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Bloomberg Businessweek

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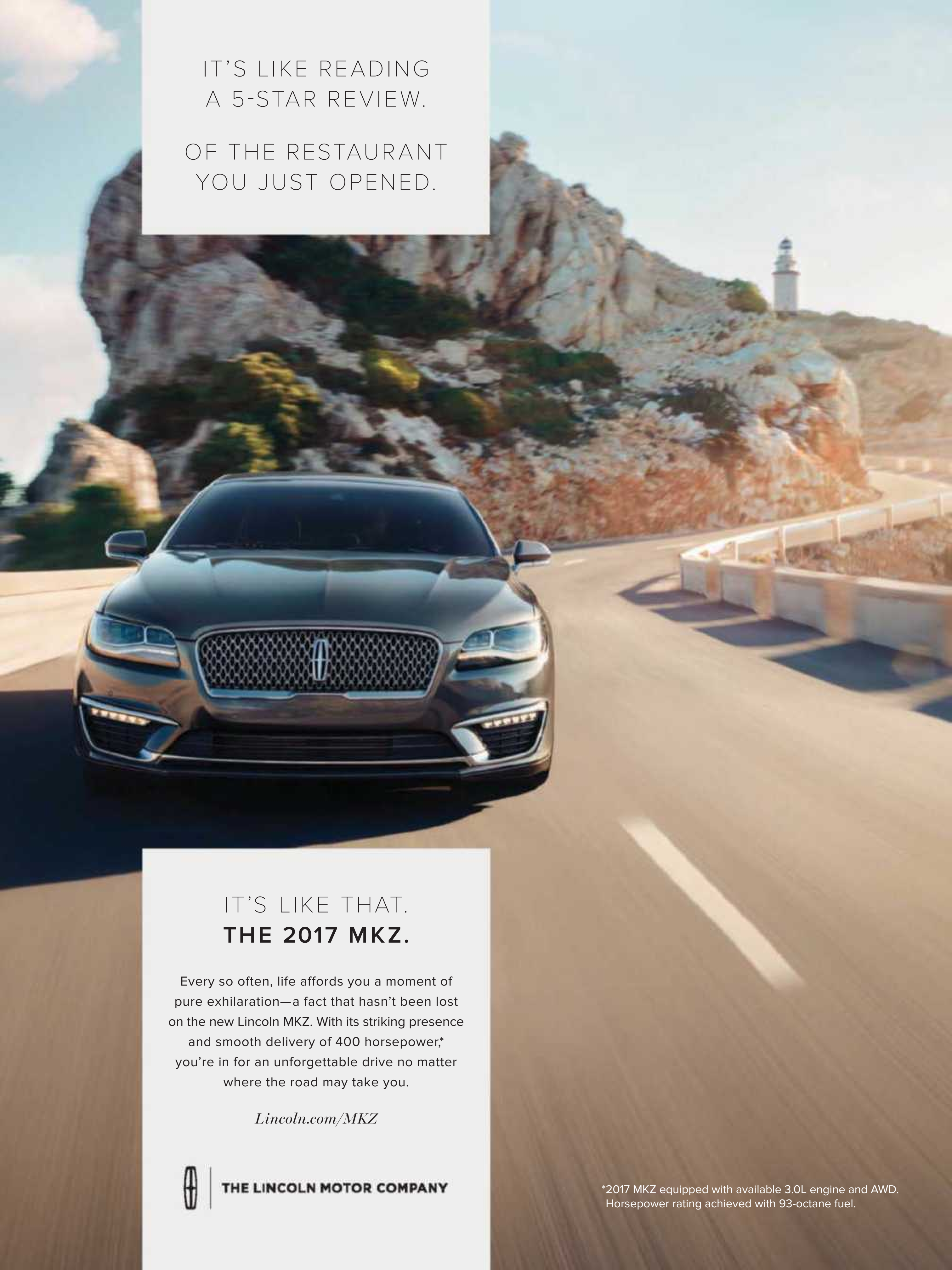
Will Sneakers Save Baltimore?

Under Armour CEO Kevin Plank thinks so

p42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A 5-STAR REVIEW.
OF THE RESTAURANT
YOU JUST OPENED.
IT'S LIKE THAT.
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Every so often, life affords you a moment of pure exhilaration—a fact that hasn't been lost on the new Lincoln MKZ. With its striking presence and smooth delivery of 400 horsepower,* you're in for an unforgettable drive no matter where the road may take you.
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Cover Trail

How the cover gets made

Domestic Cover

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"Cover is on the CEO of Under Armour, and he's agreed to a shoot."

"We should probaby use that for the cover."

"Your creativity knows no bounds."

International Cover

1
"Story is on the world after Brexit."

DOMESTIC COVER AND COVER TRAIL: PHOTOGRAPH BY RYAN LOWRY FOR BLOOMBERG BUSINESSWEEK

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To read A. Gary Shilling on oil's likely plunge to $10 a barrel and Mohamed El-Erian on the future of the U.K. and the EU, go to

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A War Plan Against Military Budget Tricks

The president should veto Congress's defense spending scheme as it now stands

For the second year in a row, President Barack Obama is poised to veto Congress's annual defense legislation. For the second year in row, he's justified in doing so.

While the congressional approach has many problems—including a ban on transferring prisoners from Guantanamo Bay—one of the most egregious is a budgetary gimmick: The package approved by the House on June 11 raids the military's emergency war fund to pay for normal Pentagon operations.

The so-called Overseas Contingency Operations money is supposed to be used for the fighting in Afghanistan and the Middle East. Instead, because the money isn't subject to the spending caps set by last year's bipartisan budget deal, the House has simply reallocated $16 billion of the $60 billion fund. Some of this spending seems more about saving domestic jobs than military readiness.

Not only is the move foolhardy—the fund could run out by May 1 unless the new president makes an emergency request—but it is also unnecessary. Trimming $16 billion from the $600 billion Pentagon budget, without hurting vital military capabilities, shouldn't be that hard.

This isn't hyperbole. A few calculations, based on publicly available sources, show how it might be done.

Canceling the House's plan to purchase additional (and buggy) F-35 jets, as well as unnecessary F/A-18 Hornet fighters and Black Hawk helicopters, would save about $6.9 billion. Disbanding one of the Navy's carrier-group air wings, which hasn't been deployed since 2011 and the Pentagon has asked to shut down—would save $200 million. Reducing personnel by about 37,000—again as requested by the Pentagon, which has said the move would allow the services to better train and equip the remaining forces—would save about $3.25 billion. Delaying and possibly canceling the purchase of two new littoral combat ships—one of the worst-managed acquisitions in military history—and slowing down the construction of other craft would save about $3.1 billion. Delaying non-urgent upgrades of Abrams tanks would save about $558 million. And putting off the repair of some dilapidated buildings on military bases—or, better yet, demolishing them—would save $2.4 billion.

That all adds up to $16.4 billion. As the House and Senate meet to reconcile their separate budget plans, they should feel free to make emendations to this list.

Of course, these sorts of short-term savings are paltry compared to long-term plans to spend $35 billion on three new supercarriers, $55 billion on a new long-range bomber, and $350 billion rebuilding the nuclear arsenal. But if Congress could at least show restraint from dipping into the war-fighting fund, it would set a precedent for smarter decision-making to save big money down the road.

The Boring Way To Save Venezuela

Diplomacy, not sanctions, is the most effective method to prevent catastrophe

The misery and impending chaos in Venezuela have prompted an international response that seems almost laughably disproportionate: a special meeting of the Organization of American States to present a report about Venezuela. It feels feeble and futile—but it's this kind of patient diplomacy that stands the best chance of containing and repairing the disaster.

President Nicolás Maduro and his predecessor Hugo Chávez have routinely used the bogeyman of U.S. intervention to justify their repression, so imposing broad economic sanctions won't necessarily make Maduro more open to dialogue. Not only is the economy already in tatters but his willingness to sacrifice the well-being of ordinary Venezuelans to keep his Rolex-clad clique in power is all too clear.

That leaves the winding path of diplomacy as the best way forward. What's needed are smart strategies and new players to make diplomacy more effective. China—Venezuela's biggest benefactor in recent years—has a financial interest in persuading Maduro to change his policies; it's also in a better position to provide humanitarian assistance that Venezuela has rejected from other sources. At the same time, the U.S. should quietly make clear to Venezuela's military that limited sanctions on officials for corruption and human rights abuses can be quickly expanded. It should also step up efforts to help Caribbean countries wean themselves from cut-rate Venezuelan oil that's influenced their voting patterns at the OAS and the United Nations.

Venezuela's neighbors and colleagues in the OAS need to make sure that any "dialogue" between Maduro and the domestic opposition has buy-in from all parties. In addition to supporting pro-democracy efforts, they should apply pressure on Venezuela in Mercosur, the regional trade bloc. And if the nation refuses to change its undemocratic ways, the OAS could put Venezuela through the humiliating process of expulsion. B

ILLUSTRATION BY BRUCE LOVED

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After Brexit, Here's What's N

Will the U.K. and the EU be able to become friends with benefits?

"No man is an island," the English poet and Anglican cleric John Donne wrote in 1624, presaging the Brexit vote by almost four centuries. "If a clod be washed away by the sea, Europe is the less."

Europe is indeed the less today. A wave of populist anger is washing away from Europe not just one clump of dirt but the entire U.K., population 64 million, the second-biggest economy in the European Union. "I felt as though I was at a friend's funeral," Vaira Vike-Freiberga, the former president of Latvia, said in an interview after the June 23 vote for Britain to leave the EU. "This is no longer the European Union that we joined."

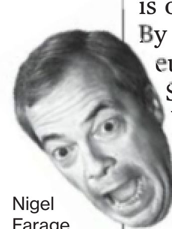
Her anguish is understandable. The EU isn't just a marriage of economic convenience. It's a bulwark against the nationalism, militarism, and plain hatred that caused two world wars. Before the vote, European Council President Donald Tusk, a former Polish prime minister, told the German newspaper *Bild*, "As a historian I fear that Brexit could in fact be the start of the process of destruction of not only the EU but also of Western political civilization."

The job now is to move past the pain and make sure that Tusk's stark warning doesn't come true. Brexit is chaotic at the moment because the prime minister announced his resignation and financial markets swooned. Eventually, though, the British will grope their way to a new relationship with the EU, probably more friends with benefits than matrimony. It won't be as lucrative or liberating for the U.K. as the Leave campaigners promised, but it could well work out better than the Remain camp warned. The bigger challenge is keeping the EU itself from cracking up.

In the lead-up to the referendum, "each side made claims that could not be sustained," says Mervyn King, former governor of the Bank of England and author of a new book, *The End of Alchemy: Money, Banking, and the Future of the Global Economy*. It's time, he says, to "have teams of people working behind the scenes so the new prime minister can move forward."

The work of another Anglican cleric, John Venn, points the way toward a new modus vivendi for Britain and Europe. There is no unitary continent. Instead, Europe is already a complex of associations and unions, a vast Venn diagram of overlapping circles of authority (page 10). Countries choose the spot in the overlap that gives them as much togetherness as they desire while sacrificing as much autonomy as they can bear.

Even before Brexit is formalized, the U.K. is outside a lot of Europe's circles of authority. By choice, it's not 1 of the 19 countries using the euro currency. It's also not part of the 26-nation Schengen Area, which prohibits border controls between members. It's inside the EU's Customs Union, a free-trade zone that negotiates tariffs with nonmembers. The Brits will want to keep that arrangement with the EU even after leaving.



Nigel Farage

In other words, Britain's choice is not all or nothing. For the U.K. to leave the EU is less jarring than for Texas to secede from the U.S.

What the Eurocrats call differential integration is a strength of the system, not a weakness, says Frank Schimmelfennig, a professor of European politics at ETH Zürich. Allowing different countries to have different relationships recognizes national differences and preserves democracy. It's a safety valve for populist pressure.

Elites make a mistake if they ignore or disparage angry rally cries to "take our country back," which is as powerful in the U.K. as it is in the U.S. Indeed, the support for Brexit revealed just how far voters will go when they feel oppressed and decide that their leaders aren't standing up for them. Britain's economy has been fairly healthy

Who Else?

Share of respondents who would vote to leave the EU

Italy	48%
France	41%
Sweden	39%
Germany	34%
Hungary	29%
Belgium	29%
Spain	26%
Poland	22%

POLL CONDUCTED MARCH-APRIL 2016; DATA: IPSOS MORI

FROM LEFT: JAMES GOURLEY/REX; BRENDON THORNE/GETTY IMAGES

ext for Europe

by the region's standards, and British prime ministers have managed to carve out several exemptions from EU rules.

So imagine how much more frustrated voters must be in countries with weaker economies that must follow all the rules, including the full constraint of the euro currency. It's no wonder that Marine Le Pen, president of France's rightist National Front party, has taken to calling herself Madame Frexit. "France has possibly 1,000 more reasons to want to leave the EU than the English," she said before the referendum.

For decades, the prescription for problems in Europe has been simply more Europe. The 1957 Treaty of Rome committed signatories to "lay the foundations of an ever closer union among the peoples of Europe." Jean Monnet, the French economist who was an EU founder, wrote in his memoirs that "Europe will be forged in crises, and will be the sum of the solutions adopted for those crises."

Monnet's philosophy encouraged overreach. Europe's leaders pushed further and faster than their citizens were willing to go. They engendered a backlash. All of the major European nations have growing anti-EU parties. On the right, the inflaming issues are immigration, bailouts, and red tape. On the left, it's austerity imposed by foreign masters. Both sides complain of a "democratic deficit" in the EU.

As the recriminations over Brexit show, the well-intended effort to bring the nations of Europe closer together is instead threatening to drive them apart. The best example of that is the euro, the one EU institution for which there's no safety valve, no outer circle of authority to escape to. The Brits were smart enough not to join the single currency.

The euro differs from immigration as a problem for EU unity in one key respect. Uncontrolled immigration from outside Europe is universally recognized as an urgent problem, whereas the euro continues to be seen by elites as something worth preserving. In reality, the euro acts the way the gold standard once did: as a monetary straitjacket. It's too strong for Greece, making Greek goods and services too costly and preventing the country from getting its economy back on track. It's too weak for Germany, underpricing Germany's output and leading the country to pile up huge trade surpluses that sap growth and jobs from its trading partners. The EU has no provision for a country to drop the euro. Yet there's little appetite for creating the financial institutions that would be required to make the euro a success, such as centralized taxing and spending authority. "Europe is in a quandary," says Sebastian Mallaby, a senior fellow at the Council on Foreign Relations in New York. "You can't go back, but you can't go forward."

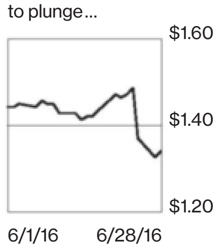
In theory, the best choice for Europe would be to forge ahead to full fiscal union, essentially creating a United States of Europe, argues Joseph Stiglitz, the Nobel laureate economist at Columbia, in his forthcoming book, *The Euro: How a Common Currency Threatens the Future of Europe*. But because "there is more than a small probability that it will not be done," he proposes various ways that Europe could escape from halfway-in, halfway-out purgatory. He sketches a way that Greece could in fact depart from the euro zone: simply break the link, so Greek euros become cheaper than regular euros. That would help trade by making Greece's exports cheaper and imports costlier. The key would be persuading creditors to accept repayment in Greek euros. (Not simple, Stiglitz concedes.) Or, he says, Germany could leave the euro zone. Or the euro could be split into a northern and a southern currency.

The future of Europe lies in a "variable geometry" of diplomatic relations that satisfies those who want more integration as well as those who want less, argues Philippe Schmitter, a political scientist retired from the European University Institute in ▶

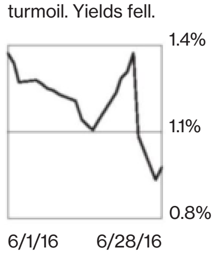
"Hurrah for the British! Now it is our turn. Time for a Dutch referendum!"
—*Geert Wilders, founder of the PVV, which is leading Dutch opinion polls, in a tweet on June 24*

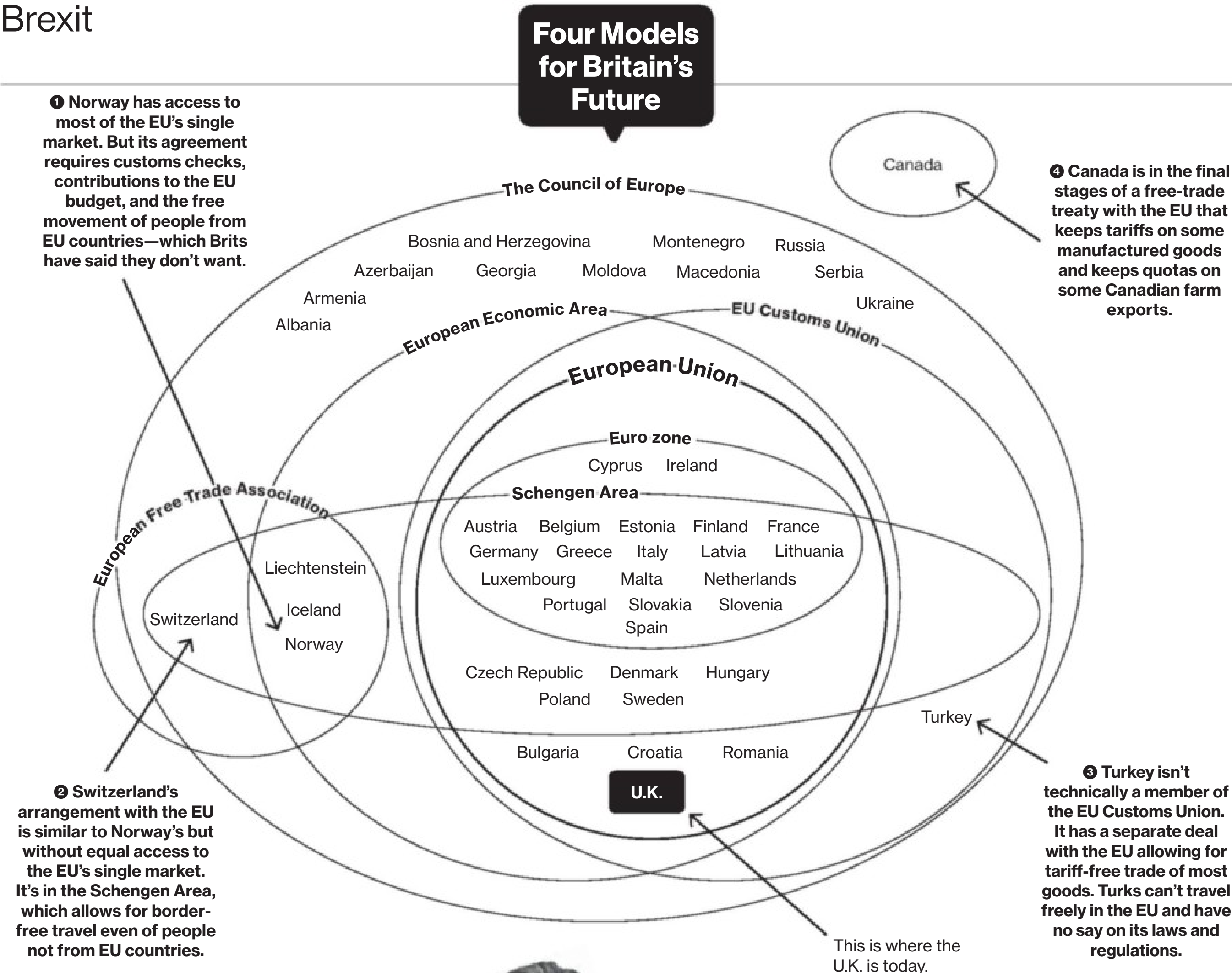
Fear Gauges

The Brexit vote caused the **value of the British pound** against the dollar to plunge...



...but investors didn't flee **Britain's 10-year government bonds**, which they regarded as a safe haven from market turmoil. Yields fell.





◀ Florence. To use John Venn's diagrammatic language, Europe and the British Isles will no longer be in the same circle. Still, they ought to be able to find a space where their vital interests overlap. No man is an island, and in the era of globalization, no island is an island, either. —*Peter Coy*

Britain's Big Parties: At War With Themselves

Brexit pitted globalizing leaders against many of their own constituents

David Cameron

"The decision to hold the referendum will go down as one of history's great blunders." —*Richard Haass, president of the Council on Foreign Relations, in a June 24 op-ed in the* Financial Times

For a while, it looked as if Britain's 750-year-old democracy might have neither a government nor an opposition. Prime Minister David Cameron, who called a referendum on European Union membership and lost it, had taken the only course and fallen on his sword. Lawmakers from the opposition Labour Party, furious with their leader, Jeremy Corbyn, for what they saw as his sabotage of the campaign to keep Britain inside the EU, attempted to throw him overboard.

In the days following the June 23 vote, the country drifted rudderless. For weeks, Brexit's most prominent supporters had been boasting that they had a plan for getting Britain out of the EU. Now that the moment had come, its leaders denied their earlier promises of more money for health care and a lower tax on fuel brandished on Brexit campaign posters. They also demanded to know why Cameron hadn't prepared for the possibility of defeat. Ministers in the Remain camp said it was for Cameron's successor to unveil a plan.

The referendum exposed deep rifts within Britain. The first was geographic: London, Scotland, and Northern Ireland voted Remain; almost everywhere else voted Leave. Scotland may get another referendum on independence which could spell the end of the U.K.

The gap between London and the rest of England wasn't geographic. It was economic. London is an expensive metropolis whose infrastructure regularly collapses in the face of weather or strikes. But it's also one of the world's great cities, as diverse as any place on the planet, with skyscrapers to match

> "This is principally an anti-immigration vote. It's not about sovereignty. These are voters who want less immigration"

New York, restaurants to match Paris, museums to match Florence.

If the capital has benefited from the great game of globalization, the rest of the country clearly feels it has lost. The first mainland result of the referendum came from Sunderland, 400 miles north of London. It had always been expected to back Brexit; what was shocking was the size of the vote: 61 percent voted to leave. Nissan owns a car plant there and had urged a vote to stay in the EU. The Labour Party, which has always counted on former industrial regions like this to back it, had said the same. Both were ignored.

For voters in Sunderland, the 21st century has brought insecurity, low-paid work, and immigrants. There are 130,000 economically active adults in Sunderland and only 7,000 jobs at Nissan. The local shipbuilding industry has long since withered away.

The failure of free markets to deliver prosperity evenly poses a problem for the traditional parties. Historically, Labour held the northern cities, and the Conservatives held the countryside and the wealthy shires of the southeast. But Labour, a pro-EU, pro-immigration party, has learned that many of its voters feel differently. While Labour's position plays well in London, it's anathema in the heartlands.

Meanwhile, whoever succeeds Cameron as Conservative leader is likely to be a Euroskeptic. That will work well in the countryside but badly among the businesspeople the party relies on for funds and votes. Americans struggling to grasp the contradiction should try to imagine a presidential contest between a globalizing Democrat who woos Wall Street and an isolationist Republican who attacks Big Business.

The problem can be summed up in Boris Johnson, who may succeed Cameron. The former London mayor was the face of the 2012 Olympics, a cheerleader for global Britain. He was also the face of the Brexit campaign. While most of the leaders of that campaign are committed globalizers, they realized that the route to victory ran through places like Sunderland and campaigned on a promise to reduce immigration. Johnson is now trying to distance himself from the anti-immigrant rhetoric, arguing that voters were more motivated by the desire to defend parliamentary sovereignty. Many disagree. "This is principally an anti-immigration vote. It's not about sovereignty. These are voters who want less immigration. You can't navigate this without addressing that," says Matthew Goodwin, professor of politics at the University of Kent.

Even if the parties can figure out what they ought to look like, they haven't much time to get into position: Cameron's successor will be under pressure to call a general election—the second in two years—to secure a mandate.

If Labour and the Conservatives try to water down the referendum result to keep free movement of people—an essential part of EU policy—they create an opportunity for insurgent movements such as the UK Independence Party. UKIP leader Nigel Farage is already accusing fellow Brexiters of betraying the pledge to curb immigration.

If Labour and the Conservatives back Brexit, they create an opportunity for someone promising to reverse the referendum. The Liberal Democrats, who control only eight seats in Parliament, are positioning themselves in precisely that spot. Britain, in the middle of its greatest diplomatic and economic crisis in half a century, needs a government that can unite London and Sunderland. Failing that, it just needs a government. —*Robert Hutton*

"The United Kingdom has staged a revolt so forceful that it will shake—and potentially even destroy—the European project." —*Harold James, a British historian at Princeton, in a June 24 column for the opinion website Project Syndicate*

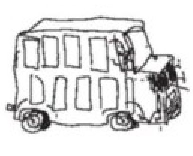
GDP Revised

$19.78t
EU GDP

–$2.75t
British GDP

$17.03t
EU without Britain

DATA: IMF



Europeans in the U.K.

Countries with largest number of immigrants in the U.K. as of 2015 (non-U.K. citizens)

1. **Poland** 703,050
2. **Ireland** 503,288
3. **Germany** 322,220

In comparison
Germany is home to 1.9 million Polish immigrants.

English soccer fans wearing Brexit jerseys at Euro 2016 in France

The Chase Is On To Grab the City's Business

Paris, Dublin, and Frankfurt know finance and are staying in the EU. The Dutch have "historically deep ties to capital markets"

Thousands of jobs at London's largest financial institutions are at risk of leaving the country now that the U.K. has voted to exit the European Union. Plenty of European cities are vying for the chance to build the next City, which would be a financial center for Europe and the world.

Among the contenders for the jobs London may lose: Paris is already a major hub for London-based **HSBC**, Europe's biggest bank. Frankfurt is home to the continent's second-largest financial center. Dublin can offer soon-to-be-exiled bankers an English-speaking locale and a similar legal system. Amsterdam and Luxembourg, two more rivals to London, are just a short flight away.

Société Générale Chief Executive Officer Frédéric Oudea has said Brexit may provide "renewed opportunities" for financial activities in Paris, which retains the head offices of France's biggest lenders but whose importance as a banking hub has waned since its heyday decades ago.

HSBC CEO Stuart Gulliver said in February that his company has about 1,000 investment bankers working on financial products governed by EU rules. With Britain soon to be out of the clubhouse, those bankers probably need to move to Paris, where HSBC acquired the former CCF bank in ▶

FROM LEFT: PETER MACDIARMID/EYEVINE/REDUX; EVRIM AYDIN/ANADOLU AGENCY/GETTY IMAGES

> "There is no doubt that some City jobs may be lost, but plans for a mass exodus are wide of the mark"

◀ 2000. The minuses for Paris: high taxes on the wealthy and strict labor laws on hiring and firing, including the infamous 35-hour limit on the workweek. The French Banking Federation has asked the government for "a strong signal on tax" to make Paris more attractive.

Jörg Rocholl, president of the ESMT Berlin business school, touts Frankfurt, which "has essential location advantages that other European sites don't have." Germany's financial capital has more than a million square feet of vacant offices, roughly the same floor space as the One Canada Square tower in London's Canary Wharf. It also has the stock exchange, the Eurex derivatives hub, and the European Central Bank. Frankfurt's financial superpower is **Deutsche Bank**, whose chief, John Cryan, predicted that Brexit would mean trading activities would leave the U.K., possibly moving to Germany.

Cryan recently told investors that it would be "counterintuitive" to trade euro zone securities such as Italian government bonds out of London if Britain was no longer part of the EU. Deutsche Bank employs about 9,000 people in London. Hubertus Väth, the managing director of Frankfurt Main Finance, which promotes the city, says, "There's the potential for up to 10,000 positions to be relocated to Frankfurt over a five-year time frame."

Germany's strict employment laws and high taxes, however, are deterrents. There's also Frankfurt's reputation for a staid culture and little night life. Many expats prefer Berlin or Munich.

Dublin is already home to back-office and servicing divisions for international banks, and its government has aggressively courted companies to relocate for years. A 12.5 percent corporate tax rate helps Ireland's cause. The foreign investment agency **IDA Ireland** has pitched to U.K. and international lenders, including **Standard Chartered**, the idea of relocating hundreds of traders and support staff in the event of Brexit, people familiar with the matter said in May. Brexit could push about €6 billion ($6.7 billion) of investment into Ireland, the nation's debt office says. (The debt office issues Irish sovereign bonds.)

Credit Suisse Group said in December it would make Dublin its hub for servicing hedge funds in Europe. **Morgan Stanley** President Colm Kelleher, who's Irish, has said his company may establish Europe headquarters in Dublin or Frankfurt if Brexit occurred. Dublin's downsides are a relative lack of office space and high personal tax rates.

Amsterdam was home to the world's first central bank and the first joint-stock company. It's the headquarters for banks **ING** and **ABN Amro** and home to some of the world's biggest pension funds. "The Dutch have always had a strong Anglo-Saxon as well as international business orientation," says Harald Benink, a banking and finance professor at Tilburg University. "If lenders say, 'We're worried about our access to the European market,' then Amsterdam is the perfect place for them to relocate to, given the historically deep ties to capital markets." There is some lingering hostility toward bankers after the trauma of the government bailout of ABN Amro during the financial crisis. Popular anger forced officials to impose the toughest caps on bankers' pay in the EU: Bonuses can't be more than 20 percent of salaries.

With Scottish First Minister Nicola Sturgeon calling a second independence referendum "very much on the table," London's banks may not have to look overseas for an EU member to host them. Mark Garnier, a Conservative member of the U.K. Parliament's Treasury Committee, says Edinburgh—like Dublin—already has "the beginnings of a financial-services hub" and benefits from the use of English and the continuity in the legal system and regulations.

City officials say they're not panicking. Mark Boleat, chairman of the policy committee at the City of London Corp., says, "There is no doubt that some City jobs may be lost, but plans for a mass exodus are wide of the mark. London can still offer a huge pool of talented staff, excellent infrastructure, and stable rule of law."
—*Ambereen Choudhury*

FX and the City

About

41%

of the $5.3 trillion in global daily foreign exchange trades take place in London.

What Goes Up...

About 14 million square feet of space is under construction in central London. That's

28%

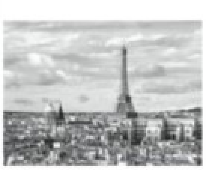
more than six months ago and the most since March 2008.

Don't Diss Me, I'm Irish

In Northern Ireland, where more than 55 percent voted for Remain, the Belfast post office ran out of applications for passports from the Irish Republic, an EU member. Anyone born in Northern Ireland qualifies for one.

RESEARCH BY CAROL MATLACK AND DONAL GRIFFIN. DATA: DELOITTE

Contenders to Succeed London



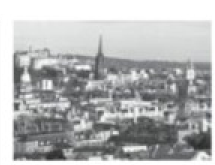
Paris Already host to an important outpost for HSBC, Europe's largest bank

Dublin Handles back-office services for major international banks and has low corporate taxes

Frankfurt Europe's second-largest financial center; Deutsche Bank's headquarters are here

Amsterdam Boasts a long history of capitalism; home to huge pension funds

Luxembourg Credit Suisse has stepped up operations here as a gateway to EU clients



Edinburgh If Scotland goes independent, it would stay in the EU with all its advantages

Goodbye to All That

An Englishman ponders the possible end of the resurgence that began with Thatcher
By John Micklethwait

The great sweep of economic history is a series of "rises" and "falls"—from the fall of Rome to the rise of China. The intriguing episodes that spark the "what ifs" of history come lower down—when a medium-size power suddenly reverses an inevitable-seeming trajectory. That's what Britain did under Margaret Thatcher and her successors: a crumbling country unexpectedly overturning years of genteel decline to become Europe's most cosmopolitan liberal entrepôt. My fear is this revival ended on June 23, 2016.

I can remember when my version of liberal Britain was born: in a sauna in San Francisco in 1981. I was visiting from the U.K., traveling around America with George, another 18-year-old, on our "gap year" between school and university. We were staying with George's elderly cousin Antony, who had fled high-tax Britain, having made a lot of money on chickens. He took us to have a sauna with his equally elderly neighbor, a small intense man called Milton. They asked George and me about Thatcher, and when they discovered that we knew little, Milton took center stage, explaining how the prime minister, who took office in 1979, would break the unions, open up the economy, and transform Britain into a free-market exemplar.

George and I had no economics, but even we knew this was codswallop. Thatcher already looked in trouble: There were riots back home. The Britain we had grown up in was a class-ridden land of inevitable decline—sometimes benign (watching *Upstairs, Downstairs*), sometimes humiliating (being bailed out by the IMF), and sometimes uncomfortable (being taught by candlelight during the miners' strikes). But the trajectory, pretty much since 1913, had been gradually downhill. Culturally, Britain could be cool—we had produced Mick Jagger and Monty Python. But economically we were finished. Later in my gap year, I watched the Grateful Dead and found them less hallucinogenic than the dreams of mad old Milton in that sauna.

When I returned to Britain, however, Milton Friedman was everywhere—the economist behind Thatcher's free-market gamble. Sir Antony Fisher (as he later became) was less well-known, but he's now celebrated as one of the great sponsors of the libertarian right. And what they forecast was basically correct; the trajectory of Britain did change.

You can argue that Thatcher was needlessly ruthless: Even today, many of the areas that voted for Brexit were in the industrial north that collapsed under her onslaught. You can claim she was an accident: Nobody in 1979 voted for "Thatcherism"; to most voters she seemed like a tough-minded pragmatist rather than an ideologue. You can say she was lucky: Had Argentina not invaded the Falklands in 1982, she might well have been a one-term prime minister. But the narrative changed—away from decline toward something more expansive, meritocratic, and confident.

Thatcher may have called herself a Conservative, but her inspiration was the classical liberalism of John Stuart Mill and Adam Smith, centered on free commerce and individual freedom and what we now call globalization. It sat at the heart of the first great Victorian age of globalization, which came to an end in 1914. For Thatcher these ideas were channeled through thinkers like Friedman. She wasn't always as idealistic as she claimed, but the direction she set—and John Major and Tony Blair followed—was clearly toward open markets.

As a result, Britain has arguably been the big Western economy most comfortable with the current age of globalization. Not as successful as the U.S., to be sure. But we have usually been stauncher supporters of free trade and more at ease with foreigners buying our companies or running them, with privatizing government services, with the move from manufacturing to services, especially finance, and with foreigners playing for our football clubs or taking over our cuisine. And alongside that has grown a laissez-faire attitude toward individual freedom, from gay marriage to stem cell research.

This liberal Britain didn't always work out well. Overreliance on finance meant we were especially exposed to the crunch in 2008. Even if in practice we were good at dealing with immigrants, there was still grumbling about foreigners, whether poor ones taking council houses or rich ones buying up Chelsea. We've been schizophrenic toward the European Union: We liked the single market but hated its tangle of regulation.

Yet this love-hate relationship has served Britain very well. The fact that we were at the free-market end of a sclerotic union increased our relative attractiveness. London has become the commercial capital of Europe and its talent magnet. Britain's soft power has not been greater for decades.

What went wrong? The obvious rejoinder is liberal Britain worked a lot better for some Britons than for others. That is true. Many Brexiters also felt that they had been lied to repeatedly about immigration. Others see the EU as a doomed project—and think we are best out of it. Add in shameless political opportunism, a Euroskeptic press that told voters there was no cost to voting Leave, and polls that showed Remain was in the lead (so a protest vote was just that), and you get to 52 percent of the electorate.

The chaos could pan out in a liberal direction. A few Brexiters believe they are Thatcher's heirs, rejecting the EU leviathan. But most of the Leave voters want less globalization, not more. And Europe is hardly in a mood to give special favors to perfidious Albion. The revolt against the age of globalization could well spread. In terms of soft power, Britain's reputation as a tolerant, stable haven is being shredded, day by day.

Hence the fear that the years 1979 to 2016 will be seen as the great exception—a brief revival in the centurylong decline of a former Great Power. By 2050 historians may well deem it inevitable that the financial capital of Europe would move to Germany. One irony is there was as much accident in the end of liberal Britain as there was in its founding. If few Britons knew what they were getting in Thatcher, perhaps fewer thought through the consequences of Brexit. They just wanted to give their politicians a kicking, believing it was risk-free. A lot depends on how quickly they admit they were wrong. B

Micklethwait is editor-in-chief of Bloomberg.

CLOCKWISE FROM TOP: ALAMY (2); GETTY IMAGES (5)

July 4 — July 10, 2016

A Bumper Crop of Debt

▶ A credit crunch, currency declines, and a rash of bankruptcies have hit Brazil's big farms

▶ "During the commodity boom years, there was this euphoria surrounding rising demand for food"

Like many of Brazil's soybean farmers, Nelson Vígolo has learned firsthand just how fast booms can go bust. During Brazil's go-go days, the soybean farmer borrowed big to buy and lease land, boosting the acreage of his farm in the state of Mato Grosso fifteenfold, to 150,000 hectares (370,658 acres), or almost twice the land area of New York City. Now his company, **Grupo Bom Jesus**, is suffocating under the weight of that debt, unable to come up with enough cash to cultivate the huge spread. "During the commodity boom years, there was this euphoria surrounding rising demand for food—we needed to produce more to feed the world," says Vígolo, who paid for half his company's expansion with borrowed cash. "It felt like it would last."

It didn't. Vígolo's company filed for bankruptcy in May, saying it owed about 2 billion reais ($590 million) it can't pay. At least 10 major Brazilian soybean producers have defaulted or sought to restructure debt in the past year, and more probably will falter.

Over the past two decades, growers in the country's agricultural heartland have borrowed billions of dollars to turn rain forest into farmland, part of Brazil's transformation into a crop-exporting juggernaut. As prices rose, the country became the world's largest exporter of soybeans for animal feed and cooking oil. But the soybean

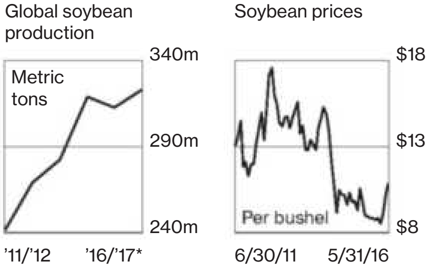
PAULO FRIDMAN/GETTY IMAGES

industry has been crippled by a mountain of debt, a global soybean surplus, and Brazil's longest recession in a century. Brazilian banks, facing rising delinquencies from consumers and companies, have tightened lending standards. One result: Some growers don't have enough cash to plant or are ditching plans to expand.

Farming fell into the same trap as other industries in Latin America's largest economy, from airlines to phone carriers. They tapped credit lines in dollars because interest rates were lower and they were getting paid in dollars, as so much of their output was exported. When the Brazilian real plunged 33 percent against the dollar last year, the cost of repaying those loans ballooned even as the prices the farmers could get for their crops were falling.

Soybeans being harvested at a massive farm in Brazil's Mato Grosso

Busted



*FORECAST AS OF JUNE 2016; DATA: U.S. DEPARTMENT OF AGRICULTURE; CHICAGO BOARD OF TRADE

As much as 10 billion reais in farm debt may need to be restructured, according to a financier who asked not to be identified discussing his bank's private forecasts.

The credit crunch may do even more to slow the expansion of Brazil's soybean farms than the drop in prices. Production next season, which begins with planting in October, may increase by the smallest amount in eight years, with farmers adding only 500,000 hectares, according to Brazilian crop consultant Agroconsult. That's less than half the 1.1 million hectares added last year, when 33.3 million hectares were sown, according to the U.S. Department of Agriculture.

Any debt-triggered slowdown will be a missed opportunity for Brazilian growers, since prices and demand have rallied recently. The USDA estimates global consumption will exceed production for a second straight year, after three years of glut. Soybean farmers in the U.S., the top grower and No. 2 exporter, are increasing acreage in 2016.

Prices on the Chicago Board of Trade are up 31 percent since touching a six-year low in late November. The rally was sparked partly by crop damage from a drought in Brazil and excess rain in Argentina. "The slowdown in planting expansion could be bullish for soybean prices, especially if there are any problems with this year's harvest in the U.S.," says Natália Orlovicin, an analyst at INTL FCStone in Campinas, Brazil.

For 2016-2017, Vígolo says Bom Jesus may plant 10 percent less farmland than the previous crop year, adding to a similar reduction by **Vanguarda Agro**, another big producer that's scrapping less productive areas in Bahia as it seeks to restructure 842 million reais in bank loans. Two other producers, **Grupo J. Pupin** and **Grupo Pinesso**, defaulted on 900 million reais and 600 million reais of debt, respectively, in the past year.

"As the cost of money rises, margins on expansion projects need to be very high," says Aurélio Pavinato, chief executive officer of **SLC Agrícola**, Brazil's top publicly traded farming company, which halted its investment in new acreage after interest rates climbed: "Brazil's soybean area won't grow this year."

On a recent afternoon, as a cold wave slammed into southern Brazil and added to concerns about crop losses, about 400 farmers, bankers, and traders gathered in São Paulo for an agriculture conference to discuss the outlook for the coming crop year. Executives swapped stories about the boom years, when lenders regularly served up unsolicited loans to growers, and fretted over today's debt burden. The consensus among the industry players in attendance was that the problem is concentrated among Brazil's largest farming groups—those cultivating more than 10,000 acres—because they rely more on private and foreign financing rather than government aid.

To help ease the funding shortage, chemical, fertilizer, and trading companies are stepping in to team up with banks and provide a bigger share of financing, say three executives with direct knowledge of the matter who asked not to be identified talking about private loan accords. Those companies sell more supplies and services to farmers as output grows, so they have an incentive to help keep farmers afloat. One of the people said the share of funding from such sources may rise to 40 percent this year, up from 25 percent last year.

For Vígolo, owner of Grupo Bom Jesus, such help comes too late. In the months leading up to its May 31 bankruptcy filing, the 53-year-old farmer says creditors regularly showed up with court officers to seize crop

◀ inventories. "It was very sad to see that some of the doors that used to be always open for us are now closed," he says. "Everyone in the market wanted to do business with us, and now we have to go after them."
—*Gerson Freitas Jr. and Fabiana Batista*

The bottom line After years of binge borrowing, about 10 of Brazil's largest farms have defaulted or sought to restructure debt in the past 12 months.

Airlines

Flights Are Full. Pilot Ranks, Not So Much

▶ **With recruits cool to low starting pay, airlines could face shortages**

▶ **Costly flight training "is a major impediment to building the pool"**

After coping with terrorism, bankruptcies, and consolidation, the largest U.S. airlines are facing a new problem: They may start running out of pilots in three years. That looming deficit will soar to 15,000 by 2026, according to a study this year by the University of North Dakota's Aviation Department, as more captains reach the mandatory retirement age of 65 and fewer young people choose commercial aviation as a profession.

The difficulty of attracting enough pilots is already the bane of the often low-paying regional carriers that ferry passengers from smaller airports to hubs operated by **American**, **Delta**, and other major airlines. That's worrisome for the big carriers, because they typically use the smaller operators as a pipeline for hiring. "The biggest problem is a general lack of interest in folks pursuing this as a career anymore," says Greg Muccio, a senior manager at **Southwest Airlines**. "That's what puts us in the most jeopardy."

Airlines are responding by changing hiring requirements, boosting signing bonuses at regional carriers they own, and partnering with flight schools and university aviation programs. Muccio spends some of his time trying to interest college, high school, and even elementary students in an aviation career, while he's working to extend the largest expansion of pilot hiring in Southwest's history.

The top three reasons would-be pilots are changing their career plans are the cost of flight training and certification, low pay at regional carriers, and a 2013 regulatory change that mandated a sixfold increase in flight hours required to become a first officer, according to a study released last year by the University of North Dakota and the University of Nebraska at Omaha.

Until recently, few pilots were willing to recommend the career, even to their own children, says Louis Smith, president of FAPA.aero, a career and financial planning firm for professional pilots. "That mood is changing," he says, as larger airlines have become profitable and increased their pace of hiring to support growth. "Still, the cost of learning to fly and the risk and impact of failure is a major impediment to building the pool of pilots."

Four-year flight-training costs for a commercial aviation aerospace major total about $64,500 at the University of North Dakota, home to the largest public aviation program in the U.S. That excludes tuition and room and board, which can add as much as an additional $105,400 for an out-of-state student.

Major U.S. airlines will hire as many as 5,000 pilots this year, mainly to replace retirees but also to support expansion, Smith says. Most will come from regional carriers, military retirees, and flight schools. More than 30,000 pilots, or half the current total of 60,222 at 10 large U.S. airlines, **United Parcel Service**, and **FedEx**, will reach age 65 by 2026, according to data compiled by Kit Darby, president of KitDarby.com Aviation Consulting.

Consolidation may be triggered at regional carriers by staffing competition from better-paying larger airlines filling their own pilot needs, says Elizabeth Bjerke, chair of the University of North Dakota Aviation Department. **Republic Airways**, which runs commuter flights for American, **United**, and Delta, filed for bankruptcy in February, in part because of a pilot shortage. "The future is a little scary," says John Hornibrook, chief pilot for **Alaska Airlines**, the nation's No. 6 carrier. "The pool is just not as big as it used to be."

To help recruiting, Southwest has dropped a requirement that pilot applicants already hold a certificate to fly Boeing 737s, which can cost as much as $14,000 to earn. It's also cut in half the time between a pilot interview and a job offer, Muccio says. American, which is adding about 650 pilots this year and 750 in 2017, gets about half of its cockpit staff via "flow-through" agreements that allow aviators at its three wholly owned regional carriers to move into jobs at American. Delta has a similar deal with its **Endeavor Air** unit, while Alaska Airlines guarantees interviews to pilots from its sister company, **Horizon Air**. "Every major we've talked to, they are concerned beyond the next three to four years," says Jim Higgins, the principal investigator on this year's University of North Dakota study.

At American's **Envoy Air** commuter unit, the promise of a seamless move to a major carrier is a big draw, says Jon Reibach, director of Envoy's pilot recruiting. "Once a young pilot interviews with us, that's the last airline interview they'll ever have to do," he says.

In June, American's regional carriers–Envoy, **Piedmont**, and

Digits

$14.7b

The amount **Volkswagen** will pay to settle U.S. claims stemming from emissions-cheating practices for its diesel vehicles—an American auto industry record. CEO Matthias Müller still must handle criminal complaints brought against Volkswagen on three continents.

FROM TOP: ILLUSTRATION BY 731; KRISZTIAN BOCSI/BLOOMBERG

PSA—upped their signing bonus to $15,000. Delta's Endeavor pays a retention bonus of up to $23,000 and has the highest first-year salary at $50,000, according to Delta spokesman Michael Thomas.

First-year pay at commuter carriers averages $35,227. A first officer, or co-pilot, on the smallest aircraft at large airlines earns an average $55,054 his first year, according to Darby. That can increase to more than $120,000 in his fifth year, flying the largest plane. A captain at top seniority flying the biggest planes averages $208,828.

Some carriers are trying nontraditional hiring approaches. In March, **JetBlue Airways** initiated Gateway Select, in which recruits with no flying experience, after passing a series of screenings, can pay $125,000 to enter an intense four-year program to become pilots. Successful graduates get a job offer. The model, designed to recruit from a broader range of candidates, is similar to those used in Europe and Asia.

At United, a new program designed "to counter the potential shortage of qualified pilots" involves two regional carriers and a flight-training school, according to an internal memo from the airline. The plan provides a chance to move to the larger carrier, which will hire 650 pilots this year and as many as 900 in 2017. —*Mary Schlangenstein and Michael Sasso*

The bottom line Airlines in the U.S. could face a shortage of up to 15,000 pilots by 2026. That's causing airlines to try new ways to recruit staff.

Pods

Nestlé Takes Aim At Coffee Likers

- ▶ **More flavors and lower prices boost Dolce Gusto's growth**
- ▶ **Trying to "hit every taste, every budget, and every age group"**

Nespresso, beware: Your status as **Nestlé**'s favorite child is under threat from your scruffy kid brother. Nestlé, creator of the high-end Nespresso brand of coffee pods and espresso machines, is increasingly leaning on a ▶

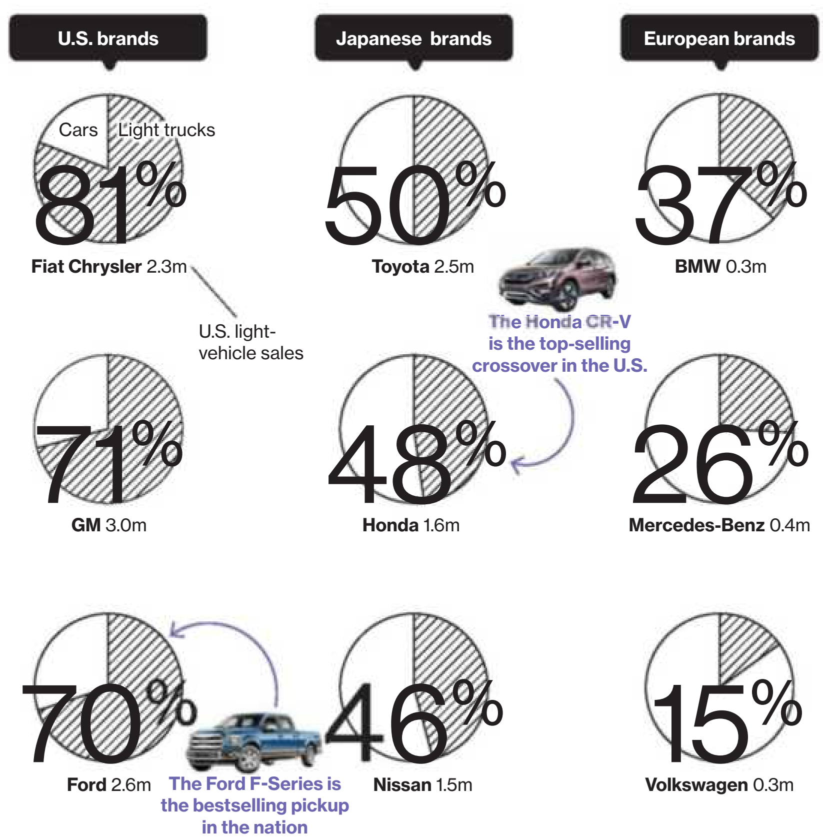
Autos

By Mark Glassman

Keep on Truckin'

U.S. auto sales may be slowing, but America's infatuation with the sport utility vehicle is only growing stronger. Sales of SUVs, pickups, and vans have accounted for more than half of all U.S. light-vehicle sales (which also include cars) in each of the last 38 months.

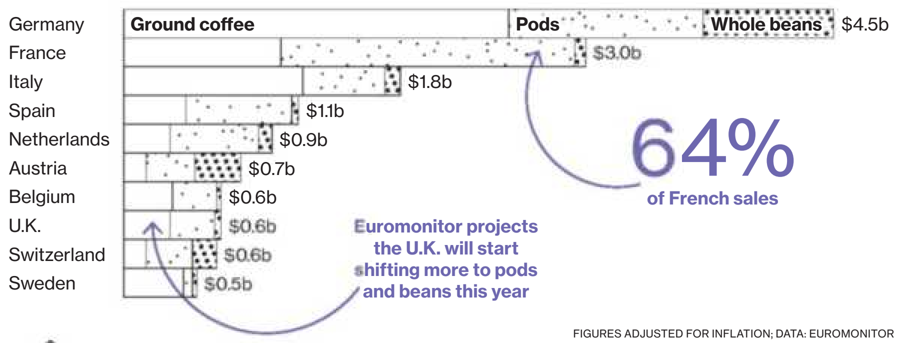
American automakers such as Ford and General Motors are notably dependent on light trucks. Below is a breakdown of companies' light-vehicle sales in the U.S. in the past 12 months:



COMPANY SALES FIGURES ARE FOR THE 12 MONTHS ENDED IN MAY 2016; DATA: WARDSAUTO AND BLOOMBERG INTELLIGENCE

Rise of the Pod People

Retail coffee sales in Western Europe



FIGURES ADJUSTED FOR INFLATION; DATA: EUROMONITOR

◀ cheaper range of single-serve coffees that it calls Nescafé Dolce Gusto.

Since Nespresso was launched three decades ago, it's become one of the Swiss company's most profitable products. In recent years, though, Nespresso has faded as rivals have entered the market and upstarts sell less expensive pods that fit Nestlé's machines. Nespresso's growth has slowed from about 30 percent annually in the past decade to 7 percent in 2015, according to Bank Vontobel estimates.

Although Nestlé stopped breaking out Nespresso revenue in 2012, citing the competitive environment, and declined interviews about Dolce Gusto, analysts estimate sales were about 4.4 billion Swiss francs ($4.5 billion) last year. In Western Europe, Nespresso's core market, its share of pod deliveries fell from 32 percent in 2010 to 25 percent in 2015, according to researcher Euromonitor International. In the same period, Dolce Gusto's rose from 8.1 percent to 12 percent, and its sales now top 1 billion francs.

Nestlé introduced Dolce Gusto in 2006 as a cheaper alternative. In Europe, a Nespresso capsule costs about 52 to 57 Swiss centimes (53¢ to 58¢), compared with about 39 centimes for a Dolce Gusto capsule. While Nestlé says it takes only the top 2 percent of coffee beans for Nespresso, Dolce Gusto pods are filled with lower-quality blends, and some milky varieties such as Café au Lait and Cortado use instant coffee. Dolce Gusto "is for a different consumer, who doesn't love coffee but likes and wants coffee and is a lot more price-sensitive," says Jonny Forsyth, an analyst at researcher Mintel Group.

Dolce Gusto has the potential to reach more millennial consumers and penetrate emerging markets, according to Patrik Schwendimann, an analyst at Zürcher Kantonalbank. Nestlé last year opened its first Dolce Gusto factory outside Europe, in Brazil, adding it to facilities in Spain, Germany, and Britain. And in Japan, the brand this year rolled out matcha green tea pods. "With Dolce Gusto," Schwendimann says, "Nestlé has cemented its lead in coffee and can hit every taste, every budget, and every age group."

Nestlé faces growing competition in coffee pods, a market it created with Nespresso's 1986 introduction. Today, rivals **Senseo**, **Starbucks**, and **Tassimo** offer competing pod/machine combos, and dozens of others sell capsules billed as compatible with Nespresso machines. In March, **JAB Holding**, the investment company of Austria's billionaire Reimann family, bought Keurig, the most popular single-serve java system in the U.S., as part of a $30 billion expansion of its coffee empire.

A two-pronged approach makes sense, says Robert Waldschmidt, an analyst at Liberum Capital in London. The Nespresso and Dolce Gusto brands, which he says have similar profit margins of about 25 percent, are the biggest in the global coffee-pod business, which is likely to expand 45 percent, to $19.6 billion, by 2020, according to Euromonitor. "The baton is being passed," Waldschmidt says. "Nespresso was out as the lead runner, and now Dolce Gusto as the second or third guy is coming in to take the baton and move forward." —*Corinne Gretler, with Benjamin Katz and Thomas Mulier*

The bottom line As Nespresso's growth slows, Nestlé is trying to reach casual drinkers who care about price as much as flavor.

Edited by James E. Ellis
Bloomberg.com


Bloomberg
BRIEF

July 4 — July 10, 2016

The Fix for Immigration

▶ A Supreme Court decision kicks the can to 2017

▶ "For the community that is impacted by this, it is life and death"

GETTY IMAGES

A deadlocked Supreme Court has effectively squashed any chance of significant immigration reform before President Obama leaves office in January. On June 23, a 4-4 vote by the justices left in place an injunction blocking Obama's plan to shield from deportation millions of undocumented immigrants whose children are U.S. citizens or legal residents. The plan would also have allowed those immigrants to apply for work permits. The court's decision returned the issue to U.S. District Judge Andrew Hanen, who in February blocked the program from going into effect nationwide while he considers a challenge from 26 states led by Texas, which objects to paying associated costs.

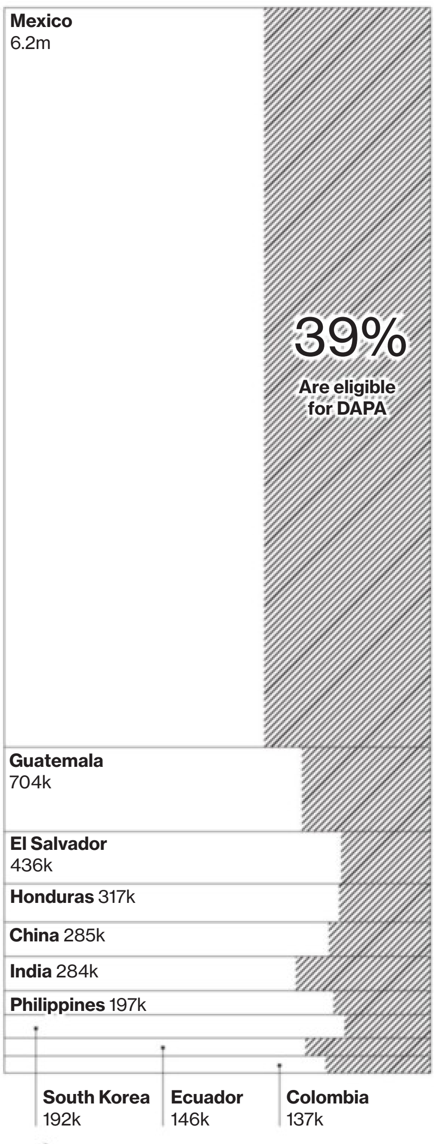
The estimated 3.6 million undocumented immigrants who would have qualified under the program, known as Deferred Action for Parents of Americans, remain in limbo. So do their employers. Business groups submitted two amicus briefs in support of DAPA to the Supreme Court.

Bob Donegan, president of the Seattle-based restaurant chain Ivar's, joined one of the briefs. When he began using the government's E-Verify system to check employees' immigration status in 2014, Donegan learned that 109 of his 1,200 workers were undocumented. "There were people who had worked for us for 20 years," he says. "These people are great employees. We know their kids. We know their parents. It is not fair for these people not to be included in having the right to work." He let them go but offered to cover their lawyers' fees if they applied for residency. Nine have since gained legal status and come back to Ivar's. Says Donegan: "Every one of the nine has been promoted into a management job, and we have another 30 pending."

The Obama administration has until late July to petition the court for a rehearing, but it hasn't indicated whether it will. Hanen has scheduled a status conference with lawyers for Aug. 22, after which he's expected to set a timetable for hearing the case in his Brownsville, Texas, courtroom. That will open the next phase of wrangling over the fate of about ▶

Undocumented Immigrants in the U.S.

Top 10 countries of origin



◀ a third of the estimated 11 million undocumented immigrants in the U.S.

Congress has spent more than a decade debating immigration reform. It has repeatedly failed to pass legislation and has showed no appetite to try again before the November election.

No one expects the Obama administration to succeed in persuading Hanen to let DAPA proceed. The judge, an appointee of President George W. Bush, has sparred with Justice Department lawyers, even barring some from representing the government in this case. He's said he may order Justice Department attorneys making court appearances in any of the states that are part of the DAPA lawsuit to take mandatory ethics classes. Hanen has also indicated he may force the federal government to hand over the names, addresses, and other contact information for thousands of people who signed up for an earlier Obama program, Deferred Action for Childhood Arrivals.

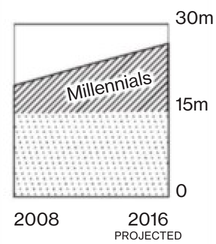
Federal courts have allowed DACA, which gives some undocumented immigrants who came to the U.S. as children protection from deportation, to move ahead despite repeated challenges. DAPA supporters could challenge Hanen's nationwide injunction against it in other, more liberal, circuits, like the Ninth, which covers California. "One could imagine that there will be judges in other parts of the country that don't think it's proper for law for the entire country to be set by a single district court judge," says Brianne Gorod, chief counsel for the Constitutional Accountability Center, a public-interest law firm and think tank in Washington.

If Hanen rules against DAPA, the Obama administration could appeal the decision back up to the Supreme Court. Yet the case could stretch into next year, and regardless, the bench will likely remain split until a ninth justice is appointed to fill the seat left vacant by the death of Justice Antonin Scalia. Senate Majority Leader Mitch McConnell has refused to confirm anyone until a new president is sworn in. "You have a serious case with huge national impact that the court could not decide based on staffing issues, basically," says David Leopold, former president of the American Immigration Lawyers Association.

Hillary Clinton has pledged to proceed with DAPA if she's elected and would be expected to nominate a liberal justice to Scalia's seat. Clinton's likely opponent, Republican Donald Trump, called DAPA "one of the most unconstitutional actions ever undertaken by a president" and has said he'd deport undocumented immigrants if elected.

Although the immigrants directly protected by DAPA can't vote, their U.S. citizen children can. "For the community that is impacted by this, it is life and death," says Ben Monterroso, executive director of Mi Familia Vota, which registers Latino voters. He says young people are becoming particularly engaged in this year's election: "If they don't have parents at risk of being deported, they have friends and relatives who are." After the Supreme Court opinion was released, activists blocked a thoroughfare in downtown Phoenix. Four were arrested.

Eligible Latino Voters



Some advocacy groups are urging the White House to do what it can now in the absence of DAPA, including curbing border raids and allowing more migrant detainees to post bond. Says Marisa Franco, a Phoenix community organizer who last year co-founded Mijente, a Latino advocacy group: "If there is no relief, then the administration shouldn't be throwing the book at immigrants." *—Josh Eidelson and Karen Weise*

The bottom line The fate of a program to deal with millions of undocumented immigrants in the U.S. probably won't be determined before the election.

Election 2016

Cities Bill Trump for the High Costs of Rallies

▶ **The campaign has reimbursed at least one, but others wait**

▶ **"If we don't receive payment, then it's going to fall on the taxpayers"**

Cities across the U.S. are discovering that a visit from Donald Trump isn't cheap. The presumptive Republican nominee kicked off his California campaign on April 28 at the Pacific Amphitheatre in the Orange County suburb of Costa Mesa, south of Los Angeles. Anti-Trump protesters outside turned violent, blocking a freeway on-ramp and trying to overturn a police cruiser. The night ended with 17 arrests, five damaged police vehicles—and a $30,000 bill for the city.

Officials sent a bill to Trump's campaign for $15,000 to cover police overtime, hoping to recoup the remaining property damage costs from people who were arrested. "It's a venue where politicians typically come, and it's literally never been an issue," says city

DATA: PEW RESEARCH CENTER; MIGRATION POLICY INSTITUTE. PHOTO: MATT MILLS MCKNIGHT/GETTY IMAGES spokesman Tony Dodero.

Costa Mesa isn't the only city that's been hit with costs because of Trump's unconventional campaign. Rallies in Albuquerque and San Jose ended with violent clashes between Trump backers and protesters, unheard of in any presidential campaign since George Wallace's in 1968 and 1972.

Will Clark, captain of police operations in Wilkes-Barre, Pa., sent the campaign a bill for $4,752 on May 2 to reimburse his department for the overtime and extra staffing after an evening rally in late April at the Mohegan Sun Arena. "Obviously, if we don't receive payment, then it's going to fall on the taxpayers here," he says.

Neither Costa Mesa nor Wilkes-Barre has yet been reimbursed. Nor has Eugene, Ore., which the Associated Press reported has billed the campaign for $92,300 in extra staff costs and overtime for firefighters and police assigned to Trump's May 6 rally there.

There is a formal process for submitting such requests, but campaigns are under no obligation to help cities defray the ancillary costs of hosting campaign events. Trump spokeswoman Hope Hicks says the campaign pays for security inside venues, but following standard protocol leaves U.S. Secret Service and municipal or county law enforcement to coordinate on handling crowds outside. Officials in Cleveland, which will host the Republican National Convention starting on July 18, are also preparing for protests, but the federal government will cover as much as $50 million in security costs for both the GOP gathering and the Democratic convention in Philadelphia later in July. Hillary Clinton's campaign did not respond to questions about whether it had been billed.

Law enforcement officials say the Trump campaign's habit of overpromising rally seats, which creates long lines at its events, exacerbates costs. In Eau Claire, a central Wisconsin city of 67,000, Trump held a rally at the local high school, the town's largest venue, which holds 1,800. According to Deputy Police Chief Matt Rokus, the campaign distributed more than 6,000 tickets before the event, leaving thousands of supporters outside, where they faced anti-Trump protesters. "Duh, there's going to be a problem," he says. "You got a bunch of people who drove hours to get there thinking they had a seat."

Trump's event cost Eau Claire $33,819 for extra staff, police overtime, and traffic directors, Rokus says. Rallies the same day held by Clinton and Bernie Sanders required no extra resources, he says.

Ninety miles to the south, in La Crosse, Wis., Mayor Tim Kabat tells a similar story. A Clinton visit, held at a local technical college, required so little security that the town didn't register any extra costs, while a 1,500-person Trump event at the local civic center cost La Crosse $15,918 in police overtime fees. Unlike other cities, La Crosse has been compensated by the Trump campaign. On May 28, Trump for President sent a check covering 100 percent of its public safety costs for the rally. Kabat was pleasantly surprised: "I have to say, I did a double take when we got that." —*Kate Smith, with Jennifer Epstein*

The bottom line Cities are racking up extra overtime costs and other expenses to provide security outside Trump campaign rallies.

Health Care

Feds Call In the SWAT Teams on Rogue Docs

▶ **The Justice Department is getting tougher on medical fraud cases**

▶ **"These tactics had previously been reserved for racketeers"**

The U.S. Department of Justice arrested a record 301 individuals on health-care fraud allegations in late June. The number was striking, but so was the word—"takedown"—Attorney General Loretta Lynch used to ▶

The line outside a Trump rally in Lynden, Wash.

◀ describe what was essentially a white-collar enforcement operation. “Health-care fraud is not an abstract violation or a benign offense,” Lynch said at a June 22 press conference. “It is a serious crime.”

The arrests, from Florida to Alaska, involved about $900 million in suspect billings. They’re the most visible result yet of a policy shift set in motion last fall, when Deputy Attorney General Sally Yates issued a memo barring prosecutors, without special permission, from releasing individuals from criminal or civil liability when settling fraud cases against companies. Prosecutors typically used such immunity deals as leverage in pursuing civil settlements with companies accused of fraud. “Those days are gone,” says Mark Hardiman, an attorney in Los Angeles who represents health-care companies.

One of Hardiman’s clients is Dr. Prem Reddy, the founder and chief executive officer of **Prime Healthcare Services** of Ontario, Calif. Prime, one of the fastest-growing hospital chains in the U.S., is the target of a whistle-blower complaint alleging its doctors needlessly hospitalized Medicare patients to boost profits. On June 23 the government filed a civil complaint against Reddy. Prosecutors alleged in an affidavit that he personally told his emergency room doctors “to find a way to admit all patients over 65.”

“This particular case is a shining example of the DOJ’s follow-through with respect to the Yates memo,” Hardiman says. He and Troy Schell, Prime’s general counsel, say Prime and Reddy deny the fraud allegations. The Justice Department didn’t respond to requests for comment on the Prime case or the shift in health-care enforcement.

Prosecutors are forgoing subpoenas and civil investigative demands, which rely on a suspect’s cooperation, in favor of more forceful measures such as search warrants and raids. Patrick Cotter, a defense lawyer in Chicago who as an assistant U.S. attorney in Brooklyn in the 1990s prosecuted mobsters including John Gotti, says one of his clients was eating breakfast with his family earlier this year when armed agents burst through the door of his home. The agents ordered the family onto the couch while they hauled away computers, cell phones, and documents as part of an investigation into Medicare rules violations.

> **In health-care cases, “we’re seeing traditional criminal prosecutorial tactics against individuals for the first time on a large scale.”**
> **—*Defense lawyer Patrick Cotter***

“In the past, these kinds of cases were handled through sanctions and settlements, or it was the corporate entity that was deemed to be responsible,” Cotter says. “Now we’re seeing traditional criminal prosecutorial tactics against individuals for the first time on a large scale. These tactics had previously been reserved for racketeers, bank robbers, and drug dealers. This is a sea change.” —*Peter Waldman*

The bottom line Under a new Justice Department policy, federal prosecutors can’t exempt executives from corporate charges without special permission.

Animal Rights

France Cracks Down On Factory Farms

▶ **A viral video campaign has moved the government to act**

▶ **“There are some dysfunctions to correct”**

France has long been known for its foie gras and horse-meat steaks. These days, it’s also the epicenter of a surprisingly effective animal-rights campaign. Armed with grisly undercover videos shot in slaughterhouses, a group of vegan activists called L214—the name refers to the animal-welfare section of France’s civil code—has used social media to spur public outrage. That’s prompted a government crackdown on meat producers. L214 co-founder Brigitte Gothière says, “We’ve shattered the image of meat.”

In footage shared widely online, animals writhe in pain as they bleed to death or are dismembered, in violation of rules requiring that animals be rendered unconscious before slaughter. One of the facilities shown in the videos was certified as “organic.” Authorities ordered the closure of three slaughterhouses featured in the videos; they were later allowed to reopen under strict supervision. Parliament has appointed a special committee to investigate.

The Agriculture Ministry, traditionally a champion of producers’ interests, ordered an emergency inspection of every abattoir in the country. It’s also introduced legislation, now progressing through Parliament, to impose criminal penalties on owners and employees of facilities that mistreat animals as well as whistle-blower protections for workers. Agriculture Minister Stéphane Le Foll in March cited L214’s “horrible images” in announcing those measures.

France’s meat producers haven’t disputed the accuracy of the videos. Dominique Langlois, president of industry lobby group Interbev, calls them “shocking and unacceptable.” His group supports the government’s plan to criminalize animal mistreatment and protect whistle-blowers. The L214 videos don’t reflect conditions at most French slaughterhouses, he says, but “there are

A joint protest by L214 and another animal-rights group in Lyon

THIS PAGE: COURTESY L214. OPPOSITE PAGE: SIGN COURTESY LANESPLITTINGISLEGAL.COM some dysfunctions to correct."

L214's earlier campaigns, which involved funeral processions for animals and performance art displays, had little effect. "We weren't always taken seriously," says Gothière, a former teacher who founded L214 in 2008 with her partner, Sébastien Arsac. But since the video campaign began late last year, the group's modest offices in northeastern Paris have been flooded with volunteers and donations. Staff has doubled, to 20 people. Gothière says slaughterhouse and poultry-farm workers are now coming forward to furnish material for still more videos, including two released on June 29 showing workers butchering still-conscious horses and other animals at abattoirs in the Alps and in southern France.

France's history of animal-protection activism goes back at least to an 1850 law banning cruel treatment of pets. But the French traditionally haven't shown much concern for the welfare of the animals they eat. The country accounts for about two-thirds of global consumption of foie gras, a target of bans in Europe and in the U.S., because it is made by force-feeding birds to enlarge their livers.

L214 has been clever to take aim at French consumers' belief that their country shuns the factory farming techniques used in the U.S. and elsewhere, says Elizabeth Cherry, a sociologist at Manhattanville College in Purchase, N.Y., who's studied the French animal-rights movement. L214's videos "are new to the French consciousness," she says.

It's not clear that L214's campaign will advance its ultimate goal: persuading people to become vegans. The current crackdown could have the reverse effect, ultimately encouraging meat consumption by reassuring the public that it's being produced humanely. Gothière, who stopped eating meat in 1993, says that even if most French aren't ready to give up their steak frites, the L214 campaign is helping her countrymen "take steps in a good direction." She adds: "We've pushed them out of their comfort zone." —*Carol Matlack*

The bottom line A vegan activist group's social media campaign is spurring France to introduce legislation criminalizing animal mistreatment.

Edited by Allison Hoffman
Bloomberg.com

A Bill

By Lee Wilson

Motorcycle Safety

California AB 51 An act to add Section 21658.1 to the Vehicle Code

The essentials

1. In most of the U.S., it's illegal for motorcycles to travel between stopped and slow-moving cars—a practice known as lane splitting. The exception is California, where the state highway patrol has long informally condoned it. The agency posted safety guidelines until 2014, when it was sued by a citizen who claimed the California Highway Patrol was effectively writing regulations without legislative authority. Lawmakers have now moved to legalize lane splitting.

2. About 885,000 motorcycles are registered in California, more than in any other state. One reason is the weather, but another is practical: Bikes make it easy to bypass traffic. Drivers may get anxious when motorcycles thread between cars, but studies show lane splitting reduces the likelihood that automobiles will rear-end motorcycles. In a 2013 report, the National Highway Traffic Safety Administration recommended further review, as has the U.S. Department of Transportation.

3. Lane splitting is common in parts of the world where motorbikes are relied on for basic transportation. Motorcyclists across the U.S. are watching the outcome in California closely. "It helps raise awareness of the issue," says Jesse Erlbaum, a co-founder of the New York Motorcycle & Scooter Task Force, which supports legalizing lane splitting. "Being able to clarify a law in California gets the conversation going."

Vital statistics

Sponsors
Bill Quirk (D-Hayward, Calif.)
Tom Lackey (R-Palmdale, Calif.)
Co-sponsor
Kansen Chu (D-San Jose, Calif.)

Legislative Counsel's Digest
p. 1

Section 1
Section 21658.1 is added to the Vehicle Code
pp. 2-3

The bill makes the CHP responsible for setting lane-splitting guidelines in consultation with motorcycle riders' groups

1 2 3

IP

▶ **In an unusual move, Kickstarter is quietly paying dividends to investors**

▶ **"I concluded that there was going to be a lot of cash flow, potentially"**

The relationship between startups and venture capital firms is usually pretty simple. Startups plow every VC dollar they get into building their business. The investors get paid back if and when the company goes public or is bought. Cash out or go broke—there's not supposed to be anything in between. So it's more than a little weird that the venture-backed crowdfunding site **Kickstarter** has quietly begun paying investors dividends.

The first checks went out in March. Among private tech companies run on venture funding, this is unprecedented, says Anand Sanwal, chief executive officer of researcher CB Insights. "It sounds strange for a VC-backed company, as it means they're taking out and distributing money vs. investing it in the business," he says. Kickstarter confirmed that it issued dividends but declined to comment beyond that.

Kickstarter's dividends further complicate its already unusual profile. Last year it became a public benefit corporation, promising to allocate 5 percent of profits to charitable ventures. At the time, Kickstarter's founders also said it would pay taxes without resorting to loopholes or other legal strategies and that they wouldn't pursue an initial public offering. "More and more voices are rejecting business as usual, and the pursuit of profit above all," they wrote in a blog post announcing the conversion.

Since its 2009 founding, Kickstarter has told investors it has little interest in selling to a larger company. It was co-founder Perry Chen who first suggested a dividend as a way to reward VCs, says Fred Wilson, managing partner of early Kickstarter backer Union Square Ventures. After hearing the plan, Wilson says, "I did the math, and I thought about it, and I concluded that there was going to be a lot of cash flow, potentially, to dividend out."

The check Union Square received in March is the first in what should be a steady stream of income. Wilson, who wouldn't disclose the initial sum, says he can't determine how long it will take to recoup his firm's investment because he doesn't know how big future dividends will be. "It's still speculative, still early days to know how this is going to play out," he says. "Come back to me in 5 to 10 years." He can't wait forever. Like most venture funds, Union Square's is set up to operate for a decade. While that end date is easy enough to postpone, Wilson says he'll have to sell the Kickstarter stake at some point.

The ticking clock is one reason other venture investors question Kickstarter's model

The ticking clock is one reason other venture investors question Kickstarter's dividend model. Seth Levine, a managing director at the venture firm Foundry Group, says any company asking him for money must have the potential to return at least three times his initial investment. Levine is comfortable pushing against the standard model—like Kickstarter, Foundry just became a public benefit corporation—but he's skeptical that dividends are a winning strategy. "Can they get their investors four, five, six times their money back with dividends over a relatively short period of time?" he asks.

Many venture-backed startups make high-risk, high-reward moves, investing heavily in growth without worrying about short-term profitability. Kickstarter is also unusual in that it's been profitable since its second year. But its growth is slowing, in terms of both the number of projects that get funded and the total pledge money.

The funding that went to Kickstarter projects doubled in 2013 but grew less than 50 percent last year, to $2.1 billion. By Silicon Valley standards, that's a worrisome trend.

And what about Kickstarter employees? One great attraction of joining a tech startup is getting equity that can become astronomically valuable if the company goes public or gets bought. When it offered the dividend, Kickstarter also offered to buy back equity from employees looking to liquidate. "I know that was really important to the guys as they thought about this, making sure the people who broke their backs to help them get to a more prominent position were taken care of financially," says Joshua Stylman, another Kickstarter investor.

Kickstarter isn't the only company exploring variations on the typical funding model. Startups looking to hold on to their equity have begun selling investors redeemable preference shares, agreeing to buy the shares back at a certain point if they can afford to. On the other side, emerging venture firm **Indie.vc** funds companies without taking an ownership stake. Instead, it buys an option to convert its investment into an ownership stake if a company goes public. Companies that stay private pay the firm cash, allowing it to recoup up to five times the initial investment.

This is fringe stuff, and Wilson, an Indie.vc investor, predicts it'll stay that way. "It may be a growing piece of the mix, but I don't think it will be how all companies will operate in 5 or 10 years," he says. "Ninety-nine percent of entrepreneurs are quite happy with the system as it is now. And, frankly, so are we." —*Joshua Brustein*

The bottom line Kickstarter's dividends highlight the growth of alternative VC investment strategies but are likely to remain the exception, not the rule.

Mobile

Some Options for BlackBerry Die-Hards

▶ **An evolving set of workarounds keeps fans in keyboards**

▶ **"I'd rather use my old BlackBerry than a brand-new phone"**

Darren Kao, an IT consultant who runs a mobile software startup in Ottawa, uses his Android phone for two things: WeChat, to stay in touch with his Chinese clients, and the Starbucks payment app, for his morning caffeine fix. For everything else, he's got his trusty **BlackBerry**.

Kao is part of a shrinking tribe of die-hard BlackBerry fans dedicated to navigating modern life with what most people consider an obsolete appliance. Like many devotees, he says iOS and Android devices just can't match BlackBerry's call quality, central hub for notifications, or physical keyboard. "I'd rather use my old BlackBerry than a brand-new phone," he says.

To outsiders, it's an increasingly perverse choice. After all, BlackBerry has committed to updating its BB10 operating system only through the end of the year. It's shifting its devices to Android and has no stated plans for another BB10 phone. And the number of BlackBerry users around the world has fallen by two-thirds, to about 23 million, in just two years, according to a company filing. Even President Obama, who famously fought to keep his BlackBerry despite the U.S. Secret Service's security concerns, told Jimmy Fallon in June that he's finally ditched the brand (reportedly for Samsung).

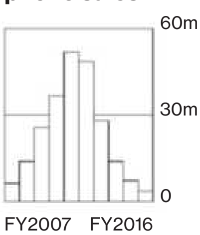
The continued loyalty of those last 23 million users is striking. Kim Kardashian has said she buys old BlackBerrys on EBay to ensure a steady supply. Others painstakingly follow online tutorials on workarounds to make popular apps such as Snapchat and Instagram work on BB10. Friends and family find themselves adding BlackBerry Messenger to their app roster to keep in touch with the few remaining Berry users in their lives.

Kao, the IT consultant and software developer, refuses to message with ▶

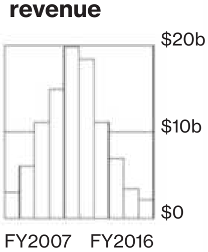
his wife or friends through anything other than BBM. “Even my girls were brought up playing with BlackBerrys as toys,” he says. He now uses a BlackBerry Classic, an updated version of the legendary BlackBerry Bold.

When BlackBerry Chief Executive Officer John Chen chose last year to start selling phones running Android instead of BB10, it opened a rift in the community, says Chris Parsons, editor-in-chief of fan website CrackBerry.com. “They essentially made people make a choice at that point: Are you a BlackBerry user or are you essentially an Android user?” says Parsons, known on the site as Bla1ze.

BlackBerry phone sales



Total revenue



In 2014 a CrackBerry mainstay known only as Cobalt232 found a way to rework Android’s source code, stripping out elements that stop Android apps from working on BB10. He’s allowed the die-hards to download modified Android versions of apps that don’t otherwise work on BB10.

Still, getting non-BlackBerry applications onto a BB10 phone requires patience and some technical skill. And the results are often glitchy, says Howard Mesharer, a waiter in Columbus, Ohio. He’d been using Cobalt’s hack so he could Snapchat with his friends on his square-screened BlackBerry Passport, the latest in a long line that he’s owned. (He can readily recite the complex series of model numbers: Curve 8520, Curve 8900, Bold 9900, Bold 9700, Curve 8320, Z10, Classic, Q10, Passport.) But he grew tired of spending 45 minutes at a clip tinkering with Snapchat workarounds, and in May he caved and bought an LG Android phone. “No developer wants to develop for BlackBerry,” he says. “It’s over.”

Some on Wall Street would like BlackBerry to move on, too. Macquarie Group analyst Gus Papageorgiou, who’s covered the Canadian company on and off since 2002, said in May that ditching hardware to focus on software and services would help its bottom line and cheer investors. Chen, the CEO, has said he’ll do that if he can’t make the smartphone unit profitable by September.

He’s got a ways to go. On June 23, BlackBerry reported better-than-expected quarterly earnings, but netted a loss of $670 million, on revenue of $424 million, due largely to write-downs and impairments. The company reported just $2.2 billion in revenue last fiscal year, its lowest since 2006. “This is a company in the midst of a product transition right now,” says Bloomberg Intelligence analyst John Butler. “The device business is clearly not working.”

Kao, like other longtime fans, is struggling with the transition. He got his first BlackBerry in 2003, when he landed his first job at IBM, and recalls being the envy of all his friends. “It used to be a badge of honor,” he says. “Now it’s almost a shame.” *—Gerrit De Vynck*

The bottom line BlackBerry’s global user count fell by two-thirds in two years, to 23 million, but some fans still work hard to adapt the devices.

Dispute Resolution

Settling Legal Conflicts, EBay-Style

▶ **Online tools that are cheaper than lawyers improve access to justice**

▶ **Most lawyers in the U.S. “feel uncomfortable about the process”**

Buyers and sellers on **EBay** use the site’s automated dispute-resolution tool to settle 60 million claims every year. Now, some countries are deploying similar technology to let people negotiate divorces, landlord-tenant disputes, and other legal conflicts, without hiring lawyers or going to court.

Couples in the Netherlands can use an online platform to negotiate divorce, custody, and child-support agreements. Similar tools are being rolled out in England and Canada. British Columbia is setting up an online Civil Resolution Tribunal this summer to handle condominium disputes; it will eventually process almost all small-claims cases in the province. Until now, says Suzanne Anton, the province’s minister of justice, “if you had a complaint about noise or water coming through your ceiling, you might have to go to the Supreme Court,” spending years and thousands of dollars to get a ruling.

These online legal tools are similar to EBay’s system, which uses algorithms to guide users through a series of questions and explanations to help them reach a settlement by themselves. Like EBay, the services can bring in human adjudicators as a last resort. Several of the new platforms were designed with help from Colin Rule, who started EBay’s dispute-resolution unit in 2004 and ran it until 2011. Soon after leaving EBay, Rule started **Modria**, a San Jose-based company that markets dispute-resolution software for e-commerce.

Employing online tools to settle routine legal disputes can improve access to justice for people who can’t afford to hire a lawyer, while freeing up court dockets for more complex cases, enthusiasts say. And “citizen expectations are being driven by the private sector,” Rule says. Courts and government agencies that adopt the technology “stand the best chance of keeping their constituents” satisfied, he says.

The Dutch government’s Legal Aid Board has operated a platform called Rechtwijzer (Roadmap to Justice) since 2007 for couples who are separating or divorcing. It handles about 700 divorces yearly and is expanding to cover landlord-tenant and employment disputes.

Couples pay €100 ($111) for access to Rechtwijzer, which starts by asking each partner for their age, income, education, and other information, then guides them through questions about their preferences. Couples with children, for example, are asked whether they want the children to live with only one parent or part time with each.

The platform uses algorithms to find points of agreement, then proposes solutions. There’s a tool to calculate child support and software for drafting agreements. Couples can request

DATA COMPILED BY BLOOMBERG
FROM LEFT: PHOTO ILLUSTRATION BY 731; PHOTO: GETTY IMAGES; AKIO KON/BLOOMBERG (4)

a professional mediator for an additional €360 or, if talks break down, a binding decision by an adjudicator. That happens in about 5 percent of cases, says Jin Ho Verdonschot, a lawyer at Dutch nonprofit HiiL who led development of the platform. The organization uses new technologies to improve the justice system.

As with the systems being introduced in England and Canada, use of Rechtwijzer is voluntary—and empowering, says Verdonschot. “When people hand over an entire divorce or separation case to a lawyer, it doesn’t always feel OK,” he says. Verdonschot, working with Modria founder Rule, helped British nonprofit Relate build a similar platform that will be launched this year in England and Wales. Modria’s technology also powers MyLawBC, a divorce-negotiation platform run by British Columbia’s legal services bureau that’s separate from the province’s small-claims online tribunal.

The U.S. trails Europe and Canada in developing self-help tools for disputes, though some state and local jurisdictions use online platforms for property-tax appeals and no-fault insurance claims. Entrepreneurs have started web-based dispute-resolution sites with names such as ClaimSettle and EQuibbly, but most have shut down after failing to attract business, says Robert Ambrogi, a Massachusetts attorney who writes about online dispute resolution. Some startups were hurt by a lack of public awareness, while others suffered from clunky user interfaces. Still others had planned to recruit lawyers and retired judges to negotiate settlements, but few were interested, Ambrogi says. Most U.S. lawyers “feel uncomfortable about the process.”

Dutch lawyers initially were wary of the Rechtwijzer system and feared a loss of billable hours, Verdonschot says. But now, many view the online platform as an efficient way to process simpler cases, while more complicated matters still require their expertise. “It doesn’t diminish the market for legal professionals,” he says, “it just reshuffles it.” —*Carol Matlack*

The bottom line Dispute-resolution tools similar to those used by online merchants are gaining wider acceptance in many countries—but not in the U.S.

Edited by Jeff Muskus and Dimitra Kessenides Bloomberg.com

Innovation

Balmuda Toaster

Form and function
The Balmuda toaster oven uses steam and carefully calibrated heat cycles to turn store-bought bread into something that smells, feels, and tastes like it’s just popped out of a baker’s oven.

Innovator Gen Terao
Age 42
Founder and president of Tokyo-area appliance maker Balmuda, which has 50 employees

Origin In 2014, Balmuda began work on a toaster after a rainy-day barbecue taught Terao that humidity could help keep toasted bread moist.

1\. **Steam** With an included cup, users pour 5 cubic centimeters of water in an opening at the top of the 14-by-13-by-8-inch toaster. A tiny amount of steam traps moisture in bread as it’s gradually warmed, before the toaster finishes it off with a dose of high heat.

Background Terao, a high school dropout who spent a decade fronting Japanese rock band the Beach Fighters, started Balmuda in 2003, building aluminum laptop stands.

Price The toaster costs 24,000 yen ($230) and is available in Japan in stores and online.

Sales Since the toaster’s June 2015 debut, Balmuda has sold about 10,000 per month. There’s a three-month wait.

2\. **Cycles** Unlike conventional ovens, Balmuda’s toaster uses thermostats to maintain precise, scorch-free warming cycles, which users can customize based on the type of bread.

Next Steps
“Consumers are embracing gadgets that do one thing well,” says Hiromi Yamaguchi, an analyst at researcher Euromonitor International. Mark Oda, an app marketer in Tokyo who was among Balmuda’s first buyers, says he’ll never be able to go back to cheaper toasters. Balmuda recently expanded sales of the toaster oven to South Korea but says it’s not planning to move into the U.S. or Europe anytime soon. Some are available through resellers on Amazon.com and elsewhere. —*Reed Stevenson*

Don't Say We Didn't Warn You

▶ How Brexit caught investors and oddsmakers off guard

▶ "Markets aren't perfect, but everything else is worse"

A London-based investor was on an airplane heading home on the night of June 23 when the pilot announced that the U.K. had voted to exit the European Union. Cheers went up in the back of the plane. The passengers sitting around him in business class groaned.

The difference in reaction might well explain why markets got it so wrong in predicting a Remain victory. Traders and investors were so confident about voters' intentions to stay that they bought global stocks in the week heading into the Brexit vote, driving up equity prices. On the day of the referendum, they sent the value of the British pound up to $1.50, its highest level of the year. What they didn't foresee was that the Brits in the cheap seats—most of whom don't own stocks—were serious about rejecting the status quo. The fact that markets didn't accurately reflect that sentiment cuts to the heart of why they are imperfect predictors of the future, especially when it comes to political events like Brexit.

Markets are only as accurate as the information that's available to them. The more inputs, the better the forecast. In that way, "markets are semi-efficient," says Nobel laureate and American Economic Association President Robert Shiller. They work better at predicting the future value of a company or the growth rate of a country's economy, given the abundance of hard data that's available.

In the case of Brexit, there were essentially two sources of information: polls and oddsmakers. Both were in flux throughout. In opinion polls, Leave never reached 50 percent support. Betting odds of a Remain win fell to 60 percent a week prior to the referendum, before climbing to 90 percent as late as the evening of the vote. In the end, the information available to both sources was imperfect, or at least incomplete. Pollsters miscalculated turnout. Investors mistook high odds at the bookmakers for certainty.

They also mistook the betting markets as a proxy for accurate polling, instead of what they really

PHOTO ILLUSTRATION BY 731; PHOTOS: GETTY IMAGES (2)

Saudi reforms signal a fee bonanza for bankers 32

Empathy and accounting don't mix 33

were: echo chambers of broader financial markets. Matthew Shaddick, head of political betting at London-based **Ladbrokes**, one of the top bookmakers in the U.K., addressed the discrepancy in a June 24 blog post. Bookies don't post odds to help people predict outcomes, Shaddick argued. "We do it to turn a profit (or at least not lose too much) and in that respect, this vote worked out very well for us." Ladbrokes and other oddsmakers make money by setting the odds in a way that the amount of money they collect on both sides is equal. They then charge bettors a small premium to create a margin of safety (and profit).

The average bet placed on each side of the Brexit vote, according to Ladbrokes

Remain

£236

Leave

£50

While the majority of bettors were actually backing the Leave camp, that didn't directly translate into a shift in the odds. That's because what counts in betting markets is the amount of money that's wagered, not the number of people placing bets. As Shaddick points out, one £10,000 bet counts the same as 10,000 separate £1 bets. "In an event like this," he writes, "where the bettors are also participants, (in that most of them were also voters), should we have taken account of that? We didn't think so, but perhaps we were wrong."

While the Brexit experience puts the predictive nature of markets in a less-than-flattering light, there are those who haven't lost faith. "Markets aren't perfect, but everything else is worse," says Justin Wolfers, an economist and public policy professor at the University of Michigan. Based on the statistical analysis of hundreds of election outcomes, the market is right more often than it's wrong, says Wolfers. "Brexit doesn't falsify that," he says. In Brexit's case, according to Ladbrokes, by the time polls closed, there was a 1 in 12 chance that people would vote to leave. Sometimes you hit the 1.

While there was certainly a fair amount of trading that took place in an attempt to profit off the Brexit vote, plenty of money managers steer clear of exposure to such events. "Making a bet on a discrete event, you are either right or wrong," says Ben Inker, who co-heads asset allocation at Boston-based value shop GMO. "I don't know how you learn to do it better or even know whether you have skill at it or not."

As wrong as they were in the runup to Brexit, it appears that markets overreacted immediately after. The two-day selloff in stocks and the rush to havens such as gold and U.S. Treasuries were purely psychological, says Shiller. "The market gyrations after Brexit reflect human nature. Markets are not a speculative orgy. They are irrationally exuberant," he says, with a nod to the title of his best-selling book. "We all know people who are passionate about a subject, and they have all their facts and figures—but they are also a little bit out of touch." Or in this case, a lot. —*Katherine Burton*

The bottom line The Brexit vote calls into question how much faith we should put in the ability of markets to predict the future.

Emerging Markets

China's Tiny Stocks Trade Like Giants

▶ **Volume on the Small and Medium Enterprise Board has surged**

▶ **"The market focus is on the small caps"**

The Shanghai Stock Exchange's reign as the premier venue for trading Chinese equities is coming to an end. The new volume leader is Shenzhen's Small & Medium Enterprise Board, a 12-year-old market mostly for non-state-owned companies. Daily trading on the SME Board first eclipsed that of Shanghai, the oldest of China's four major exchanges, in mid-May. Both averaged about 180 billion yuan ($27.1 billion) in trades in the five days to June 27.

Trading Places

Value of shares traded, in yuan

DATA COMPILED BY BLOOMBERG

The development marks a dramatic reversal for the Shanghai exchange, where a speculative mania propelled trading volumes to all-time highs just 12 months ago. Activity has since slumped by 86 percent as investors shun government-run enterprises in favor of the new-economy companies that dominate the SME Board. In one example of how extreme the shift has become, daily trading volume of **Beijing Sevenstar Electronics**, a little-known technology company, is now twice that of Shanghai-traded **Industrial & Commercial Bank of China**, a state-owned lender whose market value is more than 100 times larger. "Investors are dumping Shanghai as that's dominated by traditional sectors, which don't have much growth potential," says Dai Ming, a money manager at Hengsheng Asset Management in Shanghai. "The market focus is on the small caps."

China has 107 million individual stock traders, and they often crowd into sectors that promise rapid growth when the broader market is falling. Today, those hot industries include battery makers, manufacturers of organic light-emitting diodes, and e-commerce companies. Among the leading gainers this year are **Guangzhou Tinci Materials Technology**, a maker of electrolytes for lithium ion batteries used in electrical vehicles, and **Haoxiangni** ▶

◀ **Jujube**, which owns a leading online retailer of nuts. Both stocks have gained more than 120 percent in 2016. “Investors seeking absolute returns are huddling together to hold these hot stocks,” says Fu Jingtao, a strategist at Shenwan Hongyuan Group in Shanghai.

SME shares are more volatile than their Shanghai counterparts, a characteristic that attracts day traders and other short-term speculators. Price swings in the SME Board Index over the past 30 days were 53 percent more extreme than those of the 1,145-member Shanghai Composite Index, where authorities often intervene to contain fluctuations.

The SME Index surged 54 percent in 2015 because of optimism that China would transition to an economy fueled by services and consumer spending. Concerns that slowing growth will hurt earnings and trigger capital outflows have resulted in a 19 percent decline this year. Shanghai’s benchmark index is down almost as much. Whatever happens in the near term, the SME Board will likely come to be China’s dominant exchange, says Fu: “The hope remains that the new economy will be the future of trading.” —*Bloomberg News*

The bottom line Trading volume on the Shanghai Stock Exchange has plunged 86 percent in the last 12 months as investors flee old-line industries.

Investment Banking

Calling All Bankers: A Feast of Saudi Fees

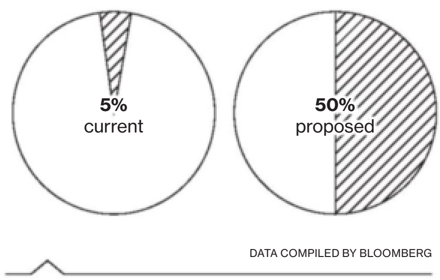
▶ **Saudi Arabia’s economic reforms have bankers looking to cash in**

▶ **“Banks are seeing a big wallet to go after” in the Middle East**

When news broke in January that Saudi Arabia was considering an initial public offering of its state-owned **Saudi Arabian Oil Co.**, or Saudi Aramco, the first reaction among Wall Street’s top brass was shock. Then the calls began pouring into Dubai—the Middle East’s financial hub—from eager bankers in London and New York.

Wishful Thinking

Share of Saudi sovereign wealth invested abroad



Investment bankers around the world are clamoring to get in on what promises to be a bonanza of fees—and not just from the Aramco IPO, which the Saudis are hoping values the company at upward of $2 trillion. The kingdom is planning to sell hundreds of smaller state assets to bolster its finances and reduce its dependence on oil. That includes selling as much as $15 billion of bonds.

“It’s going to be a fees feast for investment banks,” says Riyadh-based John Sfakianakis, head of economic research at the Gulf Research Center. “No one else in the Middle East, and maybe even emerging markets globally, is embarking on such deep reforms.”

The Aramco IPO alone could generate at least $50 million in banking fees, according to an estimate from New York-based research firm Freeman & Co. With investment banking in a slump across much of the world, Saudi Arabia looks even more promising. “Saudi Arabia is close to the top, if not at the top, of the agenda for banks,” says Christopher Wheeler, a London-based analyst with Atlantic Equities. “Where else is there at the moment?”

Fees paid to banks in Saudi Arabia jumped by almost a third, to about $100 million, in the first five months of the year, according to Freeman. While that’s a fraction of what investment banks generate in the U.S. and Europe, the work of diversifying the kingdom’s economy is just getting started.

International banks elbowing for position are increasing head count, dispatching top executives to Riyadh, and promoting Saudis to senior roles to gain influence. Among the biggest banks, **HSBC** and **JPMorgan Chase** appear to have a head start. Both banks, along with **Citigroup**, have been tapped to arrange the kingdom’s first international bond sale later this year, according to people familiar with the selection process. HSBC is already working on the privatization of the Saudi Stock Exchange, as well as the potential breakup of **Saudi Electricity**, say people with knowledge of the matter. Stuart Gulliver, HSBC’s chief executive officer, visits the kingdom regularly, according to someone familiar with his schedule.

JPMorgan advised Saudi Arabia’s **Public Investment Fund** on its $3.5 billion investment in **Uber** this month. It also has an advisory role on the Aramco IPO, people familiar with the matter said in April. JPMorgan set out at the beginning of the year to increase its Saudi Arabia-based staff of 65 by about 10 percent, says Bader Alamoudi, CEO of its local investment-banking unit.

The big banks are vying not just with one another but also with smaller companies. **Verus Partners**, a London-based boutique firm, in April helped Saudi Arabia secure its first loan in 15 years, when the government raised $10 billion from banks. That same month, Bloomberg reported that Michael Klein, the former Citigroup investment banker who runs his own firm, is advising Aramco on its IPO. He’s providing strategic advice to the government, while JPMorgan is working on preparations for the IPO and may be among the banks that underwrite the offering.

To reduce the importance of oil to the economy, Deputy Crown Prince Mohammed bin Salman wants to build the sovereign wealth fund into the world’s largest and increase the proportion of its overseas investments to half, from 5 percent—an enormous shift that would generate enormous advisory fees. Still, bankers typically earn less on deals in Saudi Arabia than on similarly sized transactions elsewhere. On the IPO of **National Commercial Bank**, bankers, lawyers, and accountants split 25 million Saudi riyals ($6.65 million), or about 0.1 percent of the deal’s

31%

Growth in fees paid to banks in Saudi Arabia over the first five months of 2016, totaling about $100 million

size. That compares with an average of 2.7 percent for banks underwriting IPOs in Europe, the Middle East, and Africa in 2014, data compiled by Bloomberg show.

The country's rigid interpretation of Sunni Islam, including a strict segregation of men and women and a ban on alcohol, can be off-putting to expatriates and make it harder to put qualified bankers on the ground. Still, the opportunities are too attractive to pass up. "Banks are seeing a big wallet to go after, and they won't want to miss out," says Wheeler of Atlantic Equities. "With oil unlikely to return to historical highs, there will be a consistent stream of business coming out of Saudi Arabia for years to come." —*Stefania Bianchi and Matthew Martin*

The bottom line Bankers are flocking to Saudi Arabia, where the IPO of Saudi Aramco could generate at least $50 million in banking fees.

Management

Wanted: Accountants With Hearts of Stone

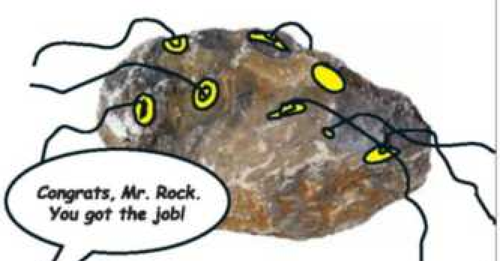


PHOTO ILLUSTRATION BY BRAULIO AMADO; PHOTO: GETTY IMAGES

▶ **Congenial people are more likely to flout rules, a study shows**

▶ **"In most cases, feeling and biological impulses win"**

Companies—especially financial companies—depend on employees to make tough, ethical calls under pressure. So what causes people to get it wrong? Pure greed? A love of risk? Disregard for rules? Frank Hartmann, a management and accounting professor in the Netherlands, has come up with a surprising answer: congeniality.

In a lab in downtown Rotterdam earlier this year, Hartmann outfitted students in something resembling a space-age swim cap and sat them in front of a screen to view clips of faces exhibiting signs of fear, disgust, or happiness. As they watched, their brain signals were recorded and fed into a computer. A few weeks earlier, the same 30 or so test subjects had been asked to complete a questionnaire on situations they might encounter in their future careers as controllers, the accountants whose duties include preparing a company's financial statements and ensuring tax compliance. In each scenario, they were pressured by their manager to alter the company accounts for varying reasons: so the manager wouldn't be fired, so the team would hit its targets, and so on.

Hartmann and his Erasmus University Rotterdam colleagues, Philip Eskenazi and Wim Rietdijk, devised their study to test the correlation between an individual's willingness to bend the rules under pressure and his emotional sensitivity. At the core of their experiment is a behavioral phenomenon called the "mirror neuron system" that causes the human brain to react in the same way when watching someone else performing an action as it would if the person had done it himself. That's why we flinch when we see someone fall or laugh when other people chuckle, even if we missed the joke.

In the Rotterdam experiment, the more an individual mirrored the emotions she saw on screen, the more likely she was to break or bend the rules. The aloof accountant "who stays calm and controlled amidst an ocean of emotional pressures" is not just a cliché but highly desirable, write Eskenazi, Rietdijk, and Hartmann in "Why Controllers Compromise on Their Fiduciary Duties," a peer-reviewed paper that appeared in the April 2016 edition of the journal *Accounting, Organisations and Society*.

The findings are striking because empathy and social reciprocity are often encouraged and even taught within businesses, says Andre Spicer, professor of organizational behavior at Cass Business School in London, who wasn't involved in the study. "Mirroring is an important driver of social behavior, and it's often seen as a positive as it helps smooth social interactions," he says. "But in the long term, it can lead to oversights and even unethical actions as employees value social reciprocity over telling the truth or identifying problems."

While Hartmann's study may be instructive about what makes a good accountant, it could also yield insights for the rest of the financial industry. In last year's prosecutions of bankers accused of manipulating the London interbank offered rate, defendants claimed that they were only doing what their managers asked them to do. To most people, that might sound like just a convenient excuse, but Hartmann isn't so dismissive. "If everybody is doing something, and you feel a lot of congeniality that 'we are doing this together,' and then you apply rather sober rules and regulations that refer to vague [ethical] concepts, my prediction is that, in most cases, feeling and biological impulses win, because they are strong and fundamental," he says.

"Mirroring is an important driver of social behavior, and it's often seen as a positive as it helps smooth social interactions. But in the long term, it can lead to oversights and even unethical actions."
—*Andre Spicer*

One potentially counterintuitive suggestion would be to reduce the volume of rules facing bankers and accountants, says Hartmann, who's also a consultant to companies on management issues. He says the raft of regulations the U.S. and Europe enacted in the wake of the various accounting scandals of the early 2000s are so onerous that they're difficult to follow. Faced with hard-to-understand instructions, people are even more inclined to follow their neurobiological impulses, he says.

Spicer says that simply raising awareness of the dangers of social pressure can help break the cycle. "When people are aware of the minute forms of reciprocity that become part of their daily lives, instead of making automatic, subconscious decisions, they can actually reflect on it and say, 'Hey, am I doing this just to make this guy comfortable?' " —*Liam Vaughan*

The bottom line An academic experiment indicates that individuals lacking in empathy may make more honest accountants.

Edited by Cristina Lindblad and Matthew Philips
Bloomberg.com

CYBER DEFENSE:

BUSINESSES NEED EFFECTIVE SECURITY PARTNERSHIPS TO STOP ADVANCED ATTACKS

DON'T GO IT ALONE

Was your company's data hacked last year? Don't bet against it. In a recent survey of CEOs and CIOs conducted by AT&T, 62 percent reported that their organizations had been breached in 2015. Of course, many more were attacked and didn't know it. Startlingly, only 34 percent said their business had an incident response plan in place. Unfortunately, it's only a matter of time before these companies will be devastated by a cybercrime attack.


Human moments,
delivered 2,000 times
per minute.

YOU NEED SKILLED EMPLOYEES WHO UNDERSTAND BOTH THE ENEMIES YOU'RE FIGHTING AND HOW YOUR SECURITY STRATEGIES CAN STRENGTHEN—NOT COMPLICATE—YOUR CORE BUSINESS.

Many corporations that have crisis plans and top-shelf IT capabilities are also at increased risk because they "go it alone" to maintain cybersecurity—which is no longer considered viable for any large business—or use strategies that advanced criminals have already conquered.

Companies that simply throw dollars at new technology can be the most vulnerable. You need skilled employees who understand both the enemies you're fighting and how your security strategies can strengthen—not complicate—your core business. And beyond simply tapping respected vendors, you need to partner with organizations at the forefront of modern threat intelligence, prevention and incident resolution. Modern cybersecurity is an ongoing process that requires thoughtful collaboration and intelligent investment. Here's a game plan.

IT STARTS WITH GREAT PEOPLE

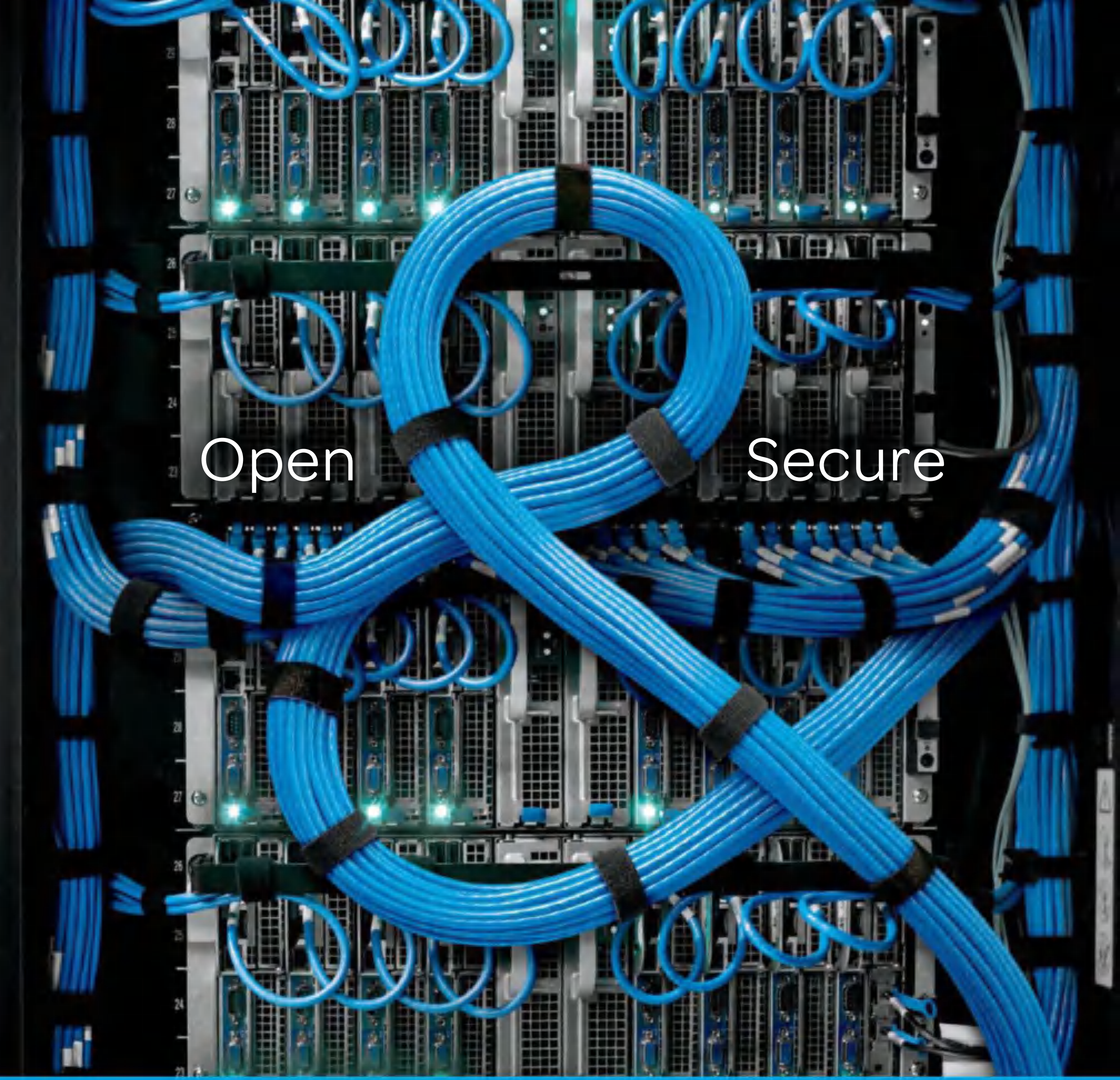
The right academic institution can be one of your most important allies in finding skilled talent. The University of Maryland University College (UMUC), a remote-learning institution with 82,000 students that has educated working adults since 1947, partners with companies across the world to develop effective and valuable IT and security leaders.

The college began offering a certificate program and bachelor's and master's degrees in cybersecurity in 2010, and now has 12,000 students enrolled in its cybersecurity programs. Among its accolades, UMUC was recently designated as a National Center of Digital Forensics Academic Excellence by the U.S. Department of Defense Cyber Crime Center, and has been designated as a National Center of Academic Excellence in cybersecurity and defense by the National Security Agency and the Department of Homeland Security.

"Our cyber programs are designed specifically to meet the needs of industry and government," says Dr. Emma Garrison-Alexander, Vice Dean, Cyber Security and Information Assurance Department at UMUC's graduate school. "We have a global presence, so we can deliver instruction and high-quality education to your employees wherever they're located."

Students—many of whom are high-level IT professionals who already work in cybersecurity—can choose particular tracks (such as digital forensics, Cisco networking or Microsoft servers) to customize their education and continually gain skills immediately useful to their companies.

"Importantly, we're using the same state-of-the-art tools found in the best workplaces, and our multidisciplinary approach emphasizes policy and management as well as applied skills, so students have an end-to-end approach to modern cybersecurity," says Garrison-Alexander. Further, 90 percent of the programs' professors have doctorate degrees, and nearly all actively work in the cyber field. "Our working CIOs, CTOs, CISOs [chief information security officers] and other executives and scientists bring real-world experience into the classroom, so the curriculums always reflect the latest, up-to-the-minute needs."


Open
Secure

"THINK PREVENTION, PREVENTION, PREVENTION"

Cylance®, a cybersecurity company headquartered in Irvine, Calif., is disrupting the endpoint security market by focusing on preventing attacks—dismissing the conventional view that breaches are inevitable and that fast containment is the only workable strategy.

"Prevention should be paramount for every organization," says Cylance President and CEO Stuart McClure. "By using a revolutionary new approach to prevention at every endpoint of your network—which is the target of every attack—you can literally predict and prevent 99.9 percent of cyberattacks." Many business leaders agree; Cylance's technology protects over four million endpoints for businesses and government institutions worldwide, including 50 of the Fortune 500.

Cylance uses artificial intelligence (AI) and machine learning (ML) to spot and neutralize attacks before they execute in memory, instead of relying on the industry-standard "signature" approach, which only reacts to a rogue file after it executes and starts its dirty work.

"All our competitors use signature-based technology, which identifies an attack and creates a signature—or representation of what happened on the system—to defend against it, but the obvious problem with this approach is that it requires a first victim," explains McClure. "You don't want to be that sacrificial lamb. By using AI that incorporates 30 years of learning about past attacks, you can prevent virtually all new attacks, because, quite honestly, all attack strategies have been used in the past."

The security results Cylance is achieving with its clients are quickly gaining converts. "Pretty much everybody in the industry has given up on prevention and thinks it can't be done, so getting people to believe that they can actually prevent attacks—all day long, all pre-execution—will take a little while, but people are starting to believe their eyes," McClure adds. "Given how devastating attacks are becoming, they're beginning to understand that they need to think prevention, prevention, prevention."

A big reason why signature technology fails is that highly skilled cybercriminals are creating executable files—the first seedlings of the malware that could take down your company—that lie in wait in "stealth" mode and can detect when it's safe to execute. "This kind of malware file is actually aware of its surroundings, and knows if it's in a virtual or debugging environment," McClure explains. "It's continually asking, 'Is somebody looking at me?' and if it detects anything, it simply won't run. It waits until it's clear to execute, and then it will tear your system apart." The Furtim trojan that rampaged this spring is an example of such stealthy malware.

This strategy exploits an inherent weakness in almost all cyber defenses today, which primarily rely on creating signatures that can only work after a malicious executable file has run in your network. "Once something executes, the game is over," says McClure. "So criminals can bypass these defenses. Technologies that offer true prevention must focus on stopping attacks pre-execution, before anything can run at all."

9

THE NUMBER OF COMMON ATTACKS THAT ARE USED IN 96% OF DATA BREACHES:

1. MISCELLANEOUS ERRORS
2. CRIMEWARE
3. INSIDER MISUSE
4. PHYSICAL THEFT/LOSS
5. WEB APP ATTACKS
6. DENIAL OF SERVICE ATTACKS
7. CYBER ESPIONAGE
8. POINT-OF-SALE INTRUSIONS
9. PAYMENT CARD SKIMMERS

DATA: VERIZON 2015 DATA BREACH INVESTIGATIONS REPORT

Cylance is also converting doubters through its regular "Unbelievable Tour" demonstrations, in which the company invites prospective customers to bring their own malware samples to test alongside the day's fresh download of brand-new malware that neither CylancePROTECT®, nor the three industry incumbent technologies, has ever seen before. The four endpoint security products are fed the live malware samples simultaneously, and the results are tallied before attendees' eyes.

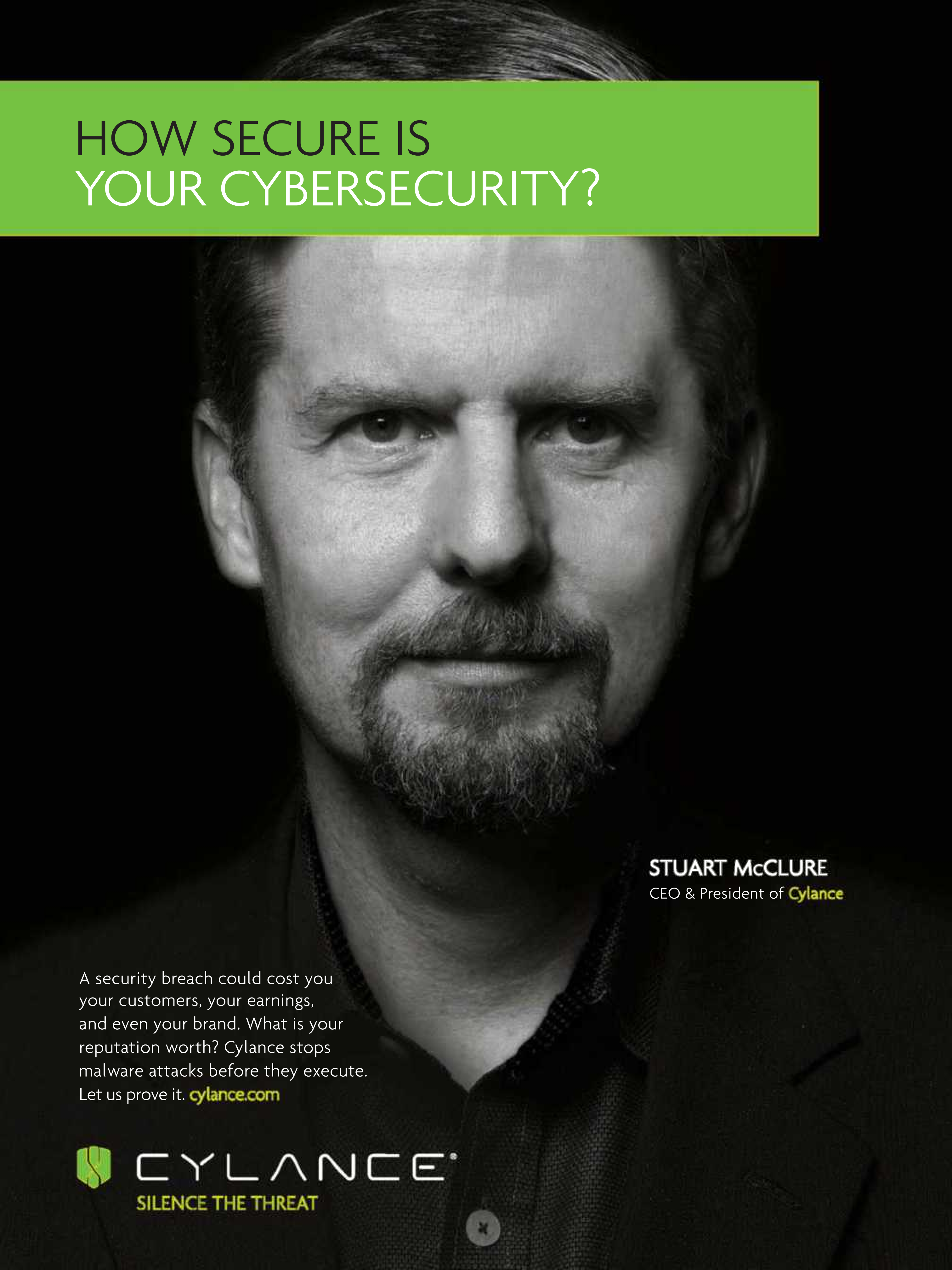
"We consistently protect against 99 percent of these attacks, whereas our competitors' technologies are, at most, 50 percent effective on a really good day," says McClure. The detection and resolution capabilities of Cylance defenses can neutralize the remaining 1 percent, but McClure wants businesses to focus on prevention, and to regard detection and response measures as a last resort in defending their assets—and in some cases, their survival.

NEW HALLMARKS: VISIBILITY AND TRANSPARENCY

Today, while more CEOs and CIOs are well-versed in the realities of modern cybercrime, most are still in the dark in one area: the day-to-day actions of the vendors they hire to oversee their network security or help manage the costly in-house defenses they've built.

CenturyLink, the third-largest U.S. telecommunications company and a global leader in managed security services, encourages business leaders to pull back that curtain and demand a full 360-degree view into the defenses their security partners and vendors provide.

"Most MSSPs [managed security service providers] don't have the technical ability to let you view your own raw security data, because their conventional architectures would compromise the data of many other clients if they allowed that access," says Tim Kelleher, CenturyLink's Vice President of IT Security Services. "They may give you a limited portal that lets you produce reports and summaries, but they won't give you real-time access to security data, which is vital."


HOW SECURE IS
YOUR CYBERSECURITY?
STUART McCLURE
CEO & President of Cylance
A security breach could cost you your customers, your earnings, and even your brand. What is your reputation worth? Cylance stops malware attacks before they execute. Let us prove it. cylance.com
CYLANCE®
SILENCE THE THREAT

ADVANCED VIRTUALIZATION IS CRITICAL TO HELP PROTECT THE CONTINUING EXPLOSION OF THE INTERNET OF THINGS (IOT), WHICH BUSINESSES ARE USING MORE INNOVATIVELY EVERY MONTH.

Seeing your network environment's in-the-moment activity is the only way you can hope to independently prevent or contain breaches, or to verify what your security vendor is doing on an hour-by-hour basis, which is the minimum level of oversight companies need.

By innovating beyond the standard multi-tenant environments that impede most SIEM (security information and event management) systems, CenturyLink is forging a new approach in cybersecurity that emphasizes total transparency. The company counts several Fortune 500 firms as customers, and is an advisor to the Department of Homeland Security, Department of Defense, Department of Justice, the Cybersecurity Council and multiple federal agencies.

"Our unique security architecture allows CenturyLink to do something that no MSSP can, which is to provide our clients with complete, direct access to every bit of data we collect on their behalf," says Kelleher. "This full visibility and transparency gives clients unprecedented access to their own data, allowing them to see everything we see, with real-time updates as a security event is occurring."

By combining this visibility with managed security solutions, CenturyLink gives IT leaders a clear view of their entire security environment—enterprise-wide and on a single screen—using a system as intuitive to use as searching Google. "And you can view this on a 30-inch monitor or sitting in Starbucks with a tablet," Kelleher adds.

Security data is only as good as the breadth of the raw sources it comes from and the analytics engines that process it. Criminals can exploit the slightest weaknesses in advanced systems, so maintaining industry-leading, evolving threat intelligence is the only acceptable strategy. Yet the majority of MSSPs lack the size and scope to provide this.

As the world's second-largest hosting provider, with 55 data centers in North America, Europe and Asia, CenturyLink carries 20 percent of the world's internet traffic. "This massive leverage gives us unique insights into what's going on in the world, and that's where real threat intelligence comes from," says Kelleher. Given the vast reach and synergies required, no corporation can attain this level of defense on their own, he emphasizes. Without a globally connected partner to provide their security or augment their in-house capabilities, companies may be breached with alarming frequency.

In addition to superior threat intelligence, CenturyLink brings each client leading-edge technology that uses only best-in-breed products—such as Elasticsearch ELK Stack and the IBM QRadar SIEM platform—to sift countless data streams from a company's globally dispersed networks and perform real-time analyses that detect and neutralize most threats immediately.

"We want clients to think about security with a return-on-investment approach," says Kelleher. Even if some in the cybersecurity industry have argued against applying ROI standards to defense efforts for more than two decades, he says, investing smarter and using service providers wisely can eliminate vulnerabilities while lowering costs.

MODERN DEFENSE MEANS VIRTUALIZATION

The growing reliance on mobile devices and the ever-increasing need for global access to sensitive data creates a moving target for cybersecurity efforts. "This means organizations need highly secure connections from end to end to help protect data, whether it's at rest or in motion—on your computer, phone, tablet, in multiple clouds and all places in between," says Mo Katibeh, AT&T's Senior Vice President of Advanced Solutions. "AT&T is one of the only companies able to offer global service at that level."

Providing highly secure connections to almost 140 million mobility customers in the U.S. and Mexico, and more than 3.5 million businesses worldwide, AT&T monitors and helps to protect more than 117 petabytes of network data every day. "That massive scale gives us unique insights in identifying the latest emerging threats," Katibeh says.

Virtualization is critical to stop threats at mobile entrance points worldwide, he emphasizes. "We're seeing a strong shift in cybersecurity from physical functions to virtual functions, and AT&T is a leader in security-function virtualization," Katibeh says.

Advanced virtualization is critical to help protect the continuing explosion of the Internet of Things (IOT), which businesses are using more innovatively every month, Katibeh adds. "We're able to help protect the connected devices that businesses use in their day-to-day jobs—such as machines on factory floors, or transportation crates that need to be monitored," says Katibeh, noting that AT&T helps connect and protect 28 million connected devices as of the end of the first quarter of 2016, and that number is growing rapidly.

A company needs to address several security layers to stop constant daily threats. The device, the network itself and each individual application and data set should be protected to help prevent a security incident. Once customized solutions are in place in these layers, companies should have an overarching threat analysis procedure in place to observe patterns in typical use activity for connected devices, and trends in threat activity, to help identify potential attacks before they become a problem. "To keep out bad actors, you need robust security solutions and a security operations center to help understand when something out of the ordinary is going on that might indicate a security threat," explains Katibeh.

An additional layer is identity and authentication. AT&T's new Halo platform will answer this need by using proprietary MobileKey technology to help make multi-factor authentication quick and simple. "The Halo platform uses a biometrics system that can log in a user with a fingerprint scan," Katibeh says, noting it also factors in location, use patterns and other information to authenticate someone before allowing access to proprietary data. The platform syncs between smartphones, tablets, laptops and desktops to connect mobile points in a highly secure manner, while allowing workers to move seamlessly between devices. "This helps businesses move away from a system of passwords and passcodes that are hard for people to remember, and towards a process that helps make employees more efficient in accessing information crucial to their jobs," Katibeh adds.

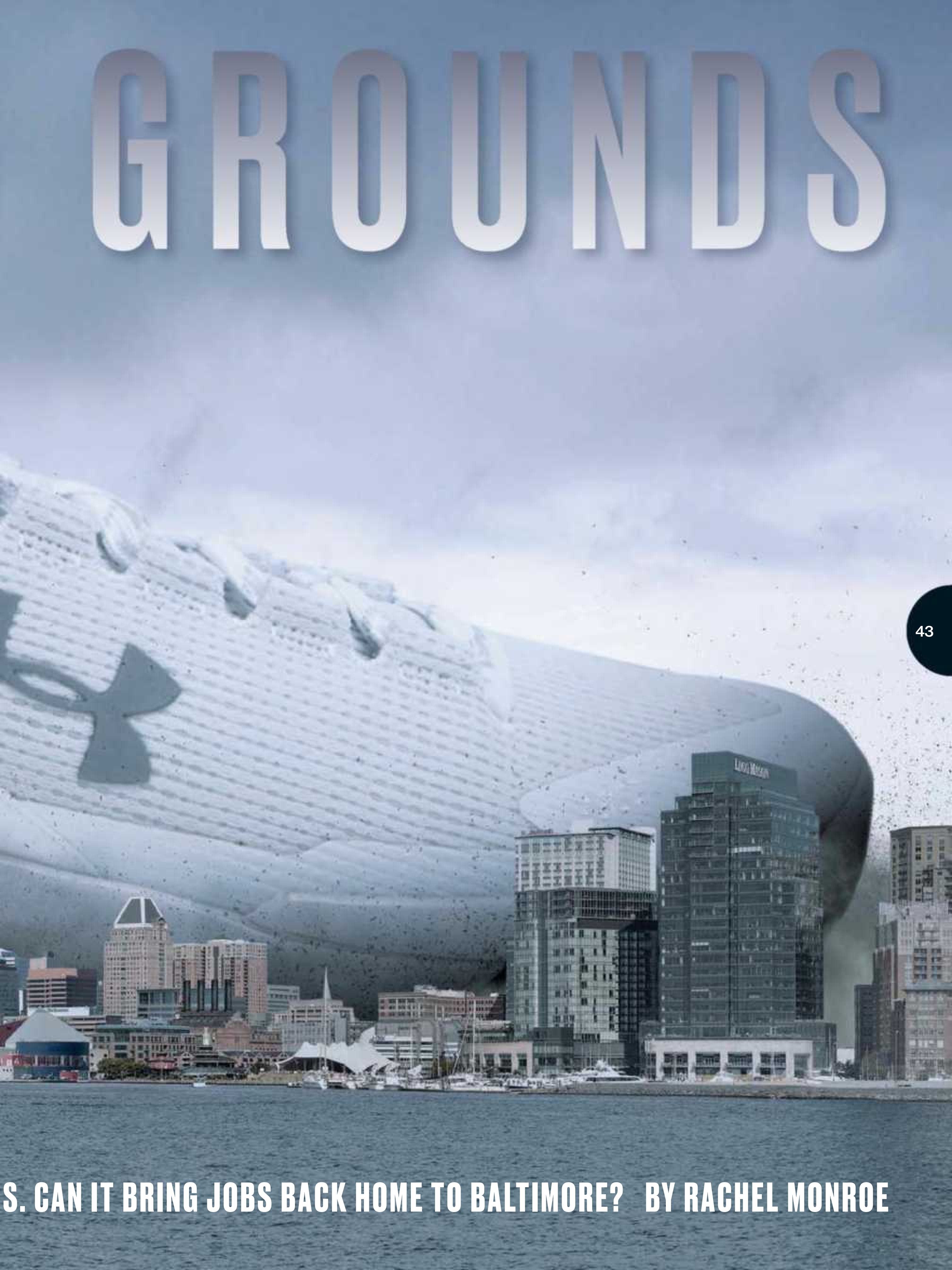
By combining unparalleled visibility into the latest threats, and experience working with companies of all shapes and sizes (including nearly all of the Fortune 1000 companies), AT&T is uniquely positioned as a managed security provider. Further, its efforts to automate security processes and move to virtualized security functions keep productivity and the human factor in focus while helping to protect data. "Our managed security solutions help businesses stay focused on what's important to them, while our global reach and best-in-breed collaboration allows us to innovate and implement cutting-edge network security protections," says Katibeh.

Collaborating with institutions and companies that provide irreplaceable global reach and threat-detection capability is no longer optional for businesses that need gold-standard cyber protection. The age of going solo in cybersecurity has passed due to the sophistication and destructive power of modern cybercriminals, and stragglers are inviting disaster. With more top executives and board members being held accountable for data breaches, continuing to go it alone in cybersecurity could prove far more costly than expected. ●

STOMPING

UNDER ARMOUR MAKES ITS APPAREL WITH 250,000 OVERSEAS WORKER

GROUNDS



S. CAN IT BRING JOBS BACK HOME TO BALTIMORE? BY RACHEL MONROE

In March, Under Armour won a minor skirmish in the war for sportswear dominance when it became the first to sell a performance shoe with a 3D-printed midsole. The shoe, the UA Architech, sold out online in 19 minutes. Sure, there were only 96 pairs available, but, as Chief Executive Officer Kevin Plank says one recent afternoon, "Everyone was trying to do it. No one thought that we'd get there first." Plank is sporting a pair of the $300 Architechs as he tours the Lighthouse, the new home of Under Armour's innovation division in an industrial tract off the Middle Branch of Baltimore's Patapsco River. (It opened on June 28.) Plank's attitude seems to exist on a narrow spectrum between pumped and superpumped, but the shoes are particularly enthusiasm-inducing. "They're like two clouds of awesomeness I'm walking on right now," he says. "I stole that from my 9-year-old, actually. My kids have been watching a lot of *My Little Pony*, and it's rubbing off on me."

The shoes' most notable feature is a lipstick-red midsole that resembles a whalebone corset. It's something you squint at and wonder: How exactly did they make that? The short answer involves polymers and a partnership with DuPont. The long answer includes Plank's plans to reinvent his company's supply chain, transform the city of Baltimore, and maybe even outmaneuver Nike in the process.

It's difficult to talk about athletics companies without resorting to sports metaphors. In Under Armour's case, they're particularly hard to resist, in part because sportiness is so essential to its corporate culture. Employees call one another "teammates"; 70 percent of them played high school sports. The current headquarters, in south Baltimore's Locust Point neighborhood, includes a 35,000-square-foot gym and a basketball court that used to be open 24/7, until all the dribbling during work hours proved too distracting. The walls are covered with photos of Stephen Curry and Misty Copeland so large that their beads of sweat are several inches wide. Plank, a high-energy 43-year-old with gently graying hair, is fond of inspirational analogies involving fires and races and winning. His teammates speak of him in the reverent tones usually reserved for coaches.

The phrase "aggressive, young, fearless" is plastered all over the walls. It's a quote from golfer Jordan Spieth describing himself and the brand, but it could just as easily apply to Plank, who propelled himself from walk-on to special-teams captain of the University of Maryland football program. During his senior year, in 1995, the mid-Atlantic was seized by a record-setting heat wave, and practicing in a sweat-soaked cotton T-shirt felt more oppressive than usual. The year after he graduated, Plank developed a moisture-wicking shirt made from synthetic fabric and began calling up former teammates. In Under Armour's first year, when the company was still operating out of his grandmother's basement in the Georgetown neighborhood of Washington, Plank put more than 100,000 miles on his Ford Explorer driving up and down the East Coast and trying to parlay those friendships with former teammates into orders. "I graduated from college and realized, I know 60 people playing in the NFL who have careers that are going to be somewhere between three and five years," Plank says. "So the window is about this big. And I either take advantage of it now or lose it forever. I'm thinking, Is there a way for me to give them a gift that would also help me? And it's that virtuous cycle that really got us going." It worked better than he expected. A combination of innovative technology and Plank's fervor for his own product contributed to Under Armour's vertical rise, from $17,000 in sales that first year, to $400 million in 2006, to a projection of almost $5 billion in 2016.

An underdog ethic is still baked into company lore, even though last year Under Armour overtook Adidas to become the second-biggest sportswear brand in the U.S. In May, the company signed the largest sponsorship deal in the history of college sports, paying $280 million for a 15-year contract with UCLA. Under Armour has invested more than $700 million in fitness apps and activity-tracking technology, and it hired the designer Tim Coppens, a fashion-forward Belgian, to help snag a portion of the lucrative "athleisure" market.

These days, Under Armour looks like an underdog only when held up against Nike, a rival that Plank and other executives refuse to even name. "Five years ago, our largest competitor was 12 times our size," Plank says. "Then it was 11 times, then 10 times. Today, they're roughly six times our size. But the fact is, they're still six times our size. So we have a lot of work to do." He clearly relishes the idea of the world's biggest sportswear company feeling Under Armour breathing down its neck. This spring's NBA finals were the most recent proxy battle, between Nike's LeBron James and Under Armour's Curry, the MVP hero to underdogs everywhere. Curry defected from Nike to Under Armour in 2013. It happened after Nike officials mispronounced Stephen (as "Steh-fawn"—twice!) during a recycled PowerPoint presentation that accidentally included Kevin Durant's name instead of his own, according to ESPN. James won the recent championship, but sales of Curry-branded shoes outpace those of every other current NBA player. Under Armour's revenue in the

PREVIOUS SPREAD: PHOTO ILLUSTRATION BY 731. PHOTOS: 731 (SNEAKERS), GETTY IMAGES (2). THIS SPREAD: PHOTOGRAPHS BY RYAN LOWRY FOR BLOOMBERG BUSINESSWEEK

category is up 350 percent from last year—a potential "tipping point," one Morgan Stanley analyst wrote, "signaling the end of Nike's basketball dominance."

Plank's appreciation for the overlooked and underestimated—he's the youngest of five brothers—is manifest in his affection for Baltimore. On the surface, there may not seem to be much linking the edgy, gritty city of John Waters and *The Wire* with Under Armour's performance-bro aesthetic. But Plank sees an affinity between Baltimore's hardworking, blue-collar past and his company's relentless striving to be the best sportswear company out there. When pressed further, he just shrugs and quotes Drake: "'All I care about is money and the city that I'm from.' Maybe that's human nature—not the money part, but the desire to see the place where you live succeed."

Although Plank isn't technically from Baltimore proper—he grew up in a middle-class family in Kensington, Md., a commuter suburb of D.C.—he has adopted the city as his own. Under Armour moved there in 1998, and his personal investments have one criterion: They have to benefit the company, Baltimore, or preferably both. He's invested millions in supporting Maryland traditions such as horse racing and rye whiskey. In 2007 he purchased a 530-acre horse farm once owned by the Vanderbilt family. "Blowing people's minds is one of my favorite things to do," he says. "I bought the farm—literally—because horse racing is an organic part of the culture of Baltimore and because I wanted to bring people here and show them a Baltimore that blows their mind. People like Tom Brady and Colin Powell come up for the weekend and are like, 'I had a different image of what Baltimore would be.' And it's only 17 miles north of the city."

By 2013, Under Armour was growing at such a fast clip that it was clear the company needed to expand its footprint in Baltimore. There was never really any question of leaving the city or of relocating to the suburbs, Plank says. Instead, he set his sights on a seven-acre parcel adjacent to the current headquarters. But after protracted wrangling with the city, Under Armour was turned down. When he got the news, Plank was in Dubai drinking whiskey with his chief of staff, who saw a silver lining.

"That land you were looking at?" the chief of staff said. "It felt…tight."

"I just looked up at the skyline of Dubai, and all I could think to myself was that 15 years ago, that skyline didn't exist," Plank says. "Until someone with a vision, Sheikh Mohammed, said, 'I'm going to take this old fishing town and turn it into the economic capital of the Middle East.' Out of desert and a fishing town. That's vision. And I'm looking out at it and thinking, Well, what could we do?"

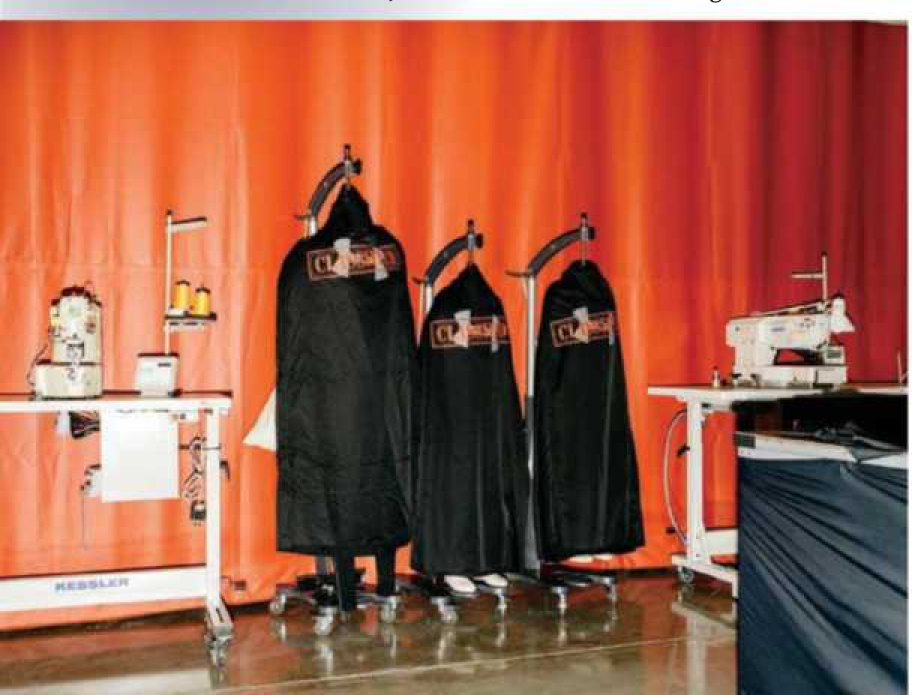
By then, Plank owned a five-acre parcel in an industrial part of Baltimore, where he planned to build a whiskey distillery. The land was in a former brownfield site known as Port Covington. That the area was largely uninhabited was part of its appeal, he says. "We wouldn't be kicking out little old ladies with 30 cats." Over the next few years, he spent more than $100 million of his own money buying up nearby real estate, ultimately acquiring 266 acres under the umbrella of his real estate investment arm, Sagamore Development.

"WHY IS THAT A BAD THING? I LOVE DISNEYLAND. THE PURPOSE OF DISNEYLAND IS TO MAKE PEOPLE SMILE"

In April 2015, when Baltimoreans took to the streets to protest police brutality after the death of Freddie Gray, Plank was troubled by national news coverage that made it seem as if the entire city was erupting in violence, when much of it was unscathed. He understood that as a fast-growing company, Under Armour would undoubtedly play a role in shaping the city's future. But he was also becoming increasingly aware that as an individual with a billion-dollar net worth, he too could have a significant impact. "We don't have a lot of people doing stuff here [in Baltimore]," Plank says. "I can use the heat and momentum [of Under Armour] and, frankly, my balance sheet to get things started and keep things moving. Someone's got to be the first stone in the stone soup. Then someone else will bring the carrots and the poultry. But we're that first stone."

In January, Sagamore announced its plans for Port Covington, which include a 4 million-square-foot headquarters for Under Armour and much, much more. Over the next 20 years, Sagamore intends to essentially build a neighborhood from scratch. Comprising almost 50 city blocks, Port Covington will be larger than Baltimore's best-known tourist attraction, the Inner Harbor, and one of the biggest urban renewal projects under way in the U.S. If all goes according to plan, Port Covington

Clockwise from left: Plank (center) at the Lighthouse; the UA Architech; Under Armour apparel under wraps



will be home to 7,500 housing units, a hotel, shopping, two light-rail stops, and a stable for the city's police horses.

"There aren't many CEOs who would take their personal capital and deploy it like this," says Tom Geddes, CEO of Plank Industries, the privately held company that serves as Plank's personal investment arm. "The one example we look at a lot is Dan Gilbert," the chairman of Quicken Loans, who has spent more than $1.5 billion buying up downtown property in Detroit since 2010. "He's someone else who looked at his big company and said, This thing is an engine. If I invest around it and pull together a critical mass, I can really make a significant difference."

In cities struggling with postindustrial disinvestment and high rates of unemployment and poverty, such investors are often treated as saviors. "I would like to also extend a sense of deep appreciation and true excitement on the part of the city for what we see presented here," Baltimore's city planning director, Tom Stosur, said after Sagamore revealed the Port Covington master plan.

Plank's ideas for Port Covington have also faced criticism that cuts against the savior narrative, particularly after Sagamore announced this spring that the arrangement would seek $1.1 billion in support from local, state, and federal governments, including $535 million in tax increment financing, or TIF, from the city of Baltimore. The TIF money would go toward infrastructure improvements and come from municipal bonds issued by the city to be repaid by new property taxes eventually generated by the project. MuniCap, a Maryland consulting firm that analyzed the project, estimates it won't create enough tax revenue to repay the TIF until 2038. More worrying, perhaps, is that the

A new Under Armour injection molding technique (below left); lasts used to form-fit footwear

"IT'S BASICALLY A HIGHLY OPTIMIZED VERSION OF A MIDDLE AGES COBBLER'S BENCH CROSSED WITH A FORD MODEL T PRODUCTION LINE"

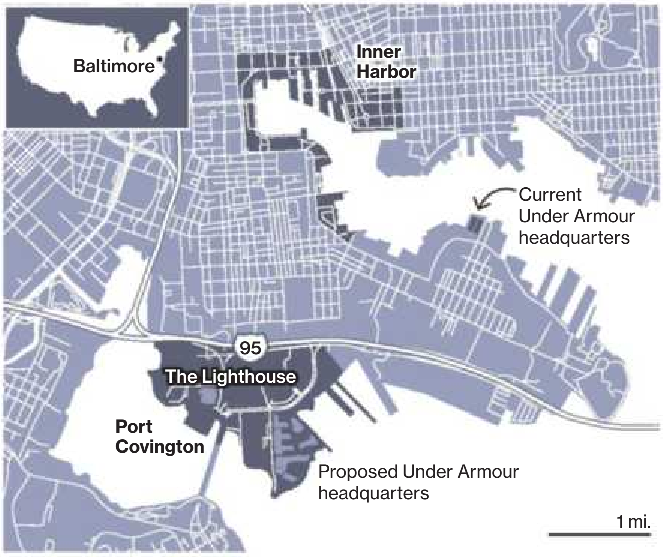
TIF request is so substantial, it would limit the city's ability to issue other bonds without hurting its credit rating. "Baltimore is a deeply segregated city and has been for the past century," says Lawrence Brown, a professor of community health and policy at Morgan State University. "A project like Port Covington, where there's no fair-housing mandate and no promise for living wages, is really a missed opportunity. It's reifying and intensifying the 'two Baltimores' problem we have now." In its sweeping vision and unprecedented costs, Port Covington is an example of the increasing influence corporations are having on city planning.

Others are concerned about earmarking so much money for a new development company with no experience working at this scale. During a recent meeting, members of the city's Urban Design and Architectural Review Board pointed out that preliminary designs for Port Covington looked something like a millennial daydream, one that included a whiskey distillery and makerspace, but no post office or fire station or library or

school. (A subsequent plan corrected those omissions.) Asked if he is worried about criticism that he's essentially building a synthetic, Disneyland version of Baltimore—all crab boils and racehorses—Plank says, "Why is that a bad thing? I love Disneyland. The purpose of Disneyland is to make people smile."

The Disney vibe is hard to ignore during the June tour of the Lighthouse, the first part of Under Armour's headquarters to open in Port Covington. The rest of the area is still largely undeveloped, but the Lighthouse offers an early idea of the scale of Plank's vision for both his company and this part of Baltimore. Plank is an avowed fan of the "wow" factor, which is presumably

In April, protesters demanded a halt in the approval process for $535 million in city bonds to develop Port Covington until a new mayor and city council take office.



why entering the Lighthouse has been engineered to feel a little bit like stepping into a theme park exhibition. Visitors walk into a darkened chamber, where they watch a jump-cut-heavy video that spells out the ambitious idea behind the facility: Namely, as other industries have capitalized on technology, garment manufacturing is stuck in the past. When the video ends, black glass doors slide open to reveal a gleaming 133,000-square-foot facility full of humming machines and technicians wearing white lab coats emblazoned with the red Lighthouse logo. It's at once theatrical and inspiring.

This is Plank's first visit to the Lighthouse with most of the machinery operational, though some massive 3D printers won't be delivered until later in the week. Plank seems jazzed to see the place up and running. The Lighthouse is not just a new facility but also a proving ground for what Plank calls "local for local" production, Under Armour's goal of manufacturing its products in the same place it sells them. "Even in a very advanced footwear manufacturing facility, you still have 150 or 200 people touching every pair of shoes that moves down the line," says Kevin Haley, Under Armour's president for product and innovation. "It's basically a highly optimized version of a Middle Ages cobbler's bench crossed with a Ford Model T production line. It's crazy." In contrast, the Lighthouse will allow the company to test streamlined, nimble, tech-centered production lines that may require only a dozen workers. If they prove viable, they could be set up across the country close to points of sale.

"Vision" is another big word for Plank. When he speaks about Port Covington, the Lighthouse, Baltimore, local-for-local manufacturing, it's clear that he sees all his plans feeding into one another. Startups using equipment at the Foundery, a Plank-funded makerspace that's next to the Lighthouse, will come up with ideas that Lighthouse engineers will incorporate into Under Armour products. Other cutting-edge companies will relocate to Baltimore, wanting to tap all this new energy. Their employees will move to Port Covington and spend, providing the tax base the city so desperately needs. Local-for-local may even bring manufacturing back to the city.

Whether that all proves to be vision or mirage is yet to be seen. In any case, when Plank sits down with Haley and Randy Harward, senior vice president of advanced materials and manufacturing, for an update on the Lighthouse, with a reporter watching, he seems eager to show that he is focused on details. "Five years from today, how long is our lead time on the supply chain?" Plank asks.

"You'll still have some things taking 12 to 14 months, but you'll have 30 to 50 percent of your product made within three weeks," Harward says. "I hate to use the term Lego—but, well, think of Lego blocks. We're trying to think how [the manufacturing process] can be iterated in small blocks, rather than where the industry has been going with these massive, massive, massive machines. So, not using a huge $5 million machine, but this $9,000 printer that we have right out there."

Plank leans back in his chair. "But we need to get beyond novelty," he says. "People say they'll pay more for something made in the U.S., but they won't actually do it."

"They won't be buying it because it's a novelty," Harward says. "They'll be buying it because we have the right size and the right color and the right design when they want it."

Under Armour is hardly the only company exploring how to use automation and technology to streamline supply chains and move production onshore. In 2015, Nike said its plans to increase domestic production could create as many as 10,000 engineering and manufacturing jobs over the next decade. Under Armour executives say they're better positioned to take advantage of a rapidly evolving industry. "Under Armour is at that perfect size where we've got enough scale to invest the millions of dollars it requires to take on something like this," Haley says. "But we're also small enough that we don't have a $30 billion supply chain staring back at us, saying, How are you possibly going to turn this battleship around?"

For Plank, the revitalization project extends beyond Under Armour. "We have 250,000 people making Under Armour something at any given moment," he says. "In the next three years, we'll add another 200,000-plus. And zero of them are pegged to come back to the U.S., because we're all chasing cheap labor all over Malaysia and the far corners of the earth. It's a crime. We couldn't find a way to get 1,000 jobs back here? Or 5,000 jobs? Or 10,000 jobs? When you look at what's happening in Ferguson, what's happening in Baltimore—it's jobs, we need jobs, and we're shedding all our jobs to other places. The ability for us to bring that back, that's the big idea."

It's a long way to even 1,000 jobs. By the end of the year, the Lighthouse will have just 100 full-time employees, half of them engaged in manufacturing. This fall, Under Armour plans to offer a version of its 3D-printed shoe to the wider retail market; it will be manufactured in a New Hampshire facility that employs only about a dozen people.

Meanwhile, Plank will continue his agitations, small and large, to support the entwined futures of Under Armour and the city of Baltimore. "It is really hard work, it's really dangerous investing, it's really costly, and it's a really big deal—but I think it's the right thing to do," he says. "What I really want to do in life is to build the baddest brand on the planet. I would love to do that at the same time as anchoring it in a city that could really use a hug. It seems like such a waste for us not to take advantage of the momentum that Under Armour has right now."

Recently, Plank was watching the morning news and noticed that the national stations showed the weather forecast for Washington and Philadelphia and New York, but not Baltimore. So he asked the Under Armour public-relations team to call up the networks to ask them to include Charm City, too. "It's about making sure Baltimore isn't forgotten about," he says. "Getting us front of mind, putting us in that conversation. Everything we do is about elevating that brand." B

GRAPHICS BY BLOOMBERG BUSINESSWEEK. DATA: OPENSTREETMAP, CITY OF BALTIMORE, SAGAMORE DEVELOPMENT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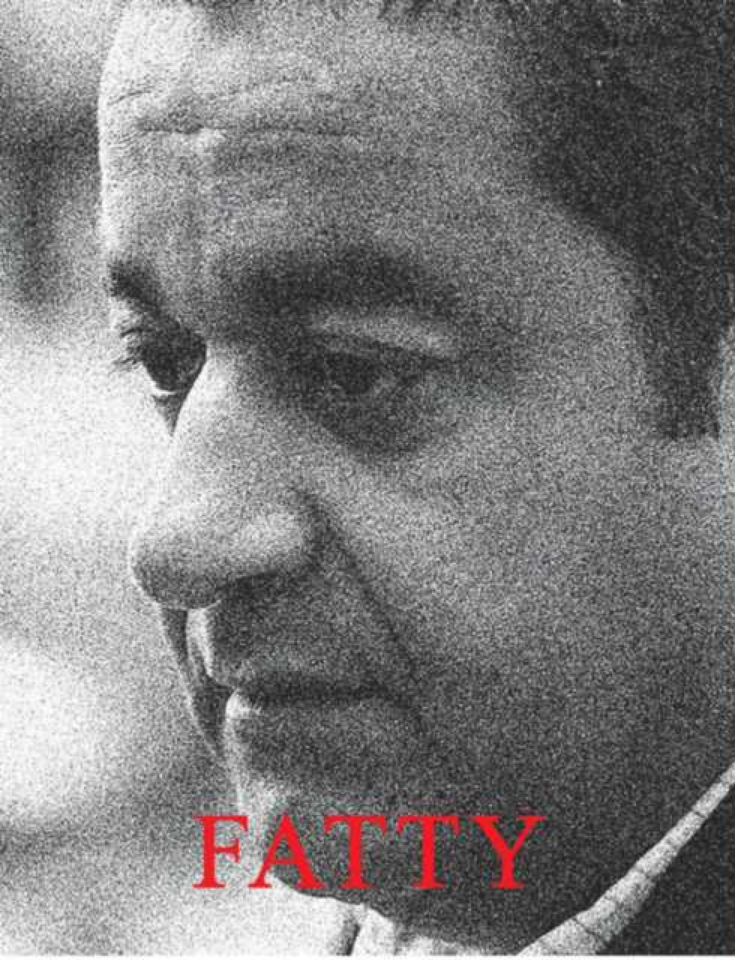


FATTY

The ugly truths behind the biggest insider-trading case in U.K. history

By Suzi Ring and Liam Vaughan

Iraj Parvizi, aka Fatty or the Mad Punter, a Bentley-driving, racehorse-owning Iranian, whose life had been one endlessly escalating wager, walked to the witness box with uncharacteristic anxiety. His hands shook, and he was dressed carelessly, in jeans, sneakers, and an untucked shirt. Parvizi was on trial in London for participating in what prosecutors described as the biggest insider-trading ring in U.K. history, and four co-defendants, the other alleged conspirators, looked on from the dock. It was Week 13 of the proceedings, a Wednesday in April, and Parvizi faced years in prison if convicted. Once he'd taken his place, his barrister reminded him: Just be yourself. The Mad Punter smiled and took control of the courtroom.

Resting one foot on a nearby chair, Parvizi described his anarchic life in the markets. "There are no rules," he said. "Anyone can start a rumor. It's just gung-ho, go for it, do what you want." The jurors, who'd struggled to stay awake during discussions of contracts-for-difference and margin calls, were rapt, as if Parvizi were a different species. He'd gone from making doner kebabs to transacting with royals, he said, developing a network that never stopped gossiping about stocks. Three days into Parvizi's testimony, prosecutors tried to show that his gains were the result of an illegal advantage. How had he traded up a fortune when ordinary investors struggle to get single-digit returns?

"You're making out like I'm the only liar in the stock market," Parvizi said. He described a world where rumors circulate on phone screens, fabricated stories are fed to a gullible press, and returns correlate with whom you know. The only difference between stocks and any other form of gambling, he said, as if talking to a roomful of children, is that the stakes are higher. His co-defendants nodded in agreement.

"When I was arrested," Parvizi said at another point, "I was thinking, 'Why isn't every trader in the market being arrested?' Where does insider trading start, where does it stop?"

In a gallery at the back of the chamber, it was a small team of investigators' turn to be nervous. Some of them had devoted eight years to the case. Operation Tabernula, as it was known, was a landmark for the Financial Conduct Authority, a rebuttal to critics who said the regulator was too soft. The FCA had compiled 46 binders of evidence and 320 hours of surveillance audio. But this wasn't the U.S., where the government has a well-rehearsed routine of flipping targets and locking in plea deals. The men in the Tabernula dock liked their odds with a jury. In the same courthouse three months earlier, the FCA's sister agency, the Serious Fraud Office, had seen a different trophy case collapse. The competence of British financial regulation was on trial, too.

Throughout the proceedings, the five defendants sat in a neat diagram of their alleged scam. In the front corner sat Martyn Dodgson, 44, a red-haired banker, dressed in chinos and boat shoes. To his left was Andrew "Grant" Harrison, 46, an olive-skinned New Zealander with slicked-back hair. Both had worked at investment banks, in positions that let them know in advance when companies were going to make deals.

In the row behind them sat a second pair—these two, major-league day traders. One was Parvizi. The other was Benjamin Anderson, a septuagenarian with a grandfatherly smile. Raised in Glasgow, the son of a grocer, he was now worth £100 million (about $142 million). These two, prosecutors said, had taken Dodgson's and Harrison's inside information and traded on it.

Finally, sitting apart from the others, was Andrew Hind, 56, a weasel-thin oddball with a degree in decision theory, a background in accounting, and a pair of reading glasses on top of his head. The government said Hind was the connection between the guys with the information and the guys with the money—a linchpin who ran operational security and distributed the profits.

When the trial began, in January, prosecutors said the group had netted at least $10 million through insider trading. What made the case fascinating—what had the entire London financial scene watching and waiting for the precedent it might set—was that the defendants' version of events wasn't so different from that of the prosecution. Parvizi and the others acknowledged joining up to trade. They acknowledged disguising their activities with encrypted devices and burner phones. But, they maintained, they'd never knowingly traded on information that was, legally speaking, "insider." The men said their investments, even those that were incredibly well-timed, stayed on the legal side of the line between privileged information and well-informed rumor.

Parvizi once bet £5,000 on where a fly would land—and won

The trial ran for four months, and at times Courtroom 3 became a circus. Anderson suffered a heart scare after two days on the stand, repeatedly delaying the proceedings. A reality-TV star sat in the audience. Harrison, making the most of the judge's direction that the men could come and go as they pleased, barely showed up. Parvizi maintained his cool, even when his character was being savaged. During cross-examination, the lead prosecutor observed that lying appeared to come easily to him. Matter-of-factly, Parvizi replied, "Of course."

Dodgson breezed through childhood in Lancaster, a pretty river town in the north of England, with a cricket bat under one arm. In 1993 he left home for London, and after a few years charmed the City's elite investment banks, getting hired first at J.P. Morgan Cazenove and then at UBS as a corporate broker—a kind of professional glad-hander who smooths relations between companies and shareholders. Dodgson specialized in financial firms. Whenever one of UBS's clients engaged in takeover talks or considered raising equity, Dodgson discreetly gauged how the move would go down with investors.

Under Surveillance


Parvizi (right) walking with Anderson

Dodgson had to know finance and economics, but really his job was about relationships. Despite its multitrillion-dollar size, the London equity market was a cozy place. The same institutional investors dealt with all the biggest firms, and Dodgson knew everybody. Witty and gregarious, he started an annual pub quiz night for investors and executives.

Then, in July 2001, at age 29, he went to his brother's stag party in London. Dodgson's brother worked at Topshop, and among the attendees was Hind, the fashion retailer's onetime financial director. Hind was 41 and somewhat socially awkward, but he impressed Dodgson with his intelligence, connections, and wealth. The men lived near each other and began to meet for pints. The conversation always came back to the markets, and sometime around 2003 they struck an alliance. Hind had access to capital, prosecutors would later establish, and his young friend had a head full of potentially market-moving information. Hind would front the cash and arrange the trades; Dodgson would take half the gains or losses.

English law defines inside information as that which isn't generally available and would be likely to have a significant effect on the price of a security if made public. For a crime to be committed, a person leaking inside information, or a person trading on it, must be aware that the material is privileged. To stay well clear of the line, banks have further rules about what an employee can and cannot do. Dodgson kept his arrangement with Hind quiet, knowing it would never pass muster with his employer.

Their trades made money, and Dodgson started to keep a spreadsheet of everything he was owed. In one column, he tracked progress toward a dream figure, £5 million, enough to retire from finance and maybe enter academia. Rather than transfer the winnings between bank accounts, which might have set off alarms, Hind often paid his partner in kind: £210,000 in home renovations and British Airways flights. Hind also gave Dodgson cash—on one occasion, he handed him £50,000 over a curry. Both men ploughed their profits back into small businesses. Hind dabbled in black vodka, high-end watches, and real estate. In 2006, after an introduction from a mutual associate, he flew to Dubai to meet a potential investor.

In 1977, Parvizi, the son of an Iranian diplomat, was sent to England for an education. When the revolution struck in 1979, his family lost everything. Parvizi didn't finish school and spent his early adulthood drifting between jobs—double-glazing salesman, pizza delivery boy, kebab-shop worker. At 22 or 23, living in a seaside town in Kent, he went to a local poker game and saw a new face: a London gentleman named George Maxwell-Brown.

The new guy cleaned the Kent lads out. As the others cursed their luck, calling the man a hustler, Parvizi simply shook the stranger’s hand and said, “Thanks for the lesson.” Maxwell-Brown, impressed by his attitude, gave Parvizi his card, and soon after a job at his London business, which provided short-term loans to wealthy foreigners looking to buy assets in the U.K. Parvizi began mingling with Nigerian chiefs and Saudi princes and soon branched out on his own. He drove Bentleys and Ferraris; opened a combination spa-boutique-restaurant; and invested widely, in diamonds, property, and horses. In the 1990s he started betting on equities.

In 2000, at a stockbroker charity dinner, Parvizi met Anderson, then 56 and a legend in day-trader circles. Mathematically gifted, he’d created an eight-figure fortune out of nothing. A self-described parsimonious Scot, he shunned the trappings of wealth and reinvested his profits in areas from biotechnology to oil. Like Dodgson and Hind, Parvizi and Anderson made a pact to trade together, despite their obvious differences. Six weeks after Parvizi bought Anderson a Bentley, a gift after a particularly big win, Anderson gave it back, saying it was “too juicy”—it guzzled too much fuel.

With no formal training, Parvizi had little understanding of the minutiae of finance. He traded essentially without limits, gambling millions at 90 percent leverage; he’d later tell the court that he spread false rumors to move stocks. Parvizi moved to Dubai in 2003. In 2006, when his earnings totaled some £70 million, he took the meeting in Dubai with Hind, in an upmarket hotel lobby. Parvizi agreed to lend him £1 million for a new property venture. Other types of deals soon followed.

After that 2006 meeting, Hind and Dodgson, the fixer and the banker, now had access to the vast trading power of Parvizi and, through him, Anderson. At trial a decade later, prosecutors alleged that Dodgson would sniff out opportunities and pass them on to Hind, who handed them to the moneymen, Parvizi and Anderson, to execute the trades. Parvizi and Anderson acknowledged making the transactions but said that they dealt with only Hind and never knew if the information came from an insider. Dodgson, from his end of the operation, said he never knew who placed the bets.

Hind tried to keep the arrangement secret. He bought untraceable pay-as-you-go phones and made payments in cash and via Swiss bank accounts. In painstaking but opaque records, he referred to each member of the group by a nickname: The paunchy Parvizi was “Fatty,” and Dodgson was “Fruit.” (Privately, Parvizi called Hind “Nob,” British slang for the male member. Anderson, who was more polite, softened that to “Nobu.”) Later, Hind bought six “iron keys,” encrypted USB sticks that leave no trace after being plugged in. On an iPod he kept a memo titled “Dollar Operations Risks” that listed the group’s potential exposures, such as “fruit detection”—an apparent reference to the possibility of Dodgson getting caught. Outside of business, Hind was equally fastidious. He was fanatical about food, writing detailed notes on quinoa and the dangers of olive oil. When the financial crisis hit, he stocked up on canned goods and built an armory of spears, hockey sticks, and baseball bats.

The group’s first major score, according to the prosecution, came in October 2007. Dodgson had moved to Lehman Brothers, and his colleagues were advising Carlsberg on its bid with Heineken to acquire the U.K. brewer Scottish & Newcastle. On Oct. 15, Dodgson’s co-workers were readying a presentation on the deal, code-named Project Rainbow. Dodgson called or texted Hind six times that day. Records first show Hind looking up Scottish & Newcastle’s ticker, then Parvizi. The next morning, Parvizi and Anderson, using eight different brokerage accounts, started assembling a bet worth more than £30 million.

Rumors of a takeover hit the wider market on Oct. 17, and at 11:47 a.m. Scottish & Newcastle confirmed them. One minute later, Parvizi and Anderson started closing out their positions. The shares jumped 18 percent, and they made a £4.4 million profit. Spreadsheets later found in Hind’s home showed he received £562,000, of which half was reserved for Dodgson. Parvizi and Anderson would later say in court that Scottish & Newcastle had been hyped as a takeover target in the press for months, and their position at the moment the rumors were confirmed was a coincidence.

It was a sensational start, but there were only so many big-ticket mergers-and-acquisitions deals to trade on. Expanding into small- and mid-cap companies would offer more opportunities. A few weeks after the beer deal, Dodgson set up a lunch with Harrison, a tall, suave former colleague from UBS who now worked at the stockbroker Panmure Gordon. The New Zealander agreed to join the group. Hind nicknamed him “Little.” At trial, Harrison would say he was recruited by Hind only for his general market knowledge and not for specific intelligence about his clients.

One of Harrison’s clients was NCipher, an internet security company. A few months after the lunch, shares in the company had fallen. Harrison was one of a limited number of people who knew the company had received two takeover offers, and prosecutors would later allege he passed that information to Hind. On May 8, 2008, Parvizi and Anderson bought shares worth £168,000. On July 8, Harrison e-mailed a colleague to say a deal had been struck; Parvizi and Anderson bought an additional £669,000 the next day and more the day after that. On July 10, when NCipher notified the market it was in late-stage takeover talks, the share price jumped 73 percent. Parvizi and Anderson made a £724,000 profit. Hind’s records show Harrison received £41,000. An electronic Post-it note from the time, later retrieved on Harrison’s PC, had four characters: “n+41.”


Hind in his BMW

Prosecutors said that from 2006 to 2010, the group made investments in 59 companies, at least six of which they alleged crossed the line into insider trading. But that was a tiny fraction of the scores of transactions Parvizi and Anderson made each week. The pair had traded prolifically for years, using dozens of brokerage accounts. Later, they accused prosecutors of cherry-picking the trades where they’d profited and ignoring the many where they’d lost out.

In the meantime, Parvizi kept living as only he could. He owned thoroughbreds, including a Breeders’ Cup champion, and played poker with Premier League footballers in the cordoned-off Red Room at Les Ambassadeurs, the casino from *Dr. No*. Parvizi would bet on anything. He once wagered £5,000 on which wall a fly would land on—and won.

In the spring of 2005, London’s moneymen had little cause to fear their overseer, the Financial Services Authority. Funded not by taxpayers but by the industry it was meant to guard, the FSA had a mandate to foster market stability, protect consumers, and reduce financial crime. At the last, it was struggling. The FSA had just been forced to reduce a fine on an insurance company after admitting a string of errors, and a formal review of its enforcement abilities was under way.

The agency’s headquarters were in a slightly dated structure in Canary Wharf, literally in the shadows of financial-company skyscrapers. One day that spring, in a seventh-floor

FROM TOP LEFT: KIRSTY WIGGLESWORTH/AP (2), CHRIS RATCLIFFE/BLOOMBERG (2), MATTHEW LLOYD/GETTY IMAGES. ILLUSTRATION BY 731

boardroom, three executives were interviewing candidates for the job of head of enforcement. They asked one of the finalists, Margaret Cole, how she'd fix the FSA. Cole had an answer ready: "Insider dealing."

It was a surprisingly radical suggestion. The FSA had never prosecuted anyone for insider trading. The agency saw itself more as a facilitator than as a watchdog and took the view that dodgy behavior could usually be handled with a stern phone call to a bank's chairman. But Cole had come from the private sector, where success was measured in results. Birdlike, with sandy hair and intelligent eyes, she was a litigator who'd made her name helping pensioners swindled by the media tycoon Robert Maxwell, before he fell off his yacht and drowned.

Cole got the job. A few weeks later, she attended an internal briefing on a suspected insider-trading ring. One of the conference room walls had a vast diagram linking individuals and companies around the world. Maybe things aren't so dire after all, Cole thought. She asked, "When will we get to a prosecution?" A staffer replied, "About four years." Cole returned to the FSA board and told them they didn't have a single worthwhile criminal insider-trading case. They'd have to start from scratch.

Over the next two years, Cole eliminated about a third of the agency's enforcement staff and set up a mixed team of lawyers, IT specialists, forensic accountants, and investigators, drawing from both inside and outside the agency. She also increased the FSA's powers. She successfully lobbied the British government to extend the law to allow the FSA to offer plea deals to cooperative suspects, as U.S. regulators do. And she persuaded the Serious Organised Crime Agency (SOCA), a law enforcement unit focused on drugs and gangs, to lend its surveillance powers.

Cole also invested millions in technology to detect unusual market activity. The FSA began to better scrutinize the "suspicious transaction reports" (STRs) that brokerages file on customers who change their behavior or go on improbable streaks. These efforts started to produce prosecutions, albeit minor ones: a solicitor and his father-in-law; a dentist and his son; a group of opportunists who worked in the printing rooms of investment banks. But Cole wanted to go after organized, habitual offenders with links to the biggest firms.

On Oct. 17, 2007, a spread-betting firm filed an STR on traders who'd made a killing on the Scottish & Newcastle deal. Cole's team recognized two names that had cropped up on such lists before: Anderson and Parvizi. The investigators built profiles of the pair. For years, they found, Parvizi and Anderson had beaten the market with incredible regularity. In the past, the FSA would have done little. Now it asked SOCA's plainclothes officers to tail the men.

Anderson kept an office on the ground floor of a gray stone building in Belgravia, a gracious neighborhood of Georgian houses and private garden squares. In August 2008 the police broke in and installed a bug behind the refrigerator. Two months later, on a mild morning amid the financial crisis, Parvizi came over to talk to the man he affectionately called "Uncle."

The two men discussed a debt Hind had run up, and after a time Parvizi walked out of the office and into a waiting silver BMW 4x4. Hind was sitting in the driver's seat and pulled into the London traffic. A police photographer captured the moment from across the street. Less than an hour later, Parvizi was back inside the office. Hind had agreed to pay back the money he owed, he assured Anderson. And that wasn't all.

"Deutsche Bank," Parvizi said. "He's working at Deutsche Bank." Without using Dodgson's name, Hind had told Parvizi that Dodgson had again changed employers, this time from Lehman to the German investment bank. It was one of London's biggest M&A advisers and a potential fountain of lucrative intelligence.

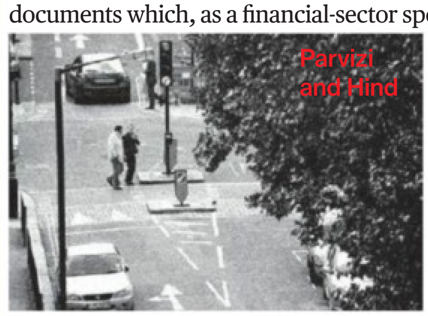
"He says he's hungry," Parvizi told Anderson. Dodgson had "done his bollocks"—slang for going nearly broke. "Because you know he worked for Morgan?" Parvizi said. "He says he got f---ed on Lehman's shares as well."

Then Parvizi uttered a phrase that would haunt him at trial: "We'll be the only ones getting it." Prosecutors said it was a reference to getting nonpublic information ahead of the rest of the market. Parvizi said he was simply relaying what Hind had told him and didn't believe it to be true. Anderson said he didn't give it any credence because Parvizi was, by his own admission, prone to exaggeration.

Six miles east, on the 27th floor of a building in Canary Wharf, Cole's investigators listened to the conversation with a mixture of joy and disbelief. Parvizi hadn't said Dodgson's name, but by laying out his work history, he'd given the FSA enough to trace the inside man. It was also the first time the FSA had heard about Hind. Cole's big prosecution was falling into place.

Dodgson had been in bed for four hours when he woke to a banging at his door. It was 5:40 a.m. on March 23, 2010, and he was severely hung over. Almost 18 months had passed since Parvizi had unwittingly outed him, and Cole's team had spent the time meticulously building a case. Now, waiting on the doorstep of Dodgson's four-story Hampstead home were more than a dozen police officers and investigators.

They read Dodgson his rights and piled into the property, ransacking drawers and grabbing papers, laptops, and phones. In a kitchen cupboard, they found a dossier marked "confidential," which outlined News Corp.'s proposed takeover of BSkyB—documents which, as a financial-sector specialist, he had no reason to possess. Under a bed, in a small, locked red box, was the iron key Hind had bought him three years before.



Shocked and nauseous, Dodgson was driven through the London streets to Holborn police station. At the same time, similar operations were taking place across the capital, in Oxfordshire, and in Kent. Hind was seized at his home in Muswell Hill, along with three more iron keys stashed in a metal wall safe in his study. Parvizi was picked up at the London Clinic, a private hospital in tony Marylebone. He'd contracted a throat infection and was wired to an IV drip when the police entered his room. Anderson was arrested the next day, at Gatwick Airport, as he returned from a holiday in St. Lucia. The authorities weren't aware of Harrison yet, and his home wouldn't be searched for another two years. When Dodgson was interviewed that afternoon, he denied everything; Hind, Anderson, and Parvizi, advised by their lawyers, clammed up.

Sixteen locations, including Deutsche Bank's London headquarters, were targeted by 200 police officers and FSA investigators. Several other individuals were also arrested in relation to a suspected second, loosely connected trading ring. Cole helped coordinate events from a command center on a vacant floor at FSA headquarters. As the evidence started arriving she allowed herself a moment of self-congratulation. Dramatic newspaper accounts appeared within hours. Cole was compared to Eliot Ness, the U.S. agent who brought down Al Capone. The headline in the *Evening Standard*: "Margaret Cole: The City Ball-Breaker."

An early conundrum was gaining access to the iron keys.

> **“If everyone told the truth, the stock market would not move”**

The devices had a security feature that wiped out files after 10 failed password attempts. Several tries in, the authorities were getting desperate. The breakthrough came when they found an e-mail sent by Dodgson, a car fanatic, just before he left Lehman. Included on the list of PINs and passwords was “Lamborghini55.” When they tried it on his iron key, it worked. Among the unlocked files was a balance sheet, itself protected with the code “maserati,” that detailed Dodgson’s shifting assets and liabilities. One column, headed “trading,” laid out transfers between him and Hind.

Anderson had made hand-scrawled records in notepads that made little sense at first glance. Parvizi kept virtually no records. Hind had a detailed chronicle of the arrangement, but his notes were shrouded with codes and shorthand.

Eventually, the forensic team linked the various documents. On a master spreadsheet, Hind had listed the companies the group had traded in, the profits, and the sums the various participants were owed. When compared with Anderson’s and Dodgson’s accounts, many of the figures tallied. The records were cross-referenced with trading data and logs of the various e-mails, texts, and phone calls among the men.

On Oct. 19, 2012, Dodgson, Hind, Anderson, and Parvizi appeared at Westminster Magistrates’ Court charged with conspiracy to commit insider trading. It was the first time they’d all been in the same room.

Southwark Crown Court is an austere 1980s brown-brick cube on the south bank of the Thames. The five defendants—Harrison was charged in 2013—took their seats inside on Jan. 14, 2016. Six years had elapsed since their arrests, during which, unable to work, most had separated or divorced. Cole had left the FSA, which itself was gone—replaced, in a post-crisis reform, by the Financial Conduct Authority.

The new agency was represented by Mark Ellison, a storied criminal lawyer who’d argued for the British government on cases relating to the legality of the invasion of Iraq. The first few days of the trial were gripping: code names, encryption, secret rendezvous. The jurors were enthralled. Then came weeks of details about trading data and phone records, the tedium of any white-collar investigation, and their enthusiasm waned.

The defendants gave their side of the story six weeks in. Hind and Harrison declined to testify. The first to take the stand was Dodgson. Calmly and articulately, he insisted he’d never discussed confidential client information with Hind, and that the BSkyB documents in his kitchen cupboard must have been picked up from a printer at work by mistake.

Anderson, in a woolen sweater, had the demeanor of a kindly elder statesman. Only when Ellison probed him about the suspicious timing of the trades and the bugged conversation in his office did a bite creep into Anderson’s Scottish lilt. Many of the companies they invested in were long known to be M&A targets, he said. If they had access to price-sensitive information, why had they lost so much money on other trades?

And then there was Parvizi’s testimony. Jurors laughed as he explained how nothing he said could ever be taken at face value, because he was an incurable exaggerator—a habit he referred to as “adding VAT,” after the British sales tax, to his comments. I’ll give you an example, Parvizi told Ellison in a vicious tone: “You’re a very, very handsome man.” The courtroom roared. For the FCA investigators in the gallery, it was torture.

Only on the third day, when Ellison’s cross-examination began, did things appear to unravel. Parvizi’s defense was essentially that the entire market was built on bluster. He maintained he’d never known the basis of Hind’s information. In his world, he said, it was an unspoken rule never to ask the source of a tip. “In every rumor there is uncertainty,” he said, dismissing the idea that he was ever in receipt of a sure thing. But Parvizi also volunteered that he’d started a few rumors: He described phoning a *Financial Times* journalist to “plant the seed” about a potential bid for Sky and told how he’d made money on a penny stock by fabricating a story about a Malaysian businessman.

The judge abruptly stopped the proceedings and sent the jury out. Parvizi appeared to have admitted to making misleading statements—a criminal offense, but not one he was charged with. The judge advised Parvizi that he didn’t have to answer any further questions that might incriminate him. Parvizi was aghast. As far as he was concerned there was only one rule: Thou shalt not trade on what thou knowest to be inside information. When Ellison explained that there were quite a few other laws—a whole book of them, in fact—Parvizi began to flounder. “If everyone told the truth,” he said, looking around the courtroom for support, “the stock market would not move.”

The jury deliberated from April 25 to May 9. Hind read a textbook. Parvizi checked stock prices on his phone. He’d recently changed his WhatsApp profile picture to an image of two dice—one that read “guilty,” the other “not guilty.”

Finally the jury returned and read its verdict for each man in turn. The first two, Dodgson and Hind, were found guilty—and then Parvizi, Anderson, and Harrison were all acquitted. Harrison patted Dodgson’s shoulder, and Anderson squeezed Hind’s hand. Parvizi left immediately, without acknowledging his co-defendants, exiting the courtroom with a smile on his lips.

Three days later, Dodgson and Hind returned to be sentenced. Harrison came in support; at one point, returning from a break, he accidentally walked to his old seat in the dock. Dodgson’s and Hind’s lawyers offered mitigating circumstances—young children, drugs, divorce—but Judge Jeffrey Pegden wasn’t moved. Insider dealing is “not a victimless crime,” he said. Pegden gave Dodgson four and a half years, the longest-ever U.K. sentence for the crime, while Hind got three and a half. They were led out of the dock, Hind wheeling a large suitcase behind him.

At a press briefing, FCA investigators did their best to spin the outcome as a victory. Every conviction sends a message, they said. Three other men arrested in the related March 2010 raids had pleaded guilty, bringing their overall hit rate in the Tabernula probe to five out of eight.

The FSA and then FCA had devoted eight years and $20 million to the case—double the defendants’ alleged profits. And Parvizi and Anderson, whose uncanny trading had triggered the investigation, had walked free. Was it worth it? Cole, who has a new job as general counsel of PwC, thinks before answering. “Insider-trading cases will always be difficult,” she says. “They are time-consuming and expensive, and if you’re a smart City trader, you’re unlikely to leave a smoking gun. But it’s crucial that they stick with it.”

Regardless of his acquittal, the Mad Punter is likely done with the stock market. Before the verdict, during his testimony, Parvizi said that no trader would ever talk to him again. “I’m in court to tell the truth,” he said. “The game is up.” B

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How Jennifer Doudna's Gene-Editing Technique Will Change The World

Using Crispr and the Cas9 protein, this scientist made the discovery of the century. Funny you should ask: No, she's not looking to share the money or the credit

By Robert Kolker

How Feng Zhang's Gene-Editing Technique Will Change The World

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By Robert Kolker

In the very best invention stories, the tinkerer spends years toiling in obscurity before the big breakthrough. Jennifer Doudna's story is like that. The 52-year-old biochemist grew up in Hawaii, studied at Pomona College and Harvard, and later joined the faculty at the University of California at Berkeley. While the rest of the scientific world seemed fixated on DNA, the blueprint of all biology, Doudna built detailed maps of RNA, which had long been thought of as the loyal foot soldier following DNA's orders. Doudna was trying to figure out more precisely what role RNA plays in human genetics—the various ways it can actually control genes. For years, DNA remained the focus of most everyone else's research. "I definitely had some sleepless nights," she says, "just wondering, Is this the right decision, should I be doing this?"

Then one day in 2011, Doudna was approached at a conference by a French microbiologist named Emmanuelle Charpentier, who wanted to talk about a phenomenon called Crispr. Until then, most biologists understood Crispr, assuming they'd heard of it at all, to be an antiviral system found in bacteria. The bacteria used it to identify invading viruses and activate special proteins that would bind to the viral DNA and snip it out. No one had successfully found a plausible way to adapt and re-create that bacterial process in a more complex biological system—like a human being. Whoever could pull that off might be able to cure diseases, alter the genetic code, and even change the human species. It all sounded like science fiction, of course, until Charpentier told Doudna that Crispr seemed to interact with a protein called Cas9 in an extraordinary way.

Doudna

The two decided to join forces, and one year later published a study detailing how they'd adapted the Crispr-Cas9 editing technique to not just cut but paste genes into any bacteria—that is, customize a bacterium's DNA makeup along whichever lines they chose, with little fuss. The technique was enormously promising. Editing the human genome had been possible for a few years, but slowly, imprecisely, and with great difficulty. Crispr-Cas9 might eventually make it almost as straightforward as the search-and-replace feature of a word processor. What if one day, using Crispr, we could edit out Alzheimer's, schizophrenia, or cancer? Soon, the two scientists were onstage with Cameron Diaz, accepting the Silicon Valley-funded $3 million Breakthrough Prize in Life Sciences. They were on everybody's shortlist for the Nobel prize, their work hailed as the great biotech advancement of the century. "I couldn't have predicted it," Doudna says.

That's a nice story, but there's another. It's about Feng Zhang, a 34-year-old molecular biologist at the Broad Institute of MIT and Harvard. Zhang was born in China and raised in Iowa, and he quickly became a star at Harvard and Stanford, where he was obsessed with finding the perfect way to reprogram human cells. "I've always been focused on genome editing," he says. In 2011, the same year Doudna met Charpentier, Zhang attended a conference at the Broad Institute, in the same building as his lab, and heard a speaker offhandedly mention the Crispr immune system in bacteria. Zhang read everything he could find on the subject. He fixated particularly on a Canadian biologist's 2010 paper noting the exceptional utility of the Cas9 protein.

Zhang spent months testing Cas9 enzymes, and was preparing to publish his findings in 2012, when Doudna and Charpentier's paper came out. In Zhang's paper, published a few months later, he showed how he'd successfully harnessed Crispr with Cas9 to edit a gene in a eukaryotic cell—that is, a cell with a nucleus. In the eyes of some, that distinction vaulted him ahead of Doudna and Charpentier. To edit a bacterial gene, the way Doudna had, was one thing; to actually monkey with the building blocks of humanity was another.

Fundin

Editas Medicine
$94.4m
IPO
Market value:
$900 million

Intellia Therapeutics
$112.9m
IPO
Market value:
$900 million

Every decade or so, a fundamentally new genetic technology comes along that could change everything. In the 1970s it was restriction enzymes, the tools for recombinant DNA, which turbo-charged the development of new medicines and the tools of basic biological research. In the '80s, the polymerase chain reaction revolutionized day-to-day molecular biology by making it much easier to quickly copy a piece of DNA thousands of millions of times, speeding the pace of medical research even further. In the '90s, next-generation DNA sequencing pushed forward the study of the genome to a level once thought impossible. Now there's Crispr, which could trounce them all.

The name, coined in 2002 by Spanish researcher Francisco Mojica, is short for clustered regularly interspaced short palindromic repeats (you can tell somebody really wanted to spell "Crispr"). Today it's understood to be, potentially, a cheap and quick way to fix anything about a genetic code. "It's almost as fundamental as the transistor," says Andrew May, the chief scientific officer at Caribou Biosciences, a Crispr startup cofounded by Doudna in 2011. "If you think of DNA as the fundamental sort of software code that underpins the computer that cells are, you're essentially programming those cells. You can target any piece of DNA and change it."

In the popular imagination, Crispr has prompted alarmed

DOUDNA: COURTESY KEEGAN HOUSER/UC BERKELEY; ZHANG: COURTESY KENT DAYTON/MCGOVERN INSTITUTE FOR BRAIN RESEARCH AT MIT speculation about eugenics, designer babies, and hubris worthy of *Jurassic Park*. The results may be able to change inheritable traits that could forever alter the nature of any species—not just mosquitoes, which a British company named Oxitec plans to tinker with in the Florida Keys using a gene-modifying technique that predates Crispr. Researchers in China have already tried out Crispr-Cas9 on human embryos. They never intended to implant the embryos in mothers and reported mixed success at best. Yet the attempt shook many in the scientific community. In June, a federal biosafety and ethics panel approved human trials of Crispr-Cas9 by a University of Pennsylvania team that has the backing of Napster co-founder and itinerant entrepreneur Sean Parker. Home hobbyists, meanwhile, are using Crispr to fiddle with yeast in petri dishes, splicing together who-knows-what. Harvard researcher George Church appears serious about a plan to use Crispr to bring back the woolly mammoth.

Nearer-term advances could change our lives in more welcome ways. Researchers around the world see Crispr's precision as a perfect tool for curing single-gene illnesses like Duchenne muscular dystrophy, cystic fibrosis, and an inherited form of blindness called LCA 10. "There are 6,000 or so genetic diseases, and 95 percent of them don't have any proved therapies," says Katrine Bosley, chief executive officer of Editas Medicine, a Cambridge, Mass., Crispr startup. "In this day and age, we have a deep knowledge of the human genome and how to make genetic medicines that we didn't have 5, 10 years ago."

AstraZeneca and Novartis have teamed up with Crispr startups to develop and bring drugs to market. Beyond cures, Crispr is being viewed as a way to make cancer drugs more effective, to build a better class of antivirals to fight HIV, and to modify pig organs to make them more suitable as transplants for humans. In just a few years, the technique could make its way into everything from medicine to agriculture to biofuels—anything involving a gene. Imagine genetically modified crops that, with Crispr's assistance, don't use any genes other than their own, sidestepping the GMO controversy. DuPont is already working with Caribou on mushrooms that stay white after being cut, and told Doudna it has 25 Crispr-related products in the pipeline, including corn, soybeans, wheat, and rice.

For a time, Zhang and Doudna were cordial. Along with a few other molecular biologists, they joined the board of Editas. Then, in 2014, the federal government granted Zhang the first patent on Crispr-Cas9. Although Doudna and Charpentier enjoyed a wave of glowing press, Zhang stood to get the money and, maybe, the spot in the history books. Doudna left Editas a month later; though she says the reason was too many cross-country commutes for board meetings, she helped found a new startup, Intellia Therapeutics, that would be directly competing for venture capital. The race for funding was on. Bill Gates and Google Ventures were among the contributors to Editas's $120 million Series B investment round—Gates is particularly enthusiastic about altering entire mosquito populations to stop malaria—and the company netted an additional $94.4 million in a February initial public offering. Intellia, in turn, raised $112.9 million when it went public in May. Charpentier's Crispr Therapeutics has yet to go public but has raised $198 million in venture funding and has contracts with Bayer and Vertex Pharmaceuticals worth a combined $440 million. "All I can say is that we did it in my lab with Jennifer Doudna," she told one reporter in 2014. "I am very confident that the future will clarify the situation." All told, Crispr companies have attracted more than $1 billion of venture capital and other funding, even as credit for the technology and its relevant patent remain a matter of dispute.

Next came the litigation. In 2015, UC Berkeley's lawyers filed a claim on behalf of Doudna with the U.S. Patent and Trademark Office, seeking to strip Zhang and the Broad Institute's hold on Crispr-Cas9. Proceedings began this spring, but the most dramatic part is still to come. In November, Doudna and Zhang may have to take the stand, each asserting under oath that she or he deserves the patent for what may well be the biological advancement of our age. The stakes are sky-high. Billions of dollars in revenue. Control over entire industries yet to be born. And, perhaps, the future of human evolution.

Zhang

"I'm really an outsider to the genome-editing field," Doudna says. "Other folks, they've been in this field, whereas we're coming at this from a very different point of view." It's late on a Friday afternoon at UC Berkeley, and Doudna, tall and thin and cheerfully focused, is seated in her office with a sweeping view of the campus, fiddling with a 3D-printed model of the Cas9 protein—a plastic toy, really, a bit larger than a football—that she keeps nearby to explain the Crispr technique to visitors. She still marvels at Crispr's utility as "a democratizing technology. It just opens the door to anybody who has basic skills in molecular biology and wants to do some genome editing." That includes those who might want to customize a newborn's genes. Doudna has helped lead the effort to encourage ethical uses of Crispr, but she's

g Race

Crispr Therapeutics
$198m
in equity sales;
pharma partnerships
worth $440 million

Parker Institute
$250m
donated by Sean Parker;
first Crispr-Cas9
human trial in pipeline

not for a complete moratorium on human experimentation. "On one hand, you can say maybe it's not right to do that ever, but you can also say in vitro fertilization clinics already do that every day." Her lab is working on curing the neurodegenerative disorder known as Huntington's disease.

The only part of her Crispr story Doudna hesitates to comment on is the battle for credit. For two years, UC Berkeley and the Broad Institute have engaged in a simmering public-relations war over who invented the Crispr-Cas9 method, each spinning its version in press releases and video primers. For her part, Doudna says her work with RNA molecules made her research distinctive. Everyone else, she says, was looking at DNA. That would include Zhang. "What I've always found interesting in science," she says, "is making connections between things that are not necessarily connected or don't appear to be connected."

Across the country, Zhang's lab in Cambridge is at the Broad Institute in Kendall Square, the world nexus of biotech investment and research, a five-minute walk from Editas's offices. When I visit a week after meeting with Doudna, Zhang greets me with a warm, confident smile. Boyish and upbeat, he's eager to discuss his lab's latest advances in Crispr techniques: the methods he's found to make the editing more precise; his ambition to map out complex brain diseases like Alzheimer's; the protein he found that works as well as Cas9 and which he owns the patent to, free and clear. If Doudna is an outsider to the gene-editing world, Zhang is a native, an Intel Science Talent Search finalist who's been devoted to the idea of reprogramming DNA since 1993, when an after-school program in Des Moines took him to see *Jurassic Park*.

Unlike Doudna, who badly wants to shape the way the public thinks about Crispr, Zhang isn't interested in ethical conversations about designer babies, which he says are a long way off. "The thing everybody should focus on is how we can push this technology forward, so we can actually treat a disease," he says.

Zhang is as quietly focused as Doudna in asserting his ownership of Crispr. Without ever saying her name, he argues that her big Crispr paper with Charpentier didn't actually scoop him, because they stuck with bacteria and used the Cas9 protein in a different way. "You have to test it in the actual system that you want to get it to work in," he says. "Nothing else is going to be able to fully predict what will happen."

The entire Harvard and MIT apparatus appears to have lined up behind Zhang's version. In January, Eric Lander, president of the Broad Institute, published an elaborate history of Crispr in the journal *Cell* that spread credit around to a host of researchers over years. The effect, more than one Doudna supporter protested, was to vastly downplay her contribution. Amid the tempest that followed, Doudna called Lander's article "factually incorrect." Still, Lander's broader point—that today's discoveries are often an ensemble effort—does resonate with Doudna. "I wouldn't disagree with that, yeah," she says.

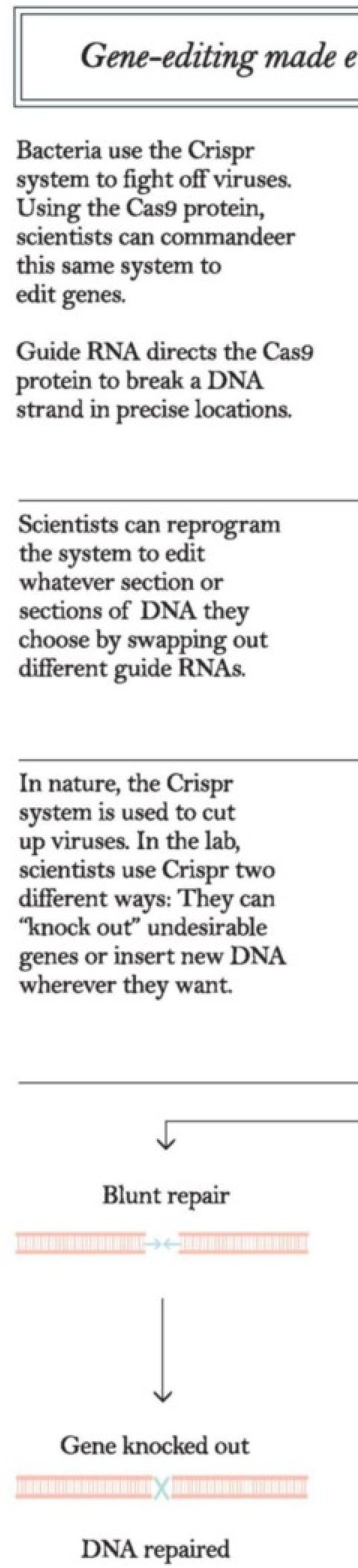
Does it follow, then, that the patent system should allow people to share credit? Doudna takes a moment before answering. "It'll probably be a while," she says, "before I have enough perspective that I can really answer that question."

Many were surprised that Zhang received the Crispr-Cas9 patent, given that Doudna published first and filed for her patent seven months ahead of him. The reason: Zhang had paid $70 to have his application expedited. Some have interpreted that as a slimy move; the patent lawyers and experts I spoke with say that may have been his only option to avoid his application being deemed in conflict with Doudna's. In any case, almost immediately after Zhang got his first patent on April 15, 2014, UC Berkeley amended Doudna's application to counter his claim. Then a few third parties, their identities still not made public, filed briefs to block Doudna. The patent war had begun.

The Broad Institute produced lab notebooks and private e-mails to bolster its case that Zhang's idea was original and that Doudna's predictions that Crispr-Cas9 would work in humans was "mere conjecture." UC Berkeley claimed Zhang's notebooks were missing key information, going so far as to say the Broad Institute "withheld or misrepresented material information with the intent to deceive" the patent office. Preliminary meetings with a judge this spring generated more heat than light, and UC Berkeley's objections failed to get any traction. Next, in what's called the interlocutory phase, a panel of three patent judges will be handed the task of determining who invented Crispr-Cas9.

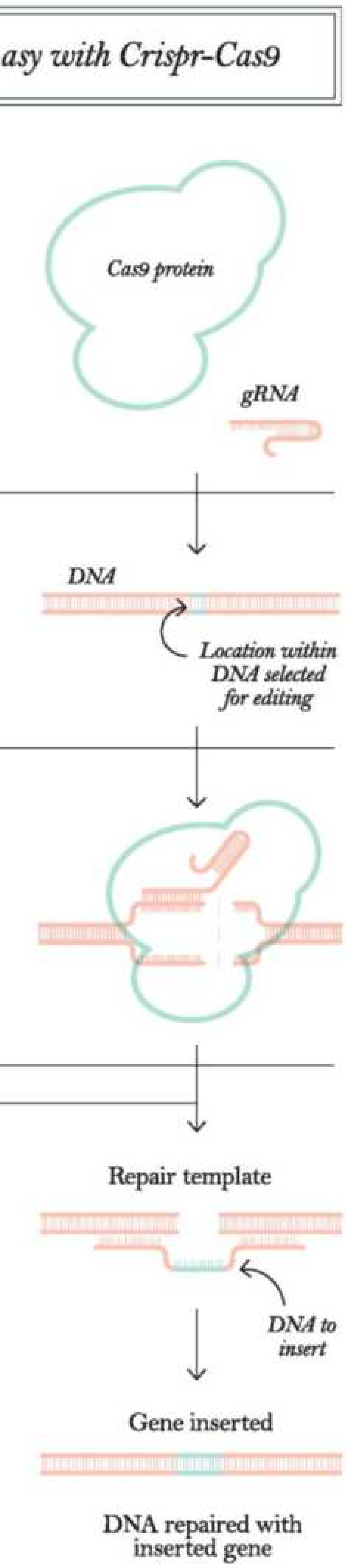
"The Berkeley lab is going to say they had the building blocks," says Sarah Chapin Columbia, an intellectual-property litigator with McDermott Will & Emery in Boston. "The MIT-Harvard lab is going to say, 'We put the building blocks in the right orientation.' To a patent geek, that's going to be a very interesting thing to watch."

There's one more major quirk. The entire dispute, called an "interference" case because the patent claims are said to interfere with one another, is moving forward based on a set of rules that have been changed since it was filed. Under the old rules, the scientist deemed the "first to invent" wins. Under the new rules, the patent goes to the "first to file," matching the system in many other countries. The new system operates under the assumption that the early filer will be the best able to



GRAPHICS BY BLACKI MIGLIOZZI

build an industry around the invention, says Kevin Noonan, a biotech patent expert and partner with law firm McDonnell Boehnen Hulbert & Berghoff in Chicago. "So these days we don't care so much if the right person gets the patent," he says. "It may not be more fair, but it's simpler."



Even if the current patent system encourages innovation, the rules hardly seem fair to the inventors—or true to the reality of invention itself. Does this process accurately reflect the way people from Thomas Edison and Nikola Tesla on down have tended to invent things in parallel? Science thrives when scientists share data and ideas, but the winner-take-all patent system almost forces scientists to guard their best stuff. And when patents are contested, the proceedings can be brutal. "Every piece of evidence has to be independently corroborated by somebody who swears under oath that it's true," Noonan says. "Too often, things can get shaded, because your recollections are not consistent with reality. Especially when having those recollections means you make a lot of money."

The best thing you can say about the process, perhaps, is that it can motivate people to settle for some sort of cross-licensing arrangement. "That's really the smart thing to do," Noonan says. "If they settle, then they both win." If one party wins, appeals could last years. There's always the possibility the panel of judges will award the patent to neither party. And the longer they battle over the patent, the more risk to its licensing value. Zhang isn't the only researcher trying to invent a way around this patent, finding proteins besides Cas9 that work with Crispr. The search is moving quickly: In June, the journal *Science* published a study showing how the technique could be used to manipulate not just DNA but RNA, too. And the patented version may well fail human clinical trials or face years of delays like gene therapy did after 1999, when one of the volunteers in a human trial died.

Yet an April filing in the case showed the parties have discussed settling and held off. For now, the various Crispr companies' investors are holding tight. "We knew it was high-risk," says Kevin Bitterman of Polaris Partners, the venture firm that helped form Editas with Flagship Ventures and Third Rock Ventures. "We did a lot of due diligence on the intellectual property and feel very confident in the company's position."

It's not possible with any degree of certainty to pick the eventual winners. "Every investor in the Crispr space thus far is essentially betting on a horse race," says Jacob Sherkow, a New York Law School professor who is following the dispute. "If you're paying Caribou Biosciences for a license on their technology"—that is, the technology Caribou licensed from Doudna—"you're essentially gambling on them winning. And if Caribou loses, then you never had to pay that money. But you know, it's a transformational piece of technology. So it's better to get in on it now than to wait. There's that Warren Buffett quote—'If you wait for the robins, spring will be over.'"

Patents might not be the most important front in the Crispr war. They're good for only 20 years, after all; history is forever. The Nobel committee typically honors no more than three people per discovery, no matter how many actually worked on it. Doudna, Charpentier, and Zhang aren't the only contenders: Media reports have also lauded Harvard's Church, DuPont's Philippe Horvath, and Rodolphe Barrangou of North Carolina State University for their work on Crispr.

"There's a lot of competition," Doudna says. "It's true in any human endeavor. People get excited about an idea, and then a lot of people go after it." She's flattered but a little worried about the flurry of attention. "It would be so easy to get so distracted by all this stuff going on that I would never really do any real science again," she says. "That's actually my worst nightmare."

Still, she knows the real advancements require money. "Is a cure for Huntington's going to come from an academic lab?" she asks. "I mean, it's just not going to. Do we have the resources to do clinical trials and all of the work to figure out really how to deliver this as a drug? No. That has to be done in a commercial setting." So she's embracing the commercial aspects of Crispr. "I want to see this used. I want to see it really solve real problems. I don't care who does it, but if somebody has a cure for an eye disease or for a sickle-cell trait or for something like that, it's going to be fantastic. That's what I would love to see happen."

Zhang is similarly fixated on perfecting the invention. "There's so much hype around this, and there are so many things we have to work out," he says. "How safe is the system in the body? How do we put it in the right organ? We have to work on resolving those questions. And all these other issues, they are really beside the point."

How uncomfortable is it to be caught in the middle of a highly visible struggle over a major scientific legacy? "I didn't start to work on this because I wanted to get a patent," Zhang says. "If we can treat a disease, I mean, that's what moves the world forward. It's not patents or credit or anything like that."

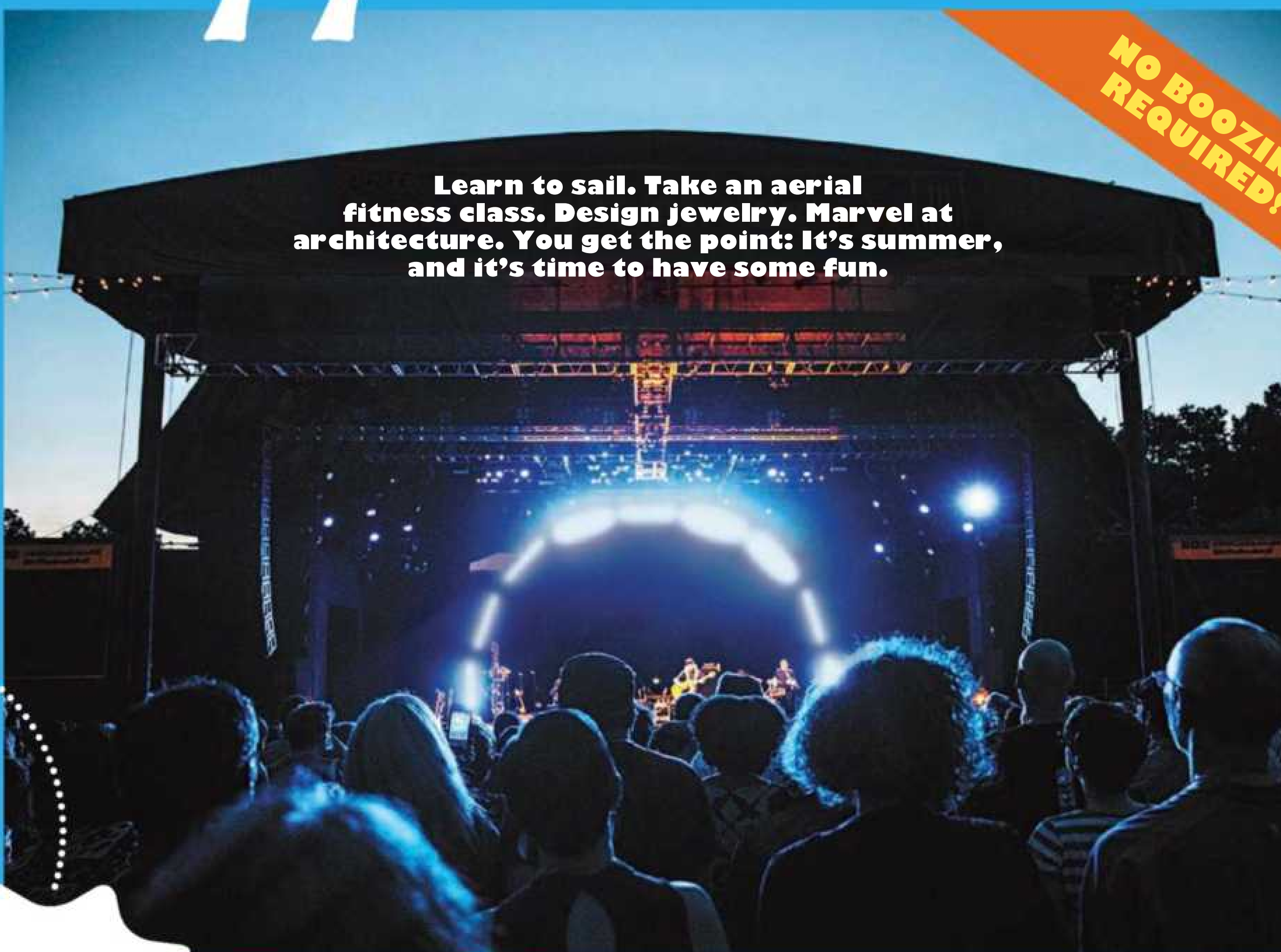
When I tell him Doudna says almost the same thing, he takes a long pause. Finally, he answers. "For me, I think the primary goal is to do something useful," he says. "I think if you actually do something useful, you'll get rewarded. The world will recognize the value you created, and the world will be a fair place." B

ETC

happier hours

NO BOOZING REQUIRED!

Learn to sail. Take an aerial fitness class. Design jewelry. Marvel at architecture. You get the point: It's summer, and it's time to have some fun.



The Violent Femmes light up Prospect Park as part of the Celebrate Brooklyn! Festival…

…just one of the roughly 1 billion (maybe we're exaggerating) ways you can enjoy this summer

Want to get a drink after work? You've heard the question—and said "duh"—a thousand times. But some people actually do stuff after leaving the office, actual activities that might actually be good for them. In a study published last year in the *Proceedings of the National Academy of Sciences*, Stanford researchers found that spending time in natural environments (we'll consider Barnsdall Art Park in Los Angeles one) reduces negative thoughts. The same goes for other "positive distractions," such as jumping on a trampoline, getting DJ lessons, and taking a glass blowing class. Alcohol can be a positive distraction—news flash!—but imbibing too much triggers the release of stress hormones (and who hasn't downed one too many when the drinks were two for one?). Instead of boozing with co-workers, says Ben Waber, president and chief executive officer of behavioral analytics company Humanyze, the better career move is to expand your social circle. "People who have diverse networks tend to be promoted faster and get new jobs more quickly," he says. Here's how to best take advantage of that time between turning off your computer and turning out the lights. —*Kayleen Schaefer*

Clockwise from top: Contemplating Gerhard Richter's *180 Colors (180 Farben)* at the Philadelphia Museum of Art; trampolining at Sky High Sports in Houston; throwing a pot at Bitter Root Pottery in L.A.

STOP WITH THE EXCUSES

Twenty-five ways to dig out of that postwork rut. —Laura Bolt

	OUTDOORS	FITNESS	ENTERTAINMENT	CRAFTING	LESSONS
NEW YORK	Listen to Herbie Hancock, the Lumineers, and others at the **Celebrate Brooklyn!** concert series. Through Aug. 13. *Times and prices vary; bricartsmedia.org*	Sweating on the A train: not a real workout. Try **dance cardio** at 305 Fitness. Weeknights at 7:40, 18 W. 18th St. *$32 per class; 305fitness.com*	Play **Cards Against Humanity** in the rare-book room at the Strand. July 24, 7 p.m. to 9 p.m., 828 Broadway. *Free; strandbooks.com*	**Needlepoint**—it's not just for Grandma. Learn the basics at Make Workshop. July 12, 7 p.m. to 9 p.m., 256 3rd Ave., Brooklyn. *$60; makeworkshop.com*	The **Fermented Man** shows you how to preserve veggies. Aug. 9, 6:30 p.m. to 8:30 p.m., 63 Flushing Ave., Brooklyn. *$45; brooklyngrangefarm.com*
LOS ANGELES	Watch the sunset and sip some wine at **Barnsdall Art Park**. Fridays through Aug. 26, 5:30 p.m. to 8:30 p.m., 4800 Hollywood Blvd. *$30; barnsdall.org*	The **surf-inspired workout** at Sandbox Fitness puts you on a board. In a sandbox. Thursdays at 7:30 p.m., 8317 Beverly Blvd. *$26 per class; sandbox-fitness.com*	See the sci-fi classic ***Blade Runner*** on the Montalbán Theatre rooftop. July 8, 8:15 p.m., 1615 Vine St. *$17; rooftopcinemaclub.com*	Get dirty with a **ceramics** class at Bitter Root Pottery. Weekdays, 7 p.m. to 9 p.m., 7451 Beverly Blvd. *$50 per class; bitter-root-pottery.myshopify.com*	Become the next Calvin Harris at **Scratch DJ Academy**. Mondays, July 27 to Aug. 31, 8 p.m., 2324 Cotner Ave. *$425 total; scratch.com*
CHICAGO	**Cruise down the Chicago River** with the Chicago Architecture Foundation. Weeknights at 7:30, 224 S. Michigan Ave. *$46; architecture.org*	AIR's **aerial-fitness class** suspends you in a hammock, combining yoga and Pilates. Wednesdays at 7:15 p.m., 2217 N. Clybourn Ave. *$30 per class; airfitnow.com*	Chill out to indie crooner **Jose Gonzalez** as he plays Millennium Park, part of its concert series. Aug. 1, 6:30 p.m. *Free; cityofchicago.org*	Fire! Hot lava! Fashion a one-of-a-kind glass at Ignite Studio's **glass blowing** class. Mondays, 4 p.m. to 8 p.m., 401 N. Armour St. *$98 per class; igniteglass.com*	Don't drift off to Kenosha. Learn the basics at **Chicago Sailing**. Appointments by request, North Belmont Harbor. *From $90/hour; chicagosailing.com*
HOUSTON	Drive to Waugh Bridge and **watch 250,000 bats** go looking for food at the same time. Nightly at sundown, Waugh Drive. *Free; houstontx.gov*	You can jump up and down all you want at Sky High Sports' **trampoline romp**. Wednesdays until 9 p.m., 10510 Westview Dr. *$11/hour; skyhighsports.com*	**James Turrell's Skyspace** light installation turns on at sunset. Daily except Tuesdays till 10 p.m., Rice University. *Free, but book in advance; skyspace.rice.edu*	Makerspace's class teaches you **jewelry design**, and you'll fashion a ring to take home. July 5, 6 p.m. to 8 p.m., 3605 Texas St. *$60; makereducationinc.org*	Up your 'gram game: Take **phoneography** at the Center for Photography. Aug. 9, 16, and 23, 7 p.m. to 9 p.m., 1441 W. Alabama St. *$145 total; hcponline.org*
PHILADELPHIA	**The Oval**, a pop-up amusement park, has games, food trucks, and a beer garden. July 15 to Aug. 21 until 10 p.m., 2601 Ben Franklin Pkwy. *Free; theovalphl.org*	**RippedPHL** will get you looking that way with a treadmill, weights, and body bars. Wednesdays, 6:45 p.m., 1519 Walnut St. *$23 per class; rippedphl.com*	The **Museum of Art** offers late Wednesdays, 5 p.m. to 8:45 p.m., June 28 to Sept. 5, 2600 Ben Franklin Pkwy. *Donations accepted; philamuseum.org*	Learn to **make a greeting card**, aka that thing people sent each other pre-Facebook. July 13, 6 p.m. to 8 p.m., 701 Belgrade St. *$45; craftfoundry.com*	Put an end to mushy gnocchi with a **pasta making** class at La Cucina at the Market. July 12, 6 p.m. to 8:15 p.m., 310 S. 48th St. *$95; lacucinaatthemarket.com*

SKIP THE STEAKHOUSE

The bad news: You're entertaining clients. The good news: You've picked one of these five alfresco spots for wheeling and dealing, so the night will feel a bit less worklike. —Evan S. Benn

WASHINGTON, D.C.
The Dabney

The 12-seat patio is the best perch from which to enjoy chef Jeremiah Langhorne's mid-Atlantic-minded dishes, such as smoked catfish dip ($10) spiked with cheddar from a Maryland creamery. *thedabney.com*

MIAMI
Pawn Broker

Go to the roof of downtown Miami's business-friendly Langford hotel to find the Pawn Broker, a speakeasy from local restaurateurs the Pubbelly Boys. Toast clients with the Rincon ($14), a potent ode to Puerto Rico, made with Don Q Cristal rum, housemade coconut liqueur, lime, mint, and bitters. *pawnbroker miami.com*

SAN FRANCISCO
El Techo

The rooftop restaurant is a Mission District destination for hackers, hipsters, and executives alike. Get your networking in over happy hour specials such as beef empanadas and *pollo frito* ($5), flights of rosé or white wine ($11), and margaritas ($7). *eltechosf.com*

NASHVILLE
The Band Box

Need to impress sports fans? Treat them to nine innings with the minor league Nashville Sounds, then head to this gourmet sports bar for postgame refreshments—say, a whiskey and Coke icee ($10) and a Korean fried-chicken sandwich with sorghum-Tabasco glaze and dill-buttermilk sauce ($9). *theband boxnashville.com*

NEW ORLEANS
Shaya

Alon Shaya's modern Israeli eatery isn't a secret: It won the 2016 James Beard Award for best new restaurant. Less known: It's one of the city's top spots for upscale patio dining. Try the pickled ramps while they're in season, with tabouleh and any number of other traditional Israeli salads and spreads (three for $15). *shayarestaurant.com*

An Argument for Alcohol

Needlepoint? Sure, if that's your thing. Trampolining? Sounds fun, until you realize you've become less flexible since you were 12. Art museum? Whoa, that would probably require a lot of thinking. For all the alternatives to sidling up to a bar and ordering a Manhattan (fall, winter), a Negroni (spring, summer), or a High Life (is it 5?), does anything beat sitting, slowly forgetting about your spreadsheets, and chatting up strangers? That's a rhetorical question. The answer is no. "Maybe find time for that new activity before work," says Jim Kearns, bar director for New York's **Happiest Hour** (*happiesthournyc .com*), which offers free French fries and a $10 beer-and-shot special from 5 p.m. to 7 p.m., Monday through Thursday. (Take that, vegetable preservation class.) If nothing else, says Jeff DeCanio, Happiest Hour's general manager, bars usually have one summer essential you're not going to find at an outdoor food festival: "air conditioning."

WAKE UP AND SMELL THE NITRO

Your happier hour can happen before work —L.B.

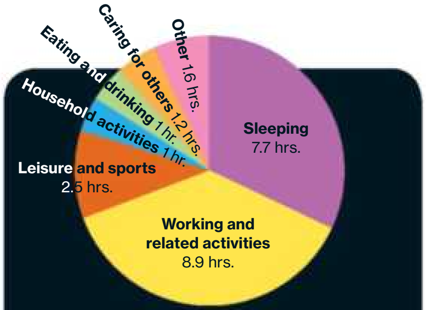
LOS ANGELES
Instead of:
Being stuck in traffic on the 101 southbound
Try:
L.A.'s new **Metro Expo line**. It runs from Santa Monica to downtown and takes about 50 minutes. *$1.75; metro.net*

HOUSTON
Instead of:
That same-ol' iced tall skinny vanilla latte
Try:
Nitro coffee. The traditional brew is infused with nitrogen gas, giving it a frothy texture. District Roasters in nearby Tomball (*$4; districtroasters.com for Houston vendors)* serves it bottled, and Starbucks is adding it to 500 locations this summer.

CHICAGO
Instead of:
Another sleepy jog on the treadmill
Try:
Taking your workout to the roof. **Shred415** hits the top of the Park Hyatt Hotel for its fat-burning routine (cardio drills, strength training). Wednesdays, 6:30 a.m., 800 N. Michigan Ave. *$25 per class; shred415.com*

NEW YORK
Instead of:
That boring bran muffin
Try:
Slurping up **Ivan Orkin's breakfast ramen**. (Think *dashi*-cheddar broth.) It's served starting at 8 a.m. at his Slurp Shop, 600 11th Ave. *$13; ivanramen.com*

PHILADELPHIA
Instead of:
Listening to your kids complain about their homework
Try:
Attending the Philly chapter of CreativeMornings, a nationwide lecture series that brings creatives and audiences together for talks over breakfast. *Free; creativemornings.com*



How employed people age 25 to 54 with children spend a typical workday, according to the Bureau of Labor Statistics

LIVE YOUR BEST LIFE

That doesn't always mean planning something elaborate. How two Bloomberg Businessweek staffers spent recent evenings.

Bryant Urstadt
Editor, Steph Curry wannabe

When I need to bring my family together, we have to leave the house. It's hard to gel inside our apartment: There are screens on the walls, on the desks, hidden in the sofa, and we quickly separate into four individual nodes on the net. One of our favorite activities is basketball. It requires just about no planning, which is helpful since my wife and I both work. Last week, my wife, son, and daughter went to the park to play. My son is perfecting his six-pointer, which is a heave from 200 feet away, and it takes practice. My job is returning the ball to him after he shoots. Sometimes, we all attempt a game together, but mostly we attempt impossible shots. (I like to try to score from behind the basket. It never works.) Without really paying attention to it, we come together, and then we go get frozen yogurt.

Caroline Winter
Writer, poodle walker

Summer is the season of *Freizeitstress*, a German word that describes the (somewhat absurd) twin anxieties of being overscheduled and wondering whether we're using our free time to the fullest. Which, as someone who gets exhausted from going out after work too many nights in a row, I try to avoid—often unsuccessfully. For example: On a recent Tuesday, my boyfriend and I went to the Japanese Garden Centennial celebration in Brooklyn's Botanic Garden, where I met several of his relatives. It was nice to be outside, strolling. Jazz pianist Toshiko Akiyoshi played Frank Sinatra's *It Was a Very Good Year*. The next night, we saw a friend's guitar concert. On Thursday, I was supposed to go to a magazine launch party—sorry!—but went to yoga instead, because I lose my mind if I don't get exercise during the week. Friday I went to see a friend's new apartment and took his 6-month-old poodle, Sasha, for a walk—a nice, low-key start to what was, of course, a weekend of *Freizeitstress*.

OPENER: PHOTOGRAPH BY REGINA KOKOSZKA FOR BLOOMBERG BUSINESSWEEK; CLOCKWISE FROM TOP: PHOTOGRAPH BY CHRISTOPHER LEAMAN FOR BLOOMBERG BUSINESSWEEK; PHOTOGRAPH BY ERIC KAYNE FOR BLOOMBERG BUSINESSWEEK; PHOTOGRAPH BY WES FRAZER FOR BLOOMBERG BUSINESSWEEK

The Rainbow Collection

Did you get the memo? Office furniture doesn't have to be gray

By Monica Khemsurov

1. Link light by Peter Stathis and Pablo
$395; pablodesigns.com

Like a little green robot whose face is made out of 15 high-powered LEDs.

2. Haller storage S1B by USM
$2,770; usm.com

Modular steel shelves that come in navy, red, and yellow and can be customized in neon green and orange, too.

6. Brick pouf cube by Hem
$179; us.hem.com

It's a seat. It's a footrest. It's a pop of color when you need it, and you can shove it in a closet when you don't.

7. Ikea PS 2014 secretary
$189; ikea.com

A secretary desk with all the secretary desk advantages (hide your mess), plus an updated silhouette.

8. Desk 51 by Blu Dot
$799; bludot.com

With front legs that angle backward, this piece feels open and inviting: Come hither, and check out the sliding keyboard tray.

3. Building Block 2H cabinet by Heartwork
$800; heartwork.com

This weighs 125 pounds(!), but it's on casters, so you can roll it–and lock it, too, since it comes with keys.

4. Remix side chair by Formway Design for Knoll
Starting at $434; knoll.com

Cozy enough for your living room. You can always take the wheels off and bring it home if your startup folds.

5. Folded Vessel by Chen Chen & Kai Williams
$150; supergoodthing.com

Three identical pieces of powder-coated steel, joined to create a rack for books and magazines.

9. Utility coat rack by Room & Board
$229; roomandboard.com

Simple and sculptural— but with six arms, it can also hold a lot of stuff.

10. Dotty Clock ABI11 by Abi Alice for Alessi
$150; store.alessi.com

The playful circles on the ends of the hands were inspired by dot stickers, once an office-supply staple.

11. Doge table by Carlo Scarpa for Cassina
$8,950; cassina.com

The iconic Italian architect's 1968 design, in colored anodized aluminum, is still a conversation piece in any boardroom.

12. Horizon desk lamp by Michael McCoy and Peter Stathis for Humanscale
$475; humanscale.com

Its thin-film LED surface was revolutionary when introduced in 2009. This year the lamp was given a lighthearted touch with a rerelease in hot pink, bright blue, and cherry red.

13. Catifa 46 chair by Lievore Altherr Molina for Arper
$271; arper.com

Want to double down on color? These stackable polypropylene chairs also come in two-tone.

14. Block Party lounge sofa by Poppin
$1,699; poppin.com

Perfect for furnishing your "breakout space," this felt-covered foam sofa features an adjustable backrest. Put it on one side, and you have a typical couch configuration; put it in the middle, and you've doubled your seating for large meetings or events.

15. Metal hexagon vases by Ferm Living
Starting at $44; cleverspaces.com

These come in five colors and are good for flowers (when upright, obviously).

PHOTOGRAPH BY B. O'BRIEN FOR BLOOMBERG BUSINESSWEEK; SET DESIGN: DAVE BRYANT; STYLING: PETER B. SAMUELS; BOOKS: ARTBOOK/D.A.P.; MUGS: PANTONE

CHAOS IN THE VALLEY

Deception, lies, and betrayal in the "tech whorehouse"
By Ellen Huet

Antonio García Martínez's memoir, *Chaos Monkeys: Obscene Fortune and Random Failure in Silicon Valley*, begins as the author is leaving his job as a number cruncher at Goldman Sachs in New York to head west. He joins an ad startup, leaves it to launch another, sells that one to Twitter 10 months later, then goes to work in the feverish cult of pre-initial public offering Facebook. And that's just the first half of the book.

Unlike most founding narratives that flow out of the Valley, *Chaos Monkeys* (Harper; 528 pages) dives into the unburnished, day-to-day realities: the frantic pivots, the enthusiastic ass-kissing, the excruciating internal politics. The monkeys in his title are actually software programs designed to wreak havoc on a computer system to test its resilience. But García uses the term as a metaphor to illustrate how successful disruption often comes as much from luck as from skill.

The way he sees it, Silicon Valley is much like Wall Street, or any other sector of corporate America, when it comes to shady dealings. Because our iPhones are designed there, though, we tend to imagine it as a techno-utopia. In one of the memoir's high points, Twitter offers to buy his startup, AdGrok, a platform that lets businesses automate bidding on Google keywords. García and his co-founders hope to coax a rival offer from Facebook. While pitching AdGrok to the social network, García hints that Google is interested as well. It's not. Somehow, García impresses the Facebook folks so much that he gets a job offer, shocking the Twitter execs who follow through on their $5 million offer for the company but wind up with two co-founders instead of three. "That one throwaway line of mine was probably half responsible for what followed," he writes. Later, he adds: "Morality, such as it exists in the tech whorehouse, is an expensive hobby indeed."

There are plenty more tales like that. García coaxes lawyers into taking potentially worthless equity instead of pay. After abandoning his AdGrok co-founders to take the Facebook job, García gets fired at Facebook—and he winds up consulting for Twitter on how best to beat Mark Zuckerberg & Co.

SPURN TWITTER, GO TO FACEBOOK, GET FIRED, CONSULT FOR TWITTER

García tries to position himself as a kind of nerd antihero, but he undermines himself with misogynistic remarks, referring to an attractive Asian co-worker as his "prize" and calling Bay Area women "soft and weak" with "self-regarding entitlement feminism." He's also fixated on settling grudges with former co-workers. He's quick to mock Facebook executives for going into "lockdown" mode after Google announces its Google Plus social network, but what else were they supposed to do?

He can be rude, but he's shrewd, too. While García is at Facebook, the company commissions several fixes for its ad monetization problem, but once one takes off (mobile ads in its news feed), it pretends that had been the plan all along. "What was an improbable bonanza at the hands of the flailing half-blind becomes the inevitable coup of the assured visionary," he writes. "The world crowns you a genius, and you start acting like one." In other words, if Silicon Valley is a jungle, some monkey is always going to wind up king. Ⓑ

ILLUSTRATIONS BY TIM LAHAN

Critical Mass

A random ranking of recent bad behavior

Most Worst

71

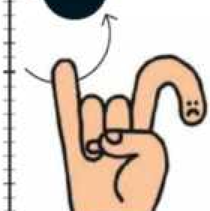
AND FOR DESSERT, I'LL HAVE THE CRESTOR

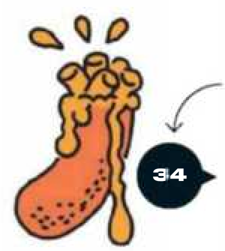
Doctors treated to a free lunch by a drug company were much more likely to prescribe its drug than a generic version, according to a *JAMA Internal Medicine* study.

66

SO PUMPED FOR THAT RATT SHOW

As part of a settlement deal, Ticketmaster is offering vouchers—to lame concerts. It's "like finding money in your couch cushions, then realizing it's foreign currency from a failed state," tweeted @brianbeutler.





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YOUR MOVE, McDONALD'S

This week in fast food you have to chase with Crestor: Burger King is selling deep-fried macaroni-and-cheese sticks encrusted in Cheetos-flavored breading, called Mac n' Cheetos.

19

KIDS: DOES THEIR GREED KNOW NO BOUNDS?

According to *Scientific American*, children as young as 3 are more selfish and less helpful after simply touching money. They seem so innocent, but don't let their lack of toilet training fool you.

Least Worst


#haveKINDLEwillTRAVEL
CUSCO, PERU HIRAM BINGHAM, *INCA LAND* @ AMAZONKINDLE
amazon

Pin-Up Girls

Seven stylish ways to keep hair off your sticky, sweaty neck
By Erica Blumenthal

COLETTE MALOUF
Pretzel leather pony holder
$228; nordstrom.com

Something about the black leather and the chunky knot gives this an appealingly aggressive vibe.

JENNIFER BEHR
Medusa pony wrap
$152; jenniferbehr.com

You'll actually look more like a glamorous Cleopatra with a few quick twists of this rubber band.

L. ERICKSON
Swarovski pearl bobby pins
$28 each; saks.com

Delicate pins are perfect for catching those short hairs that annoyingly dangle down.

LELET NY
Ball-chain vee barrette
$78; leletny.com

Stick one through the base of your French twist to keep it locked in place.

FICCARE
Pebbles pony holder
$36; ficcare.com

On a hot day, imagine that this painted metal pebble was plucked from a cool stream.

TRADEMARK
Brass hair comb
$118; trade-mark.com

Only for those with thick hair; it's heavy, but it gets the job done.

SYLVAIN LE HEN
Hair clip 06 X1
$59; stevenalan.com

The spring-loaded clip underneath this mirror-shiny barrette is ideal for a speedy pullback.

PHOTOGRAPH BY DAVID BRANDON GEETING FOR BLOOMBERG BUSINESSWEEK; STYLIST: PRISCILLA JEONG

COFFEE GROUNDS CAN SAVE A LIFE.

MIND YOUR MEDS

Prescription drug abuse kills more teens than heroin and cocaine combined. So if you have expired or unused meds, conceal them in an undesirable place like used coffee grounds, and throw them in the trash.

Learn other ways to safely dispose of your meds at drugfree.org

Partnership™ for Drug-Free Kids
Where families find answers

Your JULY HOROSCOPE

By Ashleigh D. Johnson

Take stock of employee morale.

It's a good time to do that, because emotions will be running high this month. July is all about the water signs—Cancer, Scorpio, and Pisces—which govern feelings. The outpouring starts early: There's a new moon in Cancer on the 4th, and because the moon is Cancer's **ruling planet**, prepare for strong sentiments to be expressed. Ask yourself if you are really **looking out** for your staff. What about your marketing—do customers know how much you care?

Shift into schmooze mode once Venus (the planet of partnerships, negotiations, and money) and Mercury (the planet of sales, communication, and travel) move into Leo, the sign of creativity and loyalty, on the 12th and 13th, respectively. Your employees will be fine! Focus on your long-term business relationships, and consider making media buys to attract new ones. The sun, the planet of ego, moves into Leo on the 22nd, so think about corporate leadership—specifically, what your company could do to **give back**.

There's a full moon in Capricorn on the 19th. That this alignment coincides with the **Republican National Convention** is not insignificant, as Capricorn rules governments and public figures, and the full moon has a habit of exposing faults and deficiencies. (Hey, don't blame us; it's in the stars.)

To end the month, Uranus, the planet of sudden changes, goes into retrograde on the 29th. On the 30th, Mercury—again, the planet of communication—moves into Virgo, a sign it rules. Both developments will help you react and think more clearly.

According to Google: "A planet that is held to have a particular influence over a specific sign of the zodiac, house, aspect of life, etc."

Where to get some fresh air when you're tired of all the hot air in the convention halls:

Republican National Convention
Cleveland, July 18 to 21
convention.gop

Walk along the Flats, Cleveland's waterfront district that's recently undergone a multimillion-dollar face-lift. Stop in at **Punch Bowl Social** *(punchbowlsocial.com)*, where you can challenge political opponents in bowling or shuffleboard while indulging in the King's Cup ($64; serves 8), which combines coconut rum, pineapple fennel-seed shrub, and white-pear Fuji apple tea.

Democratic National Convention
Philadelphia, July 25 to 28
demconvention.com

Fishtown has undergone its own resurgence. Neighborhood favorite **Martha** *(marthakensington.com)* is known for an extensive list of local liquors, such as Thistle Finch Black Coffee Rye ($11). Have one or three of those, and pair it with Martha's Italian hoagie ($10).
—*Laura Bolt*

Work perks that have made "statistically significant" gains since 2012, according to the Society for Human Resource Management's 2016 *Employee Benefits* report:

- Employer-sponsored personal shopping discounts
- Pet health insurance
- Signing bonuses
- Free, discounted, or subsidized home internet service
- Paid sick leave
- On-site fitness centers
- On-site nap rooms

The top-five corporate givers*

Corporation	Total donations (Change from 2014)
Pfizer	$3,239,724,812 +44% ▲
Gilead Sciences	$2,319,979,000 +101% ▲
Merck	$1,815,978,000 +17.6% ▲
Walmart Stores	$1,401,000,000 +4.7% ▲
Google	$1,167,826,166 +1.1% ▲

*Source: *The Chronicle of Philanthropy*

DOMINIC & CHRIS LEONG

37 and 39, founding partners, Leong Leong, New York

PHOTOGRAPH BY FRANCESCO NAZARDO FOR BLOOMBERG BUSINESSWEEK

As architects, you've imagined the look of a lot of designers' stores. Is dressing for fashion people stressful?
Chris: It's all about the shoes and the hair. Keep it simple in between–don't over-fashion yourself.

The first time you meet potential fashion clients, do you wear their clothes?
Dominic: No, it's too much. I try to wear relatively nondescript stuff, so a designer can't be like, "You're wearing so-and-so." I'm sort of working toward a uniform.

What uniform?
Dominic: I'd love to wear a white T-shirt every day. Maybe, eventually, I'll get to the point where I have a stack of T-shirts and five pairs of the same pants.
Chris: I'm also trying to work toward something pretty reductive. In architecture, it's about being able to show up to a meeting at any point in the day–and also being in the office working on stuff till 3 in the morning.

Why focus on footwear?
Chris: People always look at your shoes. I have a pair of standard Jil Sander boots. Basic, but quality, is the key.

Do you two have a strategy for varying your looks in the office?
Dominic: We actually have to consciously not buy and wear the same clothes.
Chris: We call or text each other in the morning.

Some people feel more focused when dressed up.
Dominic: It depends what you're doing. A lot of times, design is about relaxing and searching for possibilities. And being loose enough to do that–you have to be comfortable.

Interview by Arianne Cohen

How Did I Get Here?

DIANA AVIV

Chief executive officer, Feeding America

Inspecting the horn of a South African antelope with a fourth-grade schoolmate

Education

- King David High School Victory Park, Johannesburg, class of 1968
- University of Witwatersrand, Johannesburg, class of 1974
- Columbia, School of Social Work, class of 1977

"I grew up in apartheid South Africa, and I promised myself that I would fix the world."

"I studied social work, the only legal way to get involved with the anti-apartheid movement without ending up in prison."

Graduation day at Columbia

Posing with a friend for a series of greeting cards, 1972

Work Experience

1974–75
Social worker, Tara H. Moross Centre

"It was a Johannesburg psychiatric hospital, and part of my job was to help the hospital approve sex-change operation patients."

1977–79
Clinical social worker, Southeast Nassau Guidance Center

1979–81
Executive director, Alternative to Domestic Violence

"Within six months of women leaving the shelter, over 90 percent returned to their abusers. I was hired to work with the women and also the abusers. It was clear that if we didn't work with them, we'd never stop the violence."

With David Dinkins, mayor of New York, 1993

1981–86
Program director, National Council of Jewish Women

"I was in charge of the Washington office, which was absurd–I didn't know how a bill became a law. Every evening, I rushed to the public library to study."

1986–93
Associate executive vice chair, Jewish Council for Public Affairs

1994–2003
Vice president for public policy, United Jewish Communities

At the White House with President Bill Clinton, 1994

2003–15
President and CEO, Independent Sector

"It's the leadership forum for charitable organizations. The downturn was really sad. Agencies didn't have resources. Employees were going without pay. It was terrible."

At Phinda Private Game Reserve in South Africa, 2011

2015–Present
CEO, Feeding America

"We're a $2.2 billion organization built to feed people and end hunger. If you include our network of 200 food banks, it's a $7.75 billion operation. We'll provide 3.97 billion meals this year."

Life Lessons

1. "It's the folks with the everyday jobs who make the world go around. Treat them like kings." **2.** "It's possible to have strong opinions and firm views without demolishing the opposition." **3.** "Nonprofits have to be more agile and innovative, because they're doing everything with less resources."

Courtesy subject (7)

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WHY STRENGTHENING COMMUNITIES SHOULD BE A BANK'S BUSINESS.
JONATHAN ROSE
URBAN REDEVELOPER,
AUTHOR OF THE WELL-TEMPERED CITY


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