manufacturing process. He put Field in charge of the factory and gave him the budget to automate as much of the car assembly as possible. Tesla bought two robotics companies, Grohmann Engineering in Germany and Perbix in Minnesota. Field's team invented dozens of industrial processes. One involved a tool called the golden wheel, an apparatus that automatically breaks in suspensions and aligns cars in one step without humans.

Automakers generally rely on thousands of suppliers, from windshield wiper makers to electronics manufacturers. But Musk has long argued that the traditional supplier model led to cost overruns and mediocrity. Starting in 2015, he told employees he wanted to make even the thorniest parts of his supply chain in-house. In late 2015 he appointed a recently hired car interiors expert, Steve MacManus, to build a seat factory near the main plant in Fremont. Seat assembly is labor-intensive and is outsourced by every major car company to the lowest-paid workers they can find. "Your job is to get us out of seat hell," MacManus recalls Musk telling him during their first conversation after he'd started.

And so, in one area of MacManus's Model 3 seat line, more than a dozen robots rapidly piece together the front seats, including tiny motors, hinges, heaters, and frames. Tesla claims this is the world's first front seat assembly line in which no humans are involved at all. The plan is eventually to use Musk's tunnel-digging venture, the Boring Co., to dig an underground passageway to bring seats to and from the main Fremont factory, about 2 miles away. They already have a spot in mind.

Musk keeps trying to bring other parts of Tesla's supply chain in-house. In an email to employees this spring, he also announced he would fire all contractors and consultants unless a Tesla employee personally vouched for them. "We're going to scrub the barnacles," he said during the company's earnings call in May. "It's pretty crazy. We've got barnacles on barnacles. So there's going to be a lot of barnacle removal."

To critics, Musk's description of contractors as parasitic crustaceans is revealing. He is maniacally committed to Tesla's mission of saving the world from global warming, but at times Tesla has seemed to fall short of more prosaic obligations, such as making sure its workers are safe. On Nov. 18, 2016, eight months before Model 3 production began, a factory employee heard a scream coming from just outside the main building at the Fremont plant. He saw a colleague, quality-control lead Robert Limon, writhing on the blacktop and grabbing at his ▶

◀ leg, which was "bleeding like crazy," the worker says. The specifics of this incident haven't been previously reported.

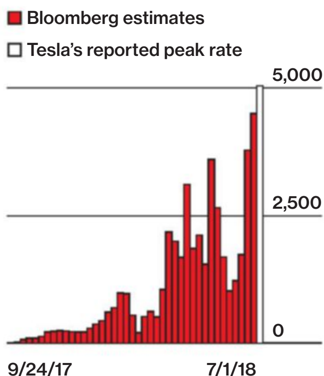
Limon's co-workers gathered around him. Someone used a belt to tie a tourniquet around his leg. The witness, who declined to be named out of concern for adverse consequences from Tesla, says management offered counseling for people who had seen what happened—and the witness took the company up on it, because it was traumatic.

Limon later told this co-worker he'd been hit by a forklift driver who'd been doing doughnuts on the property for fun. Limon didn't respond to requests for comment for this story, but according to people who saw and spoke to him in the following days, and as depicted in photos seen by *Bloomberg Businessweek*, the injured leg was amputated.

Tesla says that both Limon and the forklift driver were fooling around in an inappropriate way that isn't representative of the automaker's safety culture. Afterward, Tesla says it fired the driver and held factorywide safety meetings on each shift. The company suggests Tesla's enemies disclosed the episode to damage its reputation. "Nothing is more important to us than the safety of our employees," a spokesperson says. "This is not to say that there aren't real issues that need to be dealt with at Tesla or that we've made no mistakes with any of the 40,000 people who work at our company." The spokesperson says Tesla's goal is to "have the safest factory in the world by far."

The state agency Cal/OSHA, which fined Tesla $800 in connection with the injury, described it as an ankle fracture. But agency documents show it did not interview Limon. Tesla says it tried repeatedly to arrange an interview. A few months later, Justine White, a Tesla safety official, sent a resignation letter to Musk that was recently reported by the Center for Investigative Reporting. White said she had made "repeated safety recommendations" about "informing employees of forklift hazards in a timely manner after an employee's lower leg was amputated when run-over." Tesla disputed White's claims.

Weekly Model 3 Production Rate



Dozens of current and former Fremont workers, many of whom requested anonymity, say there's a larger pattern in which a company hellbent on making lots of cars tolerates unsafe conditions. A 2017 analysis by Worksafe Inc., a nonprofit, said that serious injuries at Tesla's plant in 2015 and 2016 were well above industry averages. Tesla, which is a nonunion company that has been targeted by the United Auto Workers, points out that Worksafe has ties to labor. It says injury rates in 2017 fell 25 percent and were about the same as the industry average. In June, Musk said Tesla's 2018 injury rates so far were 6 percent below the average, even as Model 3 production increased.

The "golden wheel"

Tesla's safety records were questioned again earlier this year when the Center for Investigative Reporting reported that Tesla had misclassified work-related injuries as personal medical issues, which made the plant seem safer than it is. Tesla argued that the report was "an ideologically motivated attack by an extremist organization," but it retroactively added 13 injuries from 2017 to its safety logs, according to a subsequent article. Tesla says it routinely updates safety logs to ensure accuracy.

"An important error that Tesla has made is simply ignoring the extensive experience of the last 50 years in the auto industry," says Harley Shaiken, a University of California at Berkeley professor who chaired a state commission that warned against the 2010 closure of the Fremont plant, which previously had been operated by Toyota and General Motors Co. as a joint venture. Tesla sought, Shaiken continues, "to start from scratch in a way that has resulted in meltdowns and near-meltdowns."

Tesla says automation on the Model 3 line is making the factory safer. But when robots break down, employees have to pick up the slack. For instance, an enormously complex robotic conveyance system for bringing parts to the line had to be removed, and teams of human workers wound up doing the work. (Parts of the conveyance system, which had included 500 machines to lift parts, were used to build the new manual production line under the tent.)

Today, Tesla has about 10,000 workers at its Fremont plant. GM and Toyota had less than half that and produced more than 400,000 cars at the plant's peak in 2006. Tesla argues that a larger workforce is justified given that more of the car is manufactured in-house, but interviews with workers suggest the

DATA: COMPILED BY BLOOMBERG

company has stretched to ensure that there are enough workers on the floor. Current and former employees describe 12-hour shifts as common, with some going as long as 16 hours.

To battle exhaustion, employees drink copious amounts of Red Bull, sometimes provided free by Tesla. New employees develop what's known as the "Tesla stare." "They come in vibrant, energized," says Mikey Catura, a Tesla production associate. "And then a couple weeks go by, and you'll see them walking out of the building just staring out into space like zombies."

Four current employees say the pressure they felt to avoid delays forced them to walk through raw sewage when it spilled onto the floor. Dennis Duran, who works in the paint shop, says that one time when workers balked, he and his peers were told, "Just walk through it. We have to keep the line going." Tesla says it's not aware of managers telling employees to walk through sewage and that plumbing issues have been handled promptly.

Musk and many Tesla employees dispute that workers are unhappy or unsafe. "There's always going to be challenges from a safety standpoint and from a production standpoint–that's all manufacturing," says Dexter Siga, who started as a technician in 2011 and is now a manager. He adds that Tesla has "had our fair share of challenges" as a young and rapidly growing company, but it treats safety as "an overriding priority."

For his part, Musk says Tesla demands hard work, but that's because it's the only way to survive as a U.S. car manufacturer. "I feel like I have a great debt to the people of Tesla," he says, his voice cracking with emotion. "The reason I slept on the floor was not because I couldn't go across the road and be at a hotel. It was because I wanted my circumstances to be worse than anyone else at the company. Whenever they felt pain, I wanted mine to be worse.

"You know," he continues, "at GM they've got a special elevator for executives so they don't have to mingle with anyone else." ("Typical Elon, deflecting from the real issue, which is the ability to mass-produce at scale and with quality," says GM spokesman Ray Wert.) "My desk is the smallest in the factory, and I am barely there," he says. "The reason people in the paint shop were working their asses off was because I was with them. I'm not in some ivory tower."

In July 2017, Musk delivered the first Model 3 sedans at a raucous party in Fremont. The car was celebrated by reviewers ("Driving Tesla's Model 3 Changes Everything" was Bloomberg's take), but it was almost immediately apparent that Tesla could never deliver it in the numbers Musk promised.

The first problem involved the batteries. Tesla and Panasonic Corp., which jointly operate a battery factory in Nevada, had designed cells that were slightly larger than the standard 18650 cells used in previous Teslas. The new batteries were better, but the automated manufacturing line for packing thousands of them together didn't work, and the task had to be done by hand for a time. A new system, made by Grohmann, was eventually built and flown in.

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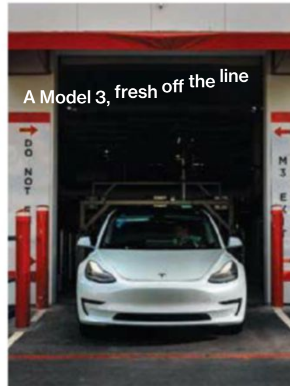
A Model 3, fresh off the line

In November, Musk told analysts he was "really depressed" but doing his best to fix the battery-packing issue. Other problems emerged, and Tesla had to shut down the Fremont plant for five days in February. In retrospect, Musk says, trying to automate so much of Tesla's factory at once was overly ambitious. "We thought it would be good, but it was not good," he says. "We were huge idiots and didn't know what we were doing."

This April, Musk took over manufacturing engineering personally. "I'm back to sleeping at factory," he tweeted. "Car biz is hell." Field, who'd been in charge of the factory, took a leave of absence the following month; he later left the company. In mid-June, Tesla announced it was laying off 9 percent of its workforce, more than 3,000 people.

Musk turned 47 in late June, during the final sprint to make 5,000 cars a week. "First bday I've spent in the factory," he tweeted, "but it's somehow the best." On the Friday before the deadline, Musk seemed giddy with excitement about what he expected would be a spike in Tesla's stock price. He tweeted a music video of the 1958 single *Short Shorts*, by the Royal Teens. On Sunday he announced that Tesla had hit the milestone and proclaimed his love for his employees. Tesla's stock price gained 5 percent on Monday morning.

The exuberance was gone by lunchtime, and Tesla's stock finished the day down 2 percent. It lost 7 percent on Tuesday. The "short burn of the century" that Musk had predicted had failed to come to pass, as skeptics pointed out that Tesla's wild sprint would be unsustainable.

Musk projected confidence during an interview with *Businessweek* on July 8. "The past year has been very difficult, but I feel like the coming year is going to be really quite good," he said. He still had "one foot in hell." He said manufacturing hell will be over in a month.

At present, the Model 3 is selling more units in the U.S. than any comparably priced midsize sedan, including those offered by Mercedes-Benz, BMW, and Audi. It's fast and fun to drive. When you stomp the accelerator, the Model 3 stomps back, and Tesla's designers tried to replicate the feeling of instantaneous acceleration in every aspect of the driving experience. "Point and shoot," says Lars Moravy, Tesla's director of chassis dynamics. "There's no overshoot, and there's no delay. That's the essence of the electric motor and our name."

Of course, quick acceleration isn't unique to the Model 3; it's true of all electric cars. But the fact that there even is a market for these vehicles is to a large extent Musk's doing. He set out to teach the world that consumers would pay for zero-emissions cars in huge numbers. Whatever happens to Tesla, he's succeeded in that. Tesla is, as Musk says, "a real car company." That's glorious, and it's also hell. Ⓑ —*With Sohee Kim*

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HOW A BANK FROM THE OZARKS OUTPA

George Gleason isn't one of those chief executives who make the job look easy. Rather, he'll tell you (and tell you) it's hard. Not up-at-dawn hard. Up-at-midnight hard. That's when he got out of bed to write the remarks for his bank's first-quarter earnings statement, finally hitting "send" one March morning at 5:30 from a hotel room in Washington, after a full week of client meetings on the road. Gleason, who runs Bank of the Ozarks, an institution in Little Rock with $22 billion in assets, even makes being interviewed look hard. In response to an emailed list of questions, he composed five pages of answers in red, then referred to the printout frequently when we met at the bank's headquarters in April. "I should have numbered these pages," he said.

At 64, Gleason is bald, with white eyebrows that give him an incongruous baby face. He speaks in maxims that indeed sound predrafted: "If a loan doesn't meet our credit-quality standards, we don't make it." Most of his career he was a respected but little-known community banker. During the post-recession gentrification wave that's seemingly blanketed U.S. cities in barre studios and artisanal toast, he's become something else: the country's largest construction lender. That this superlative—based on data compiled by Real Capital

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G HEART

TRUCTION FINANCE

CED WALL STREET. BY PETER ROBISON

Analytics Inc. for multifamily housing, hotels, and other commercial properties in the first nine months of last year—should go to a relatively small Arkansas bank and not, say, Wells Fargo & Co., with 87 times the assets, is a measure of the skittishness many lenders still feel when it comes to real estate. Memories of empty Miami condo towers, vacant Silicon Valley office parks, and half-finished Las Vegas casinos don't easily fade.

Where others have stayed away or placed forbidding restrictions on deals, Bank of the Ozarks has jumped in—making Gleason look, depending on whom you believe, like a contrarian genius or the driver of a turnip truck that's about to careen off the road. At a conference convened in New York City last year by *Commercial Observer*, the industry publication Jared Kushner's family owns, property finance specialist Simon Ziff, who's firmly in the genius camp, opened one panel by asking how many times Gleason and his bank would be mentioned. "He's one of the most important real estate bankers in America today," Ziff says.

If there's a marquee project in America—the tallest residential building in Nashville, condominiums in Miami's Brickell financial district, a 450-unit apartment tower in the midst of Seattle's booming Amazon campus—chances are "the Little ▶

◀ Rock bank that could," as the Kushner publication called it, is involved. "They suck all of the oxygen out of the room," says John Allison, chairman of Home BancShares Inc., a competitor in Conway, Ark., and a friend of Gleason's since the 1980s. "They go into a town where this construction stuff is going on, they'll take the business."

Ozarks didn't have a New York office until 2013; this year, industry watcher the *Real Deal* named it the city's third-biggest construction lender. It's committed more than $6 billion there, including loans for the Kushners' purchase of a parking lot in the Dumbo area of Brooklyn, a $700 million Long Island City office tower anchored by Bloomingdale's and WeWork Cos., and a 73-story residential tower that will be the tallest ever in Brooklyn. Gleason's bank is the largest construction lender in Los Angeles, the largest in Miami, and one of the largest in Chicago, Denver, and Seattle.

Reaching the big leagues has required an unusually concentrated bet: Eighty percent of Ozarks' portfolio is in real estate, and half of that is in construction and land development, which is historically the riskiest sector and has led to a disproportionate share of bank failures. The share of these loans at a typical midsize bank such as Ozarks is eight times smaller, on average. Also, unlike many of his rivals, Gleason doesn't work with other banks to spread risk or sell off loans as securities; he's so confident of his judgments that he loads them onto Ozarks' own balance sheet. Since 2014 profit has jumped almost fourfold, and the return on assets is double the industry average.

But an old banking adage holds that the lender who grows fastest is the lender who someday loses most, and Gleason's rise has brought plenty of skeptics. In a 2016 presentation in New York, Carson Block—the founder of investment adviser Muddy Waters Capital LLC and a short seller then anticipating the bank's shares would fall—argued that Ozarks' growth would flag as the hottest property markets cooled. Goldman Sachs Group Inc. economist Spencer Hill said this spring that commercial real estate is overvalued by as much as 16 percent and that next year it could approach the "bubble-period peaks" of a decade ago.

The expansion since the recession ended has been so long and seemingly unstoppable that Congress, without much controversy, passed a law in May easing oversight of smaller banks—just the thing to allow Ozarks to accelerate even more. Of course, if Gleason is already going too fast, as the skeptics maintain, the last thing he needs is more gas.

There's nothing impetuous about Gleason's manner. Clad the day of our meeting in Little Rock in a charcoal-gray suit, salmon tie, white shirt with monogrammed cuff links, and gold watch, he makes fellow bankers seem underdressed. His voice is honeyed and measured, like a Southern country judge, and he is, in fact, a lawyer who studied criminal law under Hillary Clinton and constitutional law under Bill at the University of Arkansas School of Law. After graduating in 1977, he overlapped briefly with Hillary at the Rose Law Firm, where he worked mostly on bank mergers and securities filings.

One day he met with officers from one of the state's biggest banks to pitch them on taking their business to Rose. One told Gleason, then just 24, that he seemed too entrepreneurial to practice law. Another proposed that he buy a bank himself.

The idea wasn't entirely outlandish. Gleason's parents had been prominent landlords, the owners of rental properties, stores, a feed mill, and a 1,000-acre cattle ranch in Yell County, Ark., the home of Mattie Ross in the classic Western novel-then-film *True Grit*. He'd been raised something of a princeling—the only boy, with sisters 6, 9, and 12 years older. "It was like having three extra mothers," he says, adding that studies show having older sisters "tends to inflate one's confidence."

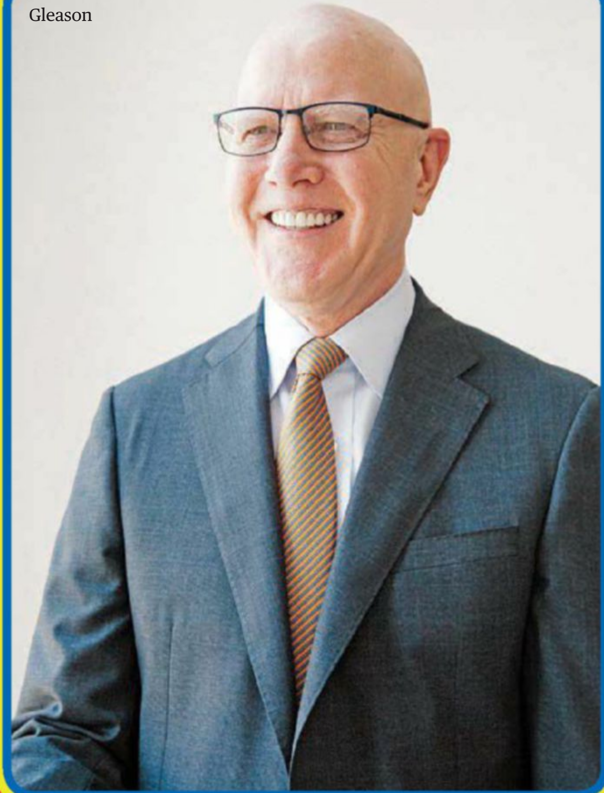
Gleason's youngest sister, Diane, 70, can often be found writing regional histories inside one of the tidy brick office buildings in their hometown of Dardanelle. A retired college professor with Mattie's bluntness, she nodded at the framed photos of their parents above her desk before unspooling a family history that began with an ancestor hand-clearing 200 acres of virgin timber and culminated with the couple building a red-brick antebellum-style home in 1954. Their parents were always working, and George started at age 7, pulling down 25¢ a day filling water troughs after school. At night he'd join his father in the office, learning how to keep the books. "By the time he was a teenager," Diane said, "he probably understood as much about business as most MBAs."

All four children were high school valedictorians. George went on to earn an accounting and economics degree from Hendrix College in two years, graduate top of his class from law school, and write the top Arkansas bar exam paper. (Even his longest all-nighter was an overachievement: "Twenty-four times three," he says.) So it wasn't unusual that a group of bankers would spot potential in him.

After first trying to buy a bank in Dardanelle, Gleason heard that Carl Holt, who owned one in Ozark, a town of 3,700 an hour away, was looking to sell. Gleason, by now trustee of the family estate, put up the family farm as collateral and bought Holt's bank in March 1979, with $10,000 in cash and a $3.6 million loan. (He would later marry Holt's stepdaughter, Carol Ann Ross.) Bank of Ozark, as it was known then, had $28 million

GLEASON HAD AN AGGRESSIVE STRATEGY FOR POACHING CUSTOMERS: "I HAD EVERY BANKER IN THE REGION MAD AT ME"

PREVIOUS SPREAD: LIBRARY OF CONGRESS


Gleason

in assets and two dozen employees; Gleason recalls some looking shell-shocked when he gave them a speech about becoming the best bank in Arkansas. "I think they thought we'd be lucky to survive until Christmas," he says.

The little bank made a fast impression by taking out ads that compared its deposit rates with those of its competitors, then an unusually aggressive strategy for poaching customers. "I had every banker in the region mad at me," he recalls. Tellers pinned $100 bills to their lapels and gave them to customers who opened accounts. Gleason was equally relentless when it came to managing risk. Bob East, the co-owner of a construction company in Little Rock who's now an Ozarks board member, remembers Gleason would have piles of loan documents around his office: "He'd say, 'Book 14, page 46, paragraph 3—we're going to change 'an' to 'the.'"

In 1986, after getting divorced from Ross, with whom he has two sons, Gleason married his current wife, Linda. She'd worked for the bank since 1980 and remains a director and loan-committee member. Their wedding took place on a lunch hour. The couple considered turning one floor of the bank's offices into an apartment for their combined family so they'd never be more than a few steps away. (They eventually settled for building a French-style château with gardens, a fountain, and a chapel on a wooded 205 acres in Little Rock.)

Gleason took Ozarks public in 1997, and its share price has climbed an average of 21 percent annually, three times the rate of the S&P 500 index. A big reason has been the Real Estate Specialties Group, a unit Gleason started in Dallas in 2003 with the help of Dan Thomas, an attorney and accountant there. RESG initially concentrated most of its lending in Texas and the Southeast, avoiding the ravages of the financial crisis in part by requiring developers to invest big sums of capital upfront. "A lot of deals weren't killing it, but they were still performing," says Wes Hardin, a former manager at the unit. Some borrowers simply took more time to pay back their loans.

After escaping the morass that engulfed some of the country's most storied institutions, Ozarks became a buyer, purchasing seven failed banks that the Federal Deposit Insurance Corp. had shuttered. Profit almost tripled from 2009 to 2011. Gleason's bank by then had $3.8 billion in assets, and *Arkansas Business* dubbed him the Wizard of Ozark. With other lenders sidelined, he expanded the construction unit in Dallas. "When all your competitors jump in the bunker and close the door, you build a lot of customer relationships," says Brannon Hamblen, RESG's chief operating officer.

A second opportunity came in 2016, when the market had rebounded enough to persuade some banks to scale back their commercial real estate bets in case a bubble was forming. The Federal Reserve released a report that year warning that the CRE sector appeared "increasingly vulnerable to negative shocks." Ozarks took the opportunity, Gleason says, to lure away some big developers that had dug in with rival lenders.

He holds to the belief that, if you lend to the right projects, there is no boom-and-bust cycle. Ozarks doesn't change its underwriting standards in good times or bad, Gleason says. And it doesn't base decisions on headlines. It examines population growth, household formation, and job creation around proposed projects, virtually down to the street. "If you do the work, you can predict those items with some degree of precision," he maintains.

The construction unit occupies the top two floors of a north Dallas office building overlooking the green canopy of the exclusive Preston Hollow neighborhood. Two dozen of the 110-person staff are asset managers who look over each loan at least once a month, examining every sales contract, expense, and construction inspector's note. The managers handle 16 loans each on average; at other banks, it might be more than 100. That's one reason, Gleason says, that Ozarks has recorded only $11 million in losses on its billions in construction loans and that its net charge-off ratio (the proportion of loans it can't collect) is one-third that of its competitors. Other banks "put things in buckets," says Cliffton Hill, a managing director at the unit. "They diversify for the sake of diversification. Sometimes diversification compels you to do more risky loans to fill your bucket. We don't have George making blanket statements of, 'You can lend this much, and that's it.'"

Often, the message is the opposite. Getting dressed in a Miami hotel before a board meeting last year, Gleason picked up a lifestyle magazine and spotted an ad spread showing an Ozarks-backed project. He turned the page and was glad to see another. Then he turned to find a competing build. "I thought, Who is this doing these other condo projects? Why didn't we have that business?" Today, Ozarks is funding 11 condo projects in South Florida, including $259 million for the Turnberry Ocean Club Residences, a 54-story, high-rise glass tower in Sunny Isles Beach, near Miami. Sunrise and sunset pools will cantilever off two sides of the facade when it opens late ▶

AKASHA RABUT FOR BLOOMBERG BUSINESSWEEK

◀ next year. The developer says half the units are already sold, at $3.9 million to $35 million apiece.

But Ozarks has made its biggest bet in the country's priciest real estate market, New York, which accounts for a third of the construction unit's portfolio. It's made dozens of loans in the city, among them hotels in Chelsea, apartments in Queens, luxury condominiums on Park Avenue, and a 54-story condo tower at the site of the former J&R Music World on Park Row. On Manhattan's 10th Avenue, one of those West Side streets where cab drivers briefly get frisky and step on it, the bank loaned $108 million for a seven-story condo building developed by the U.S. arm of Chinese builder Xinyuan Real Estate Co. In Long Island City, a once-scruffy part of Queens that already gleams with new residential towers, Ozarks put up a combined $300 million for the construction of two more on the site of a graffiti-plastered—and beloved, to the artists who once had studios there—warehouse known as 5 Pointz.

In fast-gentrifying Brooklyn, Ozarks loaned $147 million to help a group including Kushner Cos., owned by the family of President Donald Trump's son-in-law and adviser, acquire the Dumbo parking lot. The Jehovah's Witnesses once owned it, then sold it along with several parcels in the formerly gritty neighborhood. A bakery near the subway stop with the motto "You code: We cook" shows the area's current trajectory. CIM Group, which worked with Kushner on the land purchase (Kushner has since sold its stake), plans to turn the lot into a 21-story, 732-unit condo tower with a central courtyard. Ozarks committed $100 million for another residential high-rise a short walk away. There, someone has taken care to write a message on the developer's signboard: "More rich assholes coming soon."

In May, Gleason convened a banking party of sorts at Midtown Manhattan's Il Tinello restaurant. Beneath a gold-framed print of Renoir's *Luncheon of the Boating Party*, Gleason was surrounded by Rich Smith, a managing director and head of his New York office; East, his Little Rock friend and board member; and two other recently recruited board members—Kathleen Franklin, a Sony Corp. of America compliance chief; and Peter Kenny, a former chief market strategist of Knight Capital Group. Carl Icahn happened to be at the next table.

Gleason was in town to meet clients, and he'd asked the board members (and *Bloomberg Businessweek*) to join him for dinner to show off a push for diversity in geography, gender, and business experience he'd been leading to match the bank's national footprint. Kenny talked about the intellectual firepower of the board and its intense discussions. When conversation turned to Dardanelle, and then to *True Grit*, East joked, "It's about George."

The CEO should have been enjoying the satisfying third act of his remarkable 39-year rise. But the concern raised by Muddy Waters' Block in May 2016, that Ozarks' growth will prove unsustainable, hadn't gone away. "You have people in the media who don't understand our business," Gleason lamented. "You end up with some ridiculous headlines and stories."

Among other things, he'd been having to explain, or at least downplay, Thomas's July 2017 departure from RESG. Thomas by then was the bank's chief lending officer, and he'd complained about the regulatory burdens Ozarks faced as it grew past the $10 billion asset threshold, according to Bill Koefoed, a bank board member. "In my conversations with him, he felt like he was under a lot of scrutiny just because of how fast he'd grown," Koefoed says. Thomas moved on to advising a competitor, Otera Capital. (Gleason said only "we wish him well" and "our unit has not missed a beat." Thomas said his departure "was not due to the additional audits or regulatory stress tests, which were required due to the growth of the bank.")

It wasn't just the media getting under Gleason's skin. In March, UBS Group AG analyst Brock Vandervliet had become one of the few to put a sell rating on Ozarks' stock, saying the bank was likely to fall victim to the end of cheap money. The Federal Reserve has boosted interest rates twice this year and has signaled that two more hikes are coming. As rates rise, Vandervliet predicted, the spread between what Ozarks pays out to depositors and collects in interest will shrink. And as projects become more expensive, it will be harder for the bank to maintain its remarkable loan growth. "Now the machine is running in reverse," he said.

615 10th Ave., Manhattan

22-44 Jackson Ave., Queens

85 Jay St., Brooklyn

9 DeKalb Ave., Brooklyn

TOP TO BOTTOM: COURTESY KAUFU PROPERTIES; COURTESY HTO ARCHITECT; COURTESY HANDEL ARCHITECTS; COURTESY SHOP ARCHITECTS

It's hard to know which projects might be vulnerable without seeing the loan documents, but signs that signaled the end of past expansions have begun to appear. In Miami, according to consultant Jack McCabe, some developers are offering broker commissions as much as four times the usual 3 percent to bring in buyers. "We're getting back to what we saw 12 years ago," says McCabe, who warned of a bubble forming in Florida in 2006. "Any lender making condominium loans for near-future construction is in a world of trouble." In Sunny Isles Beach, where the Turnberry Ocean Club is going up, at the end of March you could find 30 months' worth of inventory available, compared with the normal six, according to Condo Vultures LLC. (Gleason says that 9 of Ozarks' 11 Florida condo loans have already closed enough sales for the bank to be paid back and that the buyers laid down substantial deposits.)

The unstoppable engine of New York is also showing signs of malfunction. After a big run that pushed average Manhattan condominium and co-op prices above $2 million, they dropped more than 8 percent in one year, starting in April 2017. By CityRealty's count of new developments, the number of unsold condominiums costing $2,000 a square foot or higher more than quintupled between 2015 and 2017, to 4,362. Fitch Ratings Inc. warned in January of an increase in problem hotel loans and said that an oversupply of rooms may depress rates in seven U.S. cities, including New York. "I do think you're going to see some problems," says Barry Sternlicht, who founded the Starwood hotel chain and now runs the real estate investment company Starwood Property Trust Inc. "And the first ones will probably show up in New York City." These problems won't, he makes clear, necessarily involve Ozarks, which he's worked with on some deals and calls "a very good lender."

"ANY LENDER MAKING CONDOMINIUM LOANS FOR NEAR-FUTURE CONSTRUCTION IS IN A WORLD OF TROUBLE"

At dinner, Gleason ripped out a piece of notebook paper and drew a diagram with boxes and arrows showing how money flows from Ozarks, and how it's taken multiple steps to minimize risk. Banks consider construction loans among the chanciest on their balance sheets because they don't generate income at first and there's always the worry projects will go over budget or simply fail to sell.

Such ventures are typically funded with cascading layers of debt. Ozarks goes for the first, least risky, part: a loan that's secured by a lien on the property. It also protects itself by requiring developers to put their own capital into the deal first. At the end of 2017, regulatory filings show, the typical Ozarks loan covered only $49 of every $100 spent; the developer had to come up with the other $51. This is sufficient cushion, Gleason said, for his bank to withstand a drop in property values greater than the dips of the Great Recession: "It's almost impossible for it to end badly."

The diagram looked reassuring. But above the bank was another box, for the so-called mezzanine lender. In some cases this lender, often a fund such as Sternlicht's, accounts for perhaps $25 of the developer's $51 in equity. It's something like a homebuyer getting a chunk of the down payment from a grandparent. The money goes into the project as equity, but the developer is also on the hook for the additional loan (generally around 12 percent, vs. 6 percent or so for Ozarks). The bank uses this structure on a third of its construction lending. Gleason told me not to worry about this, because the other lender doesn't have a lien on the property and is required to put all of its money in before Ozarks. Multiple legal guarantees protect the bank, though some such assurances can be "tissue-paper thin," he acknowledged. But, he added, "We use the industrial-strength material."

Mark Elletson, managing principal of Maidstone Advisors LLC, which counsels parties with troubled properties, says such assurances have humbled lenders in the past. When projects fail, they tend to fail hard. If developers don't have enough skin in the game, they cut their losses and move on. The bank holding the lien can foreclose, but then it's holding a half-finished building. On paper the building might be worth more than the loan; in practice, selling it could require a fire sale. "Things go wrong, and mistakes get made, and lenders don't get out whole," he says.

Regulators will have less authority to put the brakes on that pattern after Trump signed the law easing some of the oversight measures enacted in the wake of the financial crisis—"the crippling Dodd-Frank regulations that are crushing small banks," as he put it. Congress did away with mandatory stress-testing that forced banks with $10 billion to $100 billion in assets to evaluate how, for instance, a 40 percent drop in commercial real estate prices might affect their balance sheets. (Gleason says the bank will do its own tests that are even more specific than the government's generic ones.) The law also changed the definition of "high-volatility" commercial real estate loans, potentially encouraging more banks to make them.

Bank of the Ozarks will meet this brave old world with a new name. Gleason is spending as much as $25 million to rebrand as Bank OZK (pronounced oh-zee-kay, not oz-kuh). The name will start appearing soon on checkbooks, outside branches, and in those thousands of pages of loan documents. Gleason came up with it himself: "It's a name that sounds young, tech-oriented, global," he says. A long way, in other words, from Ozark, Arkansas. Ⓑ —*With Caleb Melby*

IRON HAND

FORMER RIO TINTO EXECUTIVE STERN HU

PHOTO ILLUSTRATION BY 731

HOW A MYSTERIOUS HACK AND FOUR ARRESTS TRANSFORMED A MINING GIANT'S RELATIONSHIP WITH CHINA. BY KIT CHELLEL, FRANZ WILD, AND DAVID STRINGER

For eight years, Stern Hu rose every morning at 6 a.m. in Qingpu Prison near Shanghai. He and the dozen men who shared his cell would blearily pull on their blue-and-white-striped uniforms and line up in front of their bunks for the day's first duty: greeting the guards. "Good morning, officer!" they'd shout. "Thank you for taking care of us, officer!"

Everyone in Brigade No. 8, the foreign prisoners unit, knew Hu. The quiet 61-year-old stood a head taller than the rest. Chinese-born, with an Australian passport and a shock of white hair, he'd been a star at Rio Tinto Group, one of the world's largest mining companies, before being sent to prison in 2010 for stealing trade secrets and taking bribes. The Chinese government said his actions had cost the country's steel industry as much as $100 billion.

To the members of Eight Brigade, Hu was also the guy who ran the library. After a breakfast of rice gruel with a spoonful of pickled vegetables, he'd take his post at a small desk next to some bookshelves at one end of the common room. He was supposed to keep track of who borrowed the books, but a former fellow convict says he let people do as they pleased. Most of his day was spent translating things for the guards. At 9 p.m., when the automatic lock on his cell door clanged shut, he'd lie on a thin mattress and listen to his bunkmates snore or cry out in their sleep.

Hu also completed self-denunciation classes, writing out long scripts apologizing for his actions. His reward for this, combined with his library service and reputation for good behavior, was to have his sentence reduced from 10 years to eight. On July 4, Hu, one of the most senior Western executives to see the inside of a Chinese prison, was set free.

As Rio Tinto's chief representative in Shanghai, Hu had once helped the company ride China's economic miracle to record profits. Hundreds of millions of tons of iron ore, supplied by Rio and sold by Hu, were forged into steel for cars, bridges, and skyscrapers. Then, in 2009, the relationship soured, and Hu and three of his colleagues were arrested as part of what highly placed sources describe as a targeted campaign—one they say involved a major hacking operation and cost the company more than $1 billion.

What happened to Rio has never been reported in depth. The company declined to comment for this article, and the Chinese government denied any knowledge of a targeted campaign. Over the course of three years, however, more than 20 sources—including current and former government and intelligence officials, current and former Rio Tinto employees and executives, and private security consultants—revealed details of Hu's incarceration, the company's interactions with Chinese officials, and the hacking allegations. They asked not to be identified because of the matter's sensitivity. Many said the experience had been unforgettable, even traumatic. One former executive called it the most nightmarish period of his career. Taken together, their accounts portray one of the first and most devastating instances of China's now-famous hackers spying on a Western corporation, and a cautionary tale about the country's ability to influence global trade.

Sixty years ago, Mao Zedong predicted China would become the world's top steel producer. His plan to have rural communes build thousands of humble "backyard" furnaces produced some memorable propaganda but little steel worthy of the name. At the start of the 1950s, annual output in China was about 160,000 tons, sufficient for a few skyscrapers. But after economic reforms opened production to the private sector, the figure rose steeply. By 2003 the country was churning out 200 million tons of steel a year, enough to erect 3,000 Empire State Buildings.

This boom took place even though China has little quality iron ore, which is superheated, purified, and mixed with oxygen to make steel. Instead, it relied on a handful of exporters, especially Rio Tinto. Formed in 1873 by London financiers seeking to buy the Rio Tinto copper mines from the Spanish government, the company grew into an international conglomerate with operations in Africa and the U.S.—an apex predator of mineral deposits, selling everything from diamonds to talc. Its transformation was secured in 1966 by the opening of an iron ore mine in the Pilbara, a remote region of northern Australia where the dirt itself is the color of rusted metal.

By tradition, iron ore markets were orderly and only modestly lucrative. The biggest buyers and sellers in each region negotiated the price annually. This worked fine during the 1990s, when Japanese mills were the biggest customers and the price held steady at $10 to $15 per ton. But Chinese demand changed everything. In 2005 the global benchmark price doubled. When Rio sent negotiators to China to hammer out a deal, they found something very different from the market in Japan.

China by then had some 4,000 steelmakers, from state-owned behemoths to scrappy family-owned mills. These ore buyers, it turned out, were acting like traders, snapping up shipments under one-year contracts and flipping them for a quick gain on the open market. Word spread among Rio executives that the son of iron ore head Sam Walsh had been approached in Australia, where he was working for a separate business. ▶

◀ A Chinese classmate from his MBA program sat down in his office and offered the market price, plus a few million dollars, if he could arrange for a Rio shipment to be sent to a particular port. The offer was declined.

Throughout the mid-2000s, 2-kilometer-long trains loaded with iron ore rumbled to the Australian coast to fill cargo ships headed for Qingdao and Tangshan. In August 2006, Rio held celebrations at its global offices to mark 40 years of exports from the Pilbara. A marketing executive named Stern Hu arranged a fireworks display over Shanghai's Bund waterfront district, watching in awe as the pyrotechnics danced with the skyline's neon glow. That year, Rio announced a record second-half profit, driven, in part, by $1.8 billion in sales to China. But a crisis was coming that would threaten the company's existence.

In May 2007, Tom Albanese became Rio's chief executive officer. A New Jersey native, he'd gone to college in Alaska so he could devote his spare time to mountain climbing; he spent his school holidays carrying rocks down slopes for geologists. When he first started working for Rio in the '90s, he turned up at its headquarters in London's Aldermanbury Square wearing his best Alaskan jacket, a bold plaid. He was directed to the nearest tailor.

Within months of Albanese's appointment as CEO, rumors began to circulate that Rio's biggest rival, BHP Billiton Ltd., was planning a takeover bid. In November the talk became reality with a $150 billion offer, then the largest in corporate history. Rio rejected BHP's overtures, the bid turned hostile, and Albanese's focus shifted to survival.

A few months later, he was on a monthly call with about 100 employees when news flashed on computer screens that state-owned Aluminum Corp. of China, known as Chinalco, had staged an overnight raid on Rio's shares. Without warning, the Chinese government had effectively acquired 9 percent of the company's stock and become its biggest investor. The move was widely seen as an attempt to stop BHP's takeover, lest the combined entity choke Chinese factories in a monopolistic grip. (Chinalco didn't respond to a faxed request for comment.) That same afternoon, Albanese and another executive met Chinalco President Xiao Yaqing at Rio's headquarters. After some stiff handshakes, Albanese welcomed Xiao to the company. Anyone who could help ward off BHP was a friend.

Around the same time as the Chinalco raid, however, Rio executives noticed their computers were acting strangely. Keyboard commands were taking a long time to register onscreen. Emails opened and closed by themselves. Alarmed, Rio's board contacted MI5, Britain's domestic spying agency.

The security service didn't seem interested at first. Rio sold metal and rocks. But a few weeks later, according to two people familiar with the conversation, a company representative was summoned to an unmarked building near London Bridge. He was asked to surrender his phone, belt, and watch. Then he went upstairs to meet a man who didn't provide his name.

Your communications are insecure, the official said.

What does that mean? the employee asked, incredulous. Data? Emails? Phone calls? Text messages?

Yes, the official replied. Six sovereign states can see them, he specified.

I presume you're one, the employee said.

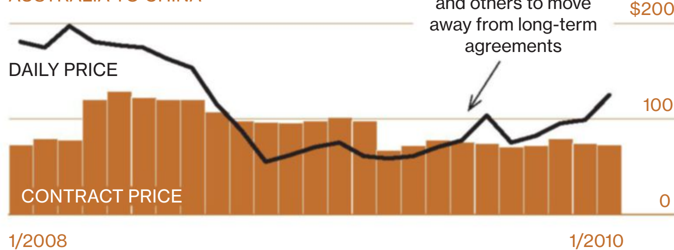
Most of the watchers are benevolent forces, the official responded, but you really need to worry about the Chinese.

MI5 recommended that Rio hire a British consultant. The company considered overhauling its IT infrastructure, but ultimately opted for what a government official describes as "whack-a-mole" fixes, such as using burner mobile phones. For discussions about the BHP bid, Rio executives decided to meet deep inside headquarters, in a windowless room dubbed "the bunker," to prevent outsiders from listening in by shining a laser against a windowpane and measuring the vibrations. They also used a system of code names. Rio Tinto was referred to as Robert. BHP was William. The takeover defense was Manchester.

Only a small number of executives and board members were told that Chinese hackers had comprehensively breached Rio's systems. The company's attention was focused on the more immediate problem of the takeover bid, which ended in late 2008 because of another crisis: the string of bank collapses that triggered a credit squeeze and spread through the global financial system. For a time, Chinese steelmakers stopped buying iron ore altogether. Some even breached their contracts by refusing to take shipments. Albanese and his colleagues spent that Christmas season trying to keep the company afloat while carrying $40 billion in debt. They flew around the world, into airports that seemed eerily empty, firing miners and sending thousands of employees home early for the holidays. Dozens of tankers sat parked off the Australian coast with nowhere to go.

Rio soon concocted two plans to escape the turmoil. Either it would go to the market and raise capital (code name: Glasgow) or it would get a bailout from Chinalco in return for a stake in key assets (code name: Colleen). Colleen won. On Feb. 12, 2009, Albanese signed an agreement with Chinalco for $19.5 billion in cash and convertible bonds. Rio's shares swiftly fell, as non-Chinese shareholders complained they were being stiffed, and Australian lawmakers fretted about Beijing's involvement in the country's mines.

The uproar continued even as China announced a stimulus package, worth about $585 billion, that would jolt the iron ore market to life. Faced with this opposition, Rio's chairman,



SOME RIO EXECUTIVES WONDERED WHETHER THE ARRESTS WERE RETRIBUTION

Jan du Plessis, blinked. In June the company announced it was scrapping the Chinalco deal and issuing new shares instead—Glasgow, after all. Publicly, the Chinese were diplomatic. Privately, they were furious. Chinalco broke off contact with Rio, its executives refusing even to answer the phone.

Tensions or not, Chinese mills still needed raw materials, and Rio still needed customers. Predictably, the 2009 iron ore price negotiations hadn't been going well. The steelmakers were being represented by the China Iron & Steel Association, a trade group with close links to the government. CISA had criticized Rio in the past, with one of its leaders saying, "Their brains are bloated, and their heads of full of water." Rio's negotiators, for their part, saw the head of CISA, Shan Shanghua, as a belligerent Communist Party hack.

In May, people familiar with the discussions say, Shan summoned the negotiators to CISA's headquarters in Beijing, where he delivered a blunt message. "I will tell you what the price is going to be," one source recalls him saying. "I will tell you how many tons we will get. Once you have accepted that, the deal is done." The negotiators thanked him and walked out. (Shan, who was jailed in 2014 on unrelated corruption charges, couldn't be reached. CISA officials declined to comment.)

Having been abandoned by Chinese customers during the financial crisis and with market prices beginning to rise, Rio needed to bounce back. In late June several executives met at the five-star Island Shangri-La hotel in Hong Kong. The subject: What to do about China?

Among those assembled was Hu. A graduate of Peking University, he'd become an Australian citizen in the 1990s while working for a tech company there. After joining Rio as a sales rep in 1996, he rose quickly through the ranks. His job in China was to meet with potential customers, sign them up, and manage supply contracts. Smooth and elegantly dressed, he was as comfortable dealing with the country's biggest steelmakers as he was with his bosses in Melbourne and London.

Hu and the others spent a day and a night at the Shangri-La, without taking any special security precautions. They drew up a list of Chinese producers and divided them into the "good, the bad, and the ugly," based on how fully they'd honored their contracts during the credit crunch. The team decided to cancel long-term contracts for the worst offenders and move others from one-year to three-month deals. Should demand and prices continue to rise, the move would cost Chinese buyers hundreds of millions of dollars.

Hu was sent back to Shanghai to refine the proposal for presentation to Rio's executive committee. But a few days after he returned, on July 5, agents from the Shanghai bureau of the ministry of state security, whose aegis includes espionage, appeared at the company's offices waving search warrants. The agents moved methodically into the workspaces of four employees, removing documents, computer disks, memory sticks, and laptops, leaving a signed receipt for each item they took.

That morning, the ministry also raided Hu's villa in a wealthy Shanghai suburb, arresting him and removing files and electronic devices. The three other employees whose offices had been searched, all Chinese citizens who reported to Hu, were picked up at home. Soon, Rio's global executive team was receiving urgent phone calls about the arrests, but no one had a clue what was going on. China wouldn't even say where the four were being held because, Australian officials were told, the arrests were a matter of national security.

Only on July 8 did the Australian Consulate report that Hu had been arrested on suspicion of bribery and acquiring state secrets. Rio's executives didn't know what that might mean, save one thing: If Hu was convicted, he could face the death penalty.

Confronted with the opacity of the Chinese justice system, Hu's colleagues also had to ask themselves what they knew of him. Publicly, Walsh, the head of the iron ore unit, told the media that the bribery charges were unfounded and that the company's employees "acted at all times with integrity and in accordance with Rio's strict and publicly stated code of ethical behavior." Privately, executives had to wonder if Hu could have done what he was accused of doing. They knew he was married, with kids and a nice house, and that he was a classically trained violinist and teetotaler who drank pineapple juice at boozy dinners with the clients it was his job to court. Around the office, his nickname was "Vanilla."

On the other hand, Rio's executives were wary of the arrests' timing and the involvement of the state security ministry. Some wondered whether it was retribution for canceling the Chinalco deal. Their suspicions only increased when the company's security team discovered that a digital key Hu carried, which granted remote access to sensitive internal computer systems, had been used right after his arrest. His captors had uploaded and downloaded files, encrypting them so Rio couldn't find out what they contained.

Ian Bauert, an Australian senior marketing executive who spoke fluent Mandarin, soon flew to Shanghai to learn more. He and his colleagues were followed everywhere by agents who made no effort to hide their presence. Men in dark suits sat next to them at lunch, then followed them down the street, an experience one member of the group likened to being in a bad spy movie. A Chinese-American employee in Shanghai became so terrified that he fled to Las Vegas.

Prosecutors hadn't formally charged Hu and his colleagues, and they weren't revealing any details about the case. An Australian diplomat who visited Hu in prison reported that ▶

◀ he seemed to be in good health. Hu had been instructed by the Chinese not to discuss the case, but he told the diplomat he hadn't been allowed to speak to a defense lawyer.

Within a month of the arrests, as tensions between Australia and China over the case were generating international headlines, Albanese and another Rio executive met in London with Chinese ambassador Fu Ying. "You embarrassed China and China's people in front of the world," Fu told them, according to two people familiar with the conversation. But she offered them a way forward, however vague: Show the people of China Rio Tinto's human side, and build a more cooperative relationship. (In response to a request for comment, Fu's office said that this didn't sound like something she would say, and that she had no knowledge of, and couldn't comment on, Hu's case.)

In August, Hu and his colleagues were formally charged, with the accusations of state espionage downgraded to stealing commercial secrets. That at least took the death penalty off the table. Walsh told the press that Rio Tinto would stand by the men, even as the company was working to restore relations with the Chinese. After the arrests, it had shelved the "good, the bad, and the ugly" scheme and carried on using an outdated iron ore price benchmark instead. Executives were now seeking a distinguished independent figure who could break the impasse.

Late that year, Albanese and Mivil Deschenes, a former Canadian military officer who was Rio's head of security, sat down in the New York office of one of the few people in the world with direct access to the highest levels of Chinese government: Henry Kissinger. The former U.S. secretary of state told the Rio executives he couldn't do anything about the four people in jail, but Albanese and Deschenes hired him anyway, paying what Australian media reported was at least $5 million. (Kissinger Associates didn't reply to emails requesting comment. Kissinger serves as honorary advisory-board chair for Bloomberg's upcoming New Economy Forum.)

In the following months, Kissinger got Rio executives pondering the same question over and over: How much do you want to be China's friend? The answer, it soon emerged, was very badly indeed.

The trial of Hu and his colleagues began on March 22, 2010, at the Shanghai First Intermediate People's Court. No media were permitted to attend, but the occasional presence of consular staff and the later release of a 26-page decision allowed the public and the company to finally learn more about the charges. It would be too late to do much about it, though—the vast majority of Chinese criminal proceedings end in conviction.

Prosecutors told the court that a Chinese steelmaker had given Hu a gray suitcase containing 1 million yuan (then about $150,000) in return for a long-term supply contract, and that the Rio executive had used a fake consulting agreement and a friend's Hong Kong company to get $300,000 in kickbacks from another customer. Hu's wife testified that he'd brought money home and put it in a safe.

Faced with this evidence, Hu pleaded guilty to accepting bribes. It's unclear, based on the decision, whether all of his colleagues did the same; some of them challenged portions of the evidence. All four contested the charge of illegally accessing commercial secrets. That portion of the proceedings occurred in private across a few days, without Australian diplomats there to observe.

ALBANESE IN BEIJING, MARCH 2010

Albanese was in the country as his employees' fates were being decided, but not because of the trial. Rio and Chinalco had just agreed on a $1.4 billion accord to jointly develop one of the world's largest mineral reserves: Simandou, in the West African nation of Guinea, said to contain 2.3 billion metric tons, most of it iron ore. The move was part of a plan Rio and Kissinger had come up with to embrace China as a partner, not just a customer.

The CEO took the stage at the Great Hall of the People in Beijing alongside a group of visiting company leaders on hand to pay homage at the China Development Forum. Dwarfing them overhead was the emblem of the People's Republic: Tiananmen Gate crowned by four small stars, representing the masses, and one large star, representing the party. After a Q&A session, the executives greeted the Chinese premier, Wen Jiabao, a paternal figure known as Grandpa Wen. When Albanese's turn came, an aide whispered in Wen's ear, and the premier's eyes widened. Wen leaned in to shake hands and said something in Mandarin that was translated for Albanese afterward: "Let's move forward."

A few days later, the court convicted Hu and his colleagues of accessing commercial secrets, in addition to bribery. The decision said that he'd asked his staff and industry contacts to send him confidential information about BHP Billiton's prices, CISA's operations, and Chinese efforts to curb day-to-day ore trading. The judge blamed the defendants for the breakdown of the 2009 iron ore talks, saying it had "severely impacted and damaged the competitive interests of Chinese steel enterprises."

The information Hu was accused of stealing seemed like the kind of thing an employee of a company involved in a commercial negotiation would reasonably be expected to research. But in the Chinese system, state secrets were what the government said they were. Hu was sentenced to 10 years in prison. The other defendants got terms of 7, 8, and 14 years.

Rio quickly fired them all. "I am determined," Albanese said in a statement, "that the unacceptable conduct of these four employees will not prevent Rio Tinto from continuing to build its important relationship with China."

PHOTO ILLUSTRATION BY 731; ALBANESE: FENG LI/REUTERS

As Hu was moving into Qingpu Prison, a new chapter in Rio Tinto's relations with China began. The annual iron ore benchmark, the source of so much conflict, was finally killed off that year by Rio's archrival, BHP Billiton, and the Brazilian company Vale SA, which moved to quarterly pricing based on market rates. Rio, no longer taking an active role in negotiations, followed suit.

In 2011, Albanese oversaw the creation of a joint company that would pass on Rio's expertise in finding and exploiting mineral deposits to Chinalco. Rio also made symbolic gestures, sponsoring research into the metallurgical secrets of China's iconic 2,200-year-old Terracotta Army statues. A feng shui master redesigned the company's Shanghai office, decorating it with a 4-foot-tall jade horse in a pool of water for good luck. Albanese began visiting China as often as 10 times a year, speaking on one occasion at the Central Party School in Beijing, which grooms future Communist leaders. If the Chinese people couldn't see Rio's human face before, they were seeing it now.

The specter of Hu lingered, though. In the summer of 2012, MI5 Director-General Jonathan Evans gave a rare public lecture in London's financial district to warn about the "astonishing" level of state-sponsored online spying. One attack, he said, had cost a U.K. company an estimated £800 million ($1.3 billion) in lost revenue, "not just through intellectual property loss but also from commercial disadvantage in contractual negotiations."

Evans didn't identify the company or the attacker, but in 2015 the journalist Gordon Corera reported in his book *Intercept* that the spy chief had been talking about Rio Tinto and China. Several security officials confirm Corera's account. According to them and other sources, MI5 attributes the breach discovered in 2008 at Rio to a unit of the People's Liberation Army.

The case was unusual, one former U.K. security official says, in that it involved both the PLA and China's state security ministry. The coordination, if true, suggested that a powerful political or industry figure had targeted the company. The identity of any such sponsor remains a mystery, but Rio's executives came to believe that someone had learned about their plan to rip up long-term contracts and taken action to stop it. If so, it worked, costing the company hundreds of millions of pounds—the £800 million was its estimate, sources there say—by forcing it to sell ore at a benchmark that was less than half the peak price during that period. As for Hu and his colleagues, whether they were guilty or innocent, they were collateral damage. Asked about Hu, Rio Tinto, and the hacking allegations, a spokesman for China's foreign ministry said, "I am not aware of the situation that you speak of," adding that the country "adamantly opposes and cracks down on any form of cyberattacks and is a firm defender of cybersecurity."

When a company comes under attack from the Chinese government, it has two options: Pack up and leave, as Google did after a censorship dispute in 2010, or suck it up, make allowances, and watch the profits roll in. Rio had opted for the latter, with a harsh lesson learned. In the wake of Hu's imprisonment, it started to overhaul its information security protocols, hiring management consultants and buying new high-tech systems. At one point, consultants discovered an important, unguarded computer server inside a shed in Utah, where the company has copper mining operations. Another time, security staff and an expert dispatched by British intelligence watched as a Chinese hacker took control of Albanese's computer; the team sought to gather information about the threat while keeping the intruder out of sensitive areas.

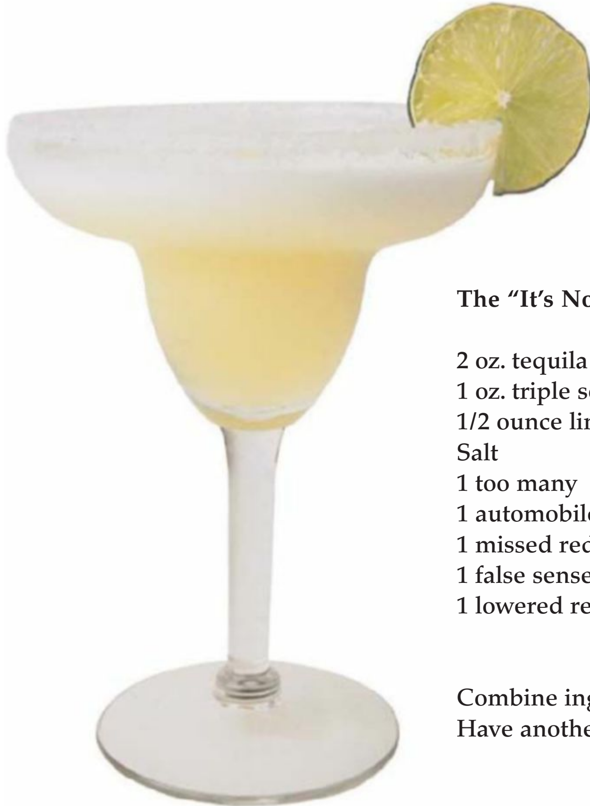
Total security would prove all but impossible to achieve, but profit was another matter. In December 2015, Rio published an article on its website celebrating its "extraordinary" growth in China, which by then accounted for 40 percent of global sales, about $19 billion annually. Andrew Harding, Rio's head of iron ore, praised "the deep respect, the friendship and the reciprocity that has resulted from working very closely together."

It was a strange friendship, with few boundaries. In meetings, Rio representatives smiled and shook hands with Chinese partners who, one executive joked in private, probably knew whether he scrunched or folded his toilet paper. In 2016 an executive preparing to fly to Beijing for talks about the Simandou partnership was told his entire inbox had been downloaded. The African project became a costly disaster. Months later, Rio agreed to sell its stake to Chinalco for about $1 billion, without having produced a single ton of iron ore in Guinea. Afterward, a series of private emails exchanged by Rio executives about payments totaling $10.5 million to a friend of Guinea's president were leaked online. The company formally reported itself to authorities in the U.S., the U.K., and Australia, who opened bribery investigations that remain active. The source of the leak has never been identified.

Today, the latest generation of Rio executives can be seen on television talking up China's economic prospects, which are inextricably linked to their own. But a person familiar with the company's security arrangements says that whenever the relationship gets tense, Rio prepares evacuation plans for its employees in China. One time, the plan involved arranging a fake conference in Singapore as cover. Rio went so far as to book a hotel.

None of the television crews and newspaper photographers camped outside Qingpu Prison saw Hu leave on July 4. *Bloomberg Businessweek* couldn't reach his wife or other family members during several visits to their former home in Shanghai. His health deteriorated during his eight years in Qingpu, a former inmate says—heart trouble, for which he had to be hospitalized.

The media reported that Hu's first act as a free man was to meet his wife, and some speculated that he might visit his elderly parents' home in northern China before flying to Australia. Once there, he'll be free, after eight years, to talk about the case that changed his life, or to fade into obscurity if he prefers. His chair in the library of Brigade No. 8 will sit empty, but perhaps only for a while. There are plenty of executives willing to take a risk or two to tap into the world's largest market. Ⓑ *—With Simon Lee, John Liu, Michael Riley, and Martin Ritchie*



The "It's Not Like I'm Drunk" Cocktail

2 oz. tequila
1 oz. triple sec
1/2 ounce lime juice
Salt
1 too many
1 automobile
1 missed red light
1 false sense of security
1 lowered reaction time

Combine ingredients. Shake.
Have another. And another.

Never underestimate 'just a few.'
Buzzed driving is drunk driving.

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READY TO ROCK

A legendary climber is turning Slovenia into a destination for adventure
By Brandon Presser

PHOTOGRAPHS BY MARKO PREZELJ

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July 16, 2018

Edited by
Chris Rovzar

Businessweek.com

The first time I met Slovenian mountaineer Ales Cesen, we were snowshoeing across an ice cap in Iceland, about 2,000 miles from his native country.

It was only October, but winter had come early that year, and the climate was particularly dour, even by local standards. Unhindered by the mist and hail, Cesen made just one noise: a rhythmic slooping sound as his feet dragged along the glacier. Perhaps it was his hiker's stoicism. Or maybe he was just peeved about the weather.

I'd been in Reykjavik on business when an old friend and seasoned expedition leader, Siggi Bjarni Sveinsson, invited me to explore the country's southerly expanse of volcanoes and glaciers. I was lured by the promise of new adventures but unprepared to share them with such a veteran climber. I could barely keep up.

We paused when the wind subsided, and Cesen's wife, Polona, exhumed a plastic package from her rucksack: a bag of hermetically sealed doughnuts, like the ones you find at the gas station that will survive the apocalypse, and we qualified our shared sweet tooth indulgence as "cultural exchange." Cesen abstained, and as he blazed ahead to explore a fissure forged by the cataclysmic eruption of the volcano Eyjafjallajökull back in 2010, Sveinsson signaled for me to pause. He leaned in and said in his aspirated Icelandic accent: "You know, Ales is—how do you Americans say it? Ah, yes—a 'big f---ing deal.'"

This was 2016. Cesen was on a survey mission in Iceland hoping to understand what sparked the country's tourism ascendancy and figure out how to replicate it back home. In many ways, the Slovenia of today bears striking similarities to the Iceland of a few years ago: There are vast expanses of uncorrupted nature to explore, freshly farmed meals to enjoy, a population of kind and indomitable souls, and a paucity of visitors.

That's why Cesen decided to create Midgard Experience, a customized trekking outfit and mountaineering academy for all levels that opened in June. His goal is twofold: first, to devise a series of technical courses that can initiate hikers into the impenetrable-seeming world of alpinism. And second, to turn his native Slovenia into the latest must-visit adventure destination—the next Iceland.

In Slovenia, Cesen, 36, could best be described as climbing royalty. His father, Tomo Cesen, is an acclaimed mountaineer known for his solo ascents of several perilous peaks in the Alps and Himalayas in the 1980s. The southeasterly passage to the summit of K2—the world's second-highest mountain and a significantly more difficult climb than Everest—is called the Cesen Route in his honor.

Ales has since become the torchbearer for his family's shared climbing passion. Polona, also 36, is an accomplished climber in her own right; they've even named their eldest son Rok. In 2015, Cesen won a Piolet d'Or—the Academy Awards of alpinism—for completing the first ascent of the north face of Hagshu in the Indian Himalayas with fellow

A view of Slovenia's Julian Alps from Jasna Lake

Cesen guides a hiker through the Kamnik Alps

Slovenians Luka Lindic and Marko Prezelj. And, among other honors, the Alpine Association of Slovenia, a conglomeration of 285 smaller climbing and hiking societies, recognized him as mountaineer of the year in 2017.

The next time I see Cesen, it's one year later to the day. He's working out the final logistics of his adventure climbing outfit and has invited me to spend some time in Slovenia to give his new alpinism product a trial run. As I touch down amid a sharp crown of peaks near Ljubljana, the country's capital, I realize that the small international airport is positioned on what must be the country's only strip of flat terrain. The craggy geography explains the cult of climbing that exists in Slovenia—think of it like California's branded surfing lifestyle but at 8,000 feet above sea level.

The Alpine Association of Slovenia is the country's largest nongovernmental organization. An affiliate of the Olympic team, it has more than 57,000 registered members. That's roughly 2.9 percent of the nation's 2 million inhabitants. Each year the association leverages a margin of its profits, and about 29,000 volunteer hours, to maintain 10,000-plus kilometers of trails and a network of 181 bivouacs and mountain shelters. Last year it collected €21 million ($24.4 million) from guided hikes, canteen purchases, and bunk accommodations, not including the taxes and revenue from private enterprises such as Cesen's.

In his new role as founder and private expedition leader for Midgard Experience, Cesen is an unofficial ambassador for the Julian Alps who's memorized each crest and crag of the range, similar to the way we intrinsically know every wrinkle and scar on our own bodies. He's not ebullient by American standards, but he's warm and welcoming during an introductory hike along the shores of Bled, a glacial lake famed for the spire of the Church of St. Martin that seemingly floats in its middle.

As we stamp our way up to lookout points and hidden waterfalls, I prod for insights about what physical challenges we'll tackle in the days ahead, but really it's Cesen who's sussing me out, gauging my abilities and interests to tailor a mountaineering experience that will push me just far enough outside my comfort zone. At the end of the day, ▶

NOW THAT YOU'VE WORKED UP AN APPETITE

Slovenia, Italy's neighbor, has serious food chops all its own. Here are three reservations to make a priority.

JB Restaurant
At Ljubljana's best restaurant, French-trained chef Janez Bratovz serves tasting menus with magnificent dishes such as foie gras ravioli and beef cheeks in rosemary demi-glace.
jb-slo.com

Klinec Inn
It's everything you want from a rustic Italian meal, just 1 mile from the border, in Slovenia's Brda region. Think hand-rolled pasta and homemade salumi, plus locally sourced biodynamic wines.
klinec.si

Hisa Franko
Proprietor Anna Ros is Slovenia's first chef to crack the World's 50 Best Restaurants list. She achieved that by pulling ingredients from her backyard in the remote Soca Valley to create high-concept dishes such as the Oaxacan-inspired "mountain rabbit on vacation in Mexico."
hisafranko.com

◀ Polona, who came on the hike, insists on a group selfie before popping open the trunk of their Peugeot and unveiling some cultural exchange—a tray of intricate, homemade petits fours, which we inhale.

The next day, Cesen leads me on my first technical climb. He chooses a towering rock face in the nearby Kamnik Alps, a sparsely visited collection of ridges along the Austrian border where he and his alpinist peers ready themselves for Himalayan expeditions. The look of it is daunting for a beginner like me: It's 8,000 feet high and fully vertical to the naked eye, with teeny ledges to rest your legs spaced 30 feet apart.

With little ado, harnesses are latched, helmets adjusted, and ropes unfurled; then we steadily hoist ourselves from ledge to ledge, inching farther above the Technicolor tree line. Each lift of the leg is a riddle that needs solving. Finding suitable footholds and finger grips in a sheer cliff is like putting together a 5,000-piece jigsaw puzzle.

The Alpine Association of Slovenia is the country's largest nongovernmental organization, with more than 57,000 registered members. That's roughly 2.9 percent of the nation's inhabitants

Cesen leads the way with ease, a loose rope connecting the two of us like a mobile belay—or the mountaineering equivalent of training wheels. Exerting little or no effort at all, he inserts spring-loaded cams into stone crevices to create a system of hooks for our safety ropes. His first lessons come quickly and cover three critical skills: spotting unlikely grooves and fissures in the stone, trusting one's instincts, and learning to play the mountain like a game of chess. With the latter, I realize that mountaineering is as much a feat of mental endurance as it is physical exertion. You have to appreciate the gravity (literally) of each move while setting yourself up for a successful path ahead. Gradually, Cesen loosens our link, creating distance between us and testing my newfound ability. Slowly and carefully I build a sequence of steps and grips together—a "rock ballet," as Cesen calls it. And as the ground rapidly peels away from me, I realize this isn't merely a guided climb, but a master class led by the Daniel Day-Lewis of mountaineering.

We reach our first crest around midday and follow a thin dragon's tail of stone toward a second, higher peak. By the end of the afternoon we reach the summit, a craggy moonscape freckled by snow puddles and alpine moss. Our reward is an extended overnight break at a small but surprisingly modernist bivouac cabin—it's almost Scandinavian in style, built from blond wood and geometric panes of weatherproof glass. Inside, five ergonomically designed beds extend from the walls, each lined with a thin, yoga mat-like pad. A weathered journal sits on

Cesen (top) doing what he does best

the table by the door containing the scrawled signatures—Slovenian, mostly—of other tired climbers who've overnighted in the hut.

With the warm setting sun still gleaming, we enjoy our packed provisions on the smooth shale outside: creamy farm cheese from a dairy near Bled, homemade prosciutto cured along the Italian border, and morsels of a decadent chocolate cake that (unsurprisingly, by now) Polona had packed for us. Cesen briefly breaks the silence between chews: "I can tell that you belong in nature," he says. His words, though characteristically succinct, feel like the most gratifying compliment I've ever received. Exhausted but beaming with pride, I stare thousands of feet down the valley and take in my accomplishment.

Today, Cesen's exclusive adventure outfit is fully operational. The private three-day, two-night itineraries are custom-tailored and start at €980 per person including overnight accommodations and instructional guiding. Whether he's taking guests on advanced ascents along the north face of the Julians, setting on multiday treks through the Valley of Seven Lakes, or practicing rock climbing techniques at the arcing walls of Crni Kal, Cesen imbues each trip with a sincere passion for nature and sport. Intentionally or not, he's also succeeded at something the travel industry often struggles to achieve: bridging authenticity and adventure.

"Why is it that when it comes to conquering a mountain, most travelers sign up for factory-fare treks like the Kilimanjaro parade or the overcrowded Inca Trail?" I wonder aloud to Cesen, recalling when I visited Machu Picchu and witnessed a zombielike flood of hikers pouring through the legendary ruin's Sun Gate.

"It's a bit like faking romance in a brothel," he replies, deriding the prevailing trend of these so-called checklist climbs. If he's successful, Cesen says, he'll supplant travelers' desires to summit Everest with the gratification of mastering an intimidating (but surprisingly accessible) adventure sport.

Currently, Bled and its sister lake, Bohinj, get the lion's share of Slovenia's international traffic—mostly from tourists who trundle through on bus tours and assume the twin lakes are the country's only drawing card. Holidaying Slovenians, however, take to the Alps, where Cesen's operation is based. Ascending Triglav, the country's highest peak, is like joining these locals on a rite of passage; roughly 60,000 nationals overnight in the scatter of mountain huts there each year.

Being an alpinist and being Slovenian are two sides of the same coin. Undoubtedly, this propensity for fitness and nature has played a role in the country's high standards of living. (Slovenia regularly ranks toward the top of the Global Peace Index.) It certainly explains why Slovenia claims 759 registered professional climbers—the highest number per capita on the global competitive circuit—and 13 of the coveted Piolet d'Ors awarded in the last 26 years.

It turns out that Slovenia, much like Ales, is—how do you say it?—ah, yes, a big f---ing deal. 🅑

A Shed In Name Only

How the director of New York's new $550 million arts complex plans to make it stand out. *By James Tarmy*

In 2014, Alex Poots was asked to interview to be the director of the Shed. "Many of us were asked to apply," he says. "I kept saying, 'I can't apply for this, because I don't know what it is.'"

In Poots's telling, the board of the Shed wasn't quite sure either. They knew where the cultural organization would live (Hudson Yards, on the far west side of Manhattan), and they knew who would design the building (Diller Scofidio + Renfro in collaboration with Rockwell Group). They also knew it would be massive—with eight levels and almost 200,000 square feet.

They were creating "something that was unlike anything else," Poots says. "It was just, how would it be activated?" The other question was, why? New York has perhaps the world's finest roster of performance venues. Was another necessary?

From a municipal standpoint, it was. The rail yards near Penn Station had been rezoned for the city's 2012 bid to host the Summer Olympics. When that foundered, officials solicited plans for a mixed-use development of offices, apartments, and retail. The only condition was that developers include space for a nonprofit cultural center. It was, for a time, regarded as an empty stage. "Given that this is a cultural organization, are we really building an event space that can be rented out for private organizations?" asked *New York* architecture critic Justin Davidson in a 2013 radio interview. "That's the thing I would hope would be guarded against."

As Poots looked into it, though, he realized the building represented a unique opportunity to fill a niche in the city's cultural scene. To create the Shed's largest performance space—which will be able to seat 1,250 (or hold 3,000 standing)—a telescoping glass shell will roll out, enclosing a cavernous 17,000-square-foot space where a plaza had just been. There's also 25,000 sq. ft. of column-free, museum-quality space. "You have an opportunity to do something no one has done," he says. The Shed's ambiguity, then, was its strength: It wasn't a purpose-built theater or concert hall or exhibition space. It was all of those at once.

In November 2014, Poots was hired as its first director. (The chairman of the Shed's board is Dan Doctoroff, the former chief executive officer of Bloomberg LP, which owns this magazine. Michael Bloomberg has pledged $75 million to the project.) With everything falling into place, there was still the question of how the complex would work. It's one thing to say you have a unique venue—it's another to take advantage of it.

Seven commissions have been announced, including a play by the classicist writer Anne Carson and a collaboration between painter Gerhard Richter and composer Steve Reich. A live celebration of African American music will be produced by Quincy Jones and British filmmaker Steve McQueen.

"There are two audiences I'm interested in seeing," Poots says. First are "the engagement seekers, who are very sophisticated and discerning." Second are those "who feel a propensity toward the arts, but pre-Shed wouldn't think that something like this would be for them." In other words, a Metropolitan Opera crowd and a Madison Square Garden crowd. "I'm constantly telling my team: 'If I saw those two groups in an audience, I'd be like, I'm coming back.'"

His background should provide a blueprint. Poots ran a special events company in London for almost a decade and, at the time he was hired, was simultaneously artistic director of New York's Park Avenue Armory and director of the Manchester International Festival of art and performance.

In the Shed, he saw the solution to issues that had plagued him for years. "When I presented James Brown in the late 1990s in London, my biggest problem was that the Barbican Centre had fixed seating," he says. "Everyone was up and wanted to dance, but they couldn't."

The Shed, in contrast, has a flexible plan: On Monday night he can put on a play, and on Tuesday a throng can bounce around to a work Poots commissioned from pop artist Sia. That's not just unique in his career, he says. It's a rare opportunity for any arts manager in the world.

The Shed has a hard opening date of spring 2019. Its building and first three years of programming are set to cost about $550 million, $462 million of which has already been raised. There's a staff of 43, which Poots plans to double by the end of this year. That's a lot of people and a lot of money. Still, with a flood of other performance options of every size already in the city, standing out is a lofty but complex goal. "It's one of those things like nirvana," he says. "You'll never get there, but you're constantly trying." Ⓑ

PHOTOGRAPH: ED LEDERMAN

INSIDER INGREDIENT

A Superfruit From Peru

Nutrition-packed lucuma pops up on buzzy menus across North America. *By Kate Krader and Ben Bartenstein*
Photograph by Javier Rivero

Peru has a knack for introducing superfoods to the rest of the world. Its rich geography, which includes portions of the Andes Mountains and the Amazon rainforest, has already brought forth high-protein quinoa and açai berries. The latest nutritional powerhouse to appear on global menus is lucuma, a fruit that grows at altitudes of around 9,000 feet. Long prized in Peru, it's gaining traction in U.S. cities.

While it resembles a large, round, orange-fleshed avocado, lucuma has a pronounced caramel taste. It's almost impossible to find fresh outside South America; unusually delicate, it starts to spoil soon after picking. But the fruit, esteemed by the Incas for purportedly enhancing fertility, is increasingly available powdered or frozen at American health-food stores; Walmart stocks it, too. That's because lucuma is high in beta carotene, iron, zinc, calcium, protein, and fiber. It also contains antioxidants and potassium, which are said to be good for your heart, immune system, and skin.

In Peru, lucuma is known as the "gold of the Incas" and also the "egg fruit," as it has the crumbly texture and starchy mouthfeel of a hard-boiled egg yolk. But when it's mixed with milk or yogurt, a rich maple flavor emerges. The powdered product, often promoted as a sweetener, is showing up as a booster on menus at such juice bars as Pure Green in New York and LA Press in Los Angeles. It's also becoming a popular flavor at sweet shops like Mitchell's Ice Cream in San Francisco.

A SUPERSHAKE

Re-create the lucuma smoothie chef Erik Ramirez will offer at Llamita in New York:

- ⅔ cup frozen lucuma or 3 tbsp lucuma powder
- 1 cup unsweetened almond milk
- ¼ cup sugar
- 1 tsp finely ground coffee
- ½-⅔ cup ice

Blend until smooth. *Serves one.*

Peruvian food in general is growing in global visibility; Central in Lima came in No. 6 on the 2018 World's 50 Best Restaurants list, and its chef, Virgilio Martinez, has opened restaurants in London and Dubai. (Hong Kong is next.) At La Mar Cebicheria Peruana in San Francisco, Gastón Acurio serves lucuma ice cream with chocolate mousse. Rosaliné in Los Angeles makes lucuma ice cream bonbons, while Nazca Mochica in Washington, D.C., offers it in tiramisu form. At the Llama Inn, a Michelin "bib gourmand" restaurant in Brooklyn, Erik Ramirez has concocted a multitextured dessert composed of creamy lucuma mousse with milk chocolate sauce, crumbled chocolate cookies, and dehydrated milk wafers. He plans to make an even bigger deal of the ingredient at his soon-to-open rotisserie chicken spot Llamita in Manhattan's West Village. "We're going to give lucuma more exposure," he says. He plans to offer it in a smoothie mixed with Peruvian coffee. "It's going to be on display in all its glory."

In Lima, one of the best places to experience lucuma is at the trendy Armónica Café in the Miraflores district. There it appears in a breakfast smoothie bowl with bananas and vegetable milk—also in pie and ice cream. "I think what's been hindering lucuma's popularity is that we have not publicized it," says Solange Martínez, Armónica's general manager. "As we do, people will see that there are millions of dishes for it." Ⓑ

Moneyball 2.0

In 2014, one writer saw the Houston Astros coming. It wasn't just math

By Ira Boudway

As even casual fans are by now aware, *Moneyball*, the 2003 best-seller by Michael Lewis, changed the way baseball teams work. By explaining how the Oakland Athletics were using statistical analysis to win games at a fraction of the payroll costs of their rivals, the book forced other teams to grudgingly begin hiring pointy-headed Ivy Leaguers to work alongside the pot-bellied baseball lifers who'd long ruled front offices. *Moneyball* also set the template for a new type of sports book in which the focus shifts from the players on the field to the men who draft, trade, sign, and cut them. The latest entry in the genre, *Astroball: The New Way to Win It All* by Ben Reiter, tells the story of how Jeff Luhnow, general manager of the Houston Astros, and his staff transformed the franchise from doormat to World Series champion.

The holy grail of reporting for a book of this sort is to be in the draft room when the scouts and number crunchers hash out their picks. Reiter delivers the goods, taking the reader into the room where the Astros made decisions in 2014, when the team was still terrible. He was there for a *Sports Illustrated* story about their plan to become great. The story ran on the cover in June of that year with a headline calling the Astros "Your 2017 World Series Champs." The unlikely prediction came true last November, giving Reiter the opportunity to spin the story into a book that outlines the key decisions, missteps, and strokes of luck along the path to a championship.

Astros fans and baseball nerds will delight in those details, such as the time a rival executive hacked the team's internal communications or how the trade for ace pitcher Justin Verlander beat the league deadline by two seconds. Even if you know the saga of how top draft pick Brady Aiken's apparently too-small ulnar collateral ligament ruined his chances with the team or how Carlos Beltrán figured out that Los Angeles Dodgers starter Yu Darvish was telegraphing his pitches during the World Series, Reiter makes these stories feel new and vivid.

A lay reader, though, may wonder what the fuss is about. *Astroball* includes a small black-and-white photo of that 2014 draft room. It shows 15 middle-aged men in varying stages of baldness, each with a laptop and a disposable cup, sitting in what looks like a Marriott conference room. This is what happens when you elevate the "dorks in khakis and polos," as Reiter calls them, to lead protagonists in the drama.

"Every draft class is a portfolio," Luhnow, a former management consultant at McKinsey & Co., tells Reiter. "You've got to mix up some big bets with some fliers. You're going to have some hits and failures." In the world that *Moneyball* made, athletes are assets in someone else's portfolio; their triumphs the validation of an investment strategy.

The essence of the Astros' strategy is to use statistics and scouts to evaluate players. The team's proprietary software pulls in every available bit of data on a player, including scouting reports, and, using regression analysis, then churns out a numerical rating called Stout, for half stats, half scouts. The idea, Reiter writes, is that "success is not a matter of man or machine but of man *plus* machine." Beyond this truism, which has been regurgitated plenty since the publication of *Moneyball*, the reader doesn't learn much about the algorithm. The inside of the black box necessarily remains dark; if you knew how it worked, it wouldn't.

In the preface, Reiter writes that the Astros could be a proving ground for a "new way of thinking not just about how to build a baseball team but how humans and computers can bring the most out of each other." This, in my humble experience, is the kind of salesmanship that editors demand. Every story has to speak to something larger. But not every championship team has reinvented its sport in a way that is *chock-full of lessons for people in all walks of life*. Sometimes a winning baseball team is just that. The fun in *Astroball* comes from its old-fashioned sports writing, the locker room scenes, and thumbnail sketches of players. Reiter has an eye for the details that reveal character and back stories that inform what happens on the field. *Astroball* is a good book about baseball. That should be enough. Ⓑ

ILLUSTRATION BY JING WEI

The Future Is Clear

A pair of handmade sunglasses from Dom Vetro is a timeless shade solution. *Photograph by Stephen Lewis*

Sunglasses, despite the name, are rarely made with glass anymore: The majority of lenses today are a polycarbonate blend of plastic. But at Dom Vetro, founded by former investment banker Ashley Bézamat, they are fashioned from mineral glass. After leaving his day job, the Paris-born, Stanford-educated entrepreneur used his dual U.S.-EU citizenship to begin apprenticing with artisans in the Italian Alps who still make their shades by hand. In 2012, Bézamat started Dom Vetro in the Veneto region; five years later, he moved the company to Culver City, Calif., bringing the machines and materials from Italy. Dom Vetro can make you a custom pair perfectly sized for your face, but for instant gratification, try the $295 quartz Primo sunglasses, which are part of the brand's first collection to be fully made in the U.S.

THE COMPETITION

- The $290 Lemtosh design from New York-based Moscot has a shape similar to the Primo's and is available in transparent frames.
- Ray-Ban is considered the all-American sunglass brand, and its RB2132 collection (from $158) continues the tradition, now with shimmering metal effects.
- At Barton Perreira in Los Angeles, the $470 Bunker has a high-quality, clear acetate frame and is finished with dark green polarized lenses.

THE CASE

Using glass means there's no optical distortion, and the brand's polarized lenses provide superior glare protection. The Primo frames are handmade from Italian-imported acetate and assembled in the brand's workshop, where the lenses also receive their mirrorlike finish. The one downside is that glass can scratch or eventually break, but for $75, the company will replace lenses on any frame to get you back in the sun in no time. *$295; domvetro.com*

PROP STYLIST: SONIA RENTSCH

Cathie Mahon

The CEO who's leveling the playing field between credit unions and big banks. *By Arianne Cohen*

For millions of working Americans, the 6,000-plus credit unions across the nation can serve as a paycheck-to-paycheck life preserver. Credit union tellers can refer customers with low balances to in-house financial literacy counselors, and their loan desks frequently offer the best rates, and lowest fees, in the country. A third of these institutions–almost 2,200–cater to low-income customers as standalone businesses or small chains.

What Cathie Mahon, chief executive officer of the National Federation of Community Development Credit Unions, found is that credit unions often use the same processing software as big banks but spend more on it. "Our smallest members pay more for software than personnel," says Mahon, who leads a network of 235 CDCUs that share a mission of helping distressed communities. "They're negotiating one-off contracts all the time."

From 2007 to 2012, Mahon led New York City's Office of Financial Empowerment, which was then-Mayor Michael Bloomberg's initiative to educate, empower, and protect low-income residents when it comes to their financial resources. (Bloomberg is the founder and majority owner of Bloomberg LP, publisher of *Bloomberg Businessweek*.) In her role, which interfaced closely with credit unions, Mahon began working in 2015 with EPL Inc., a Birmingham, Ala., organization that provides core data processing to institutions. The goal: to develop a platform called CU Impact that would update account balances, power every auto bill pay, and fuel every ATM visit. In 2016 she and EPL negotiated a contract for members at a discount–unheard of in a business where investment in these types of platforms is very unusual.

"What Cathie's done is preserve the trust factor," says Justine Zinkin, CEO of Neighborhood Trust Financial Partners, a nonprofit that provides financial counseling to the underserved. "Only a quarter of Americans trust the financial system, and most are wary of financial institutions," she says. "Credit unions do well on the front end but haven't been very good at scaling. Cathie's saying, 'We're still going to be your local credit union, but on the back end we're going to be large and have impact.' "

Other innovations include a mobile app that details key information upfront: quickly visible bank balances, low-balance alerts, and money-transfer options. The switchover has been slow going; 20 CDCUs have joined the system as their existing 7- to 10-year contracts expire. Over the next five years, 50 more will adopt the system.

Morale is half the game. Zinkin says CU Impact has been "a shot in the arm to an industry that wanted to be true to its grass-roots values." Ⓑ

b. 1966, New York City

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Ran first half-marathon this year as a birthday gift to herself

-

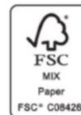
Watches *The Amazing Race* with her 12-year-old son

-

Adopted a wild Carolina Dog named Daisy

ILLUSTRATION BY SAM KERR

Bloomberg Businessweek (USPS 080 900) July 16, 2018 (ISSN 0007-7135) H Issue no. 4576 Published weekly, except one week in January, February, April, June, July, September, and December, by Bloomberg L.P. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Executive, Editorial, Circulation, and Advertising Offices: Bloomberg Businessweek, 731 Lexington Avenue, New York, NY 10022. POSTMASTER: Send address changes to Bloomberg Businessweek, P.O. Box 37528, Boone, IA 50037-0528. Canada Post Publication Mail Agreement Number 41989020. Return undeliverable Canadian addresses to DHL Global Mail, 355 Admiral Blvd., Unit4, Mississauga, ON L5T 2N1. E-mail: bwkcustserv@cdsfulfillment.com. QST#1008327064. Registered for GST as Bloomberg L.P. GST #12829 9898 RT0001. Copyright 2018 Bloomberg L.P. All rights reserved. Title registered in the U.S. Patent Office. Single Copy Sales: Call 800 298-9867 or e-mail: busweek@nrmsinc.com. Educational Permissions: Copyright Clearance Center at info@copyright.com. Printed in the U.S.A. CPPAP NUMBER 0414N68830



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