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Economist.com/print

Audio edition: available online to download each Friday
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The Economist

Volume 423 Number 9039

Published since September 1843
to take part in "a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."

Editorial offices in London and also:
Atlanta, Beijing, Berlin, Brussels, Cairo, Chicago, Lima, Mexico City, Moscow, Mumbai, Nairobi, New Delhi, New York, Paris, San Francisco, São Paulo, Seoul, Shanghai, Singapore, Tokyo, Washington DC

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Publisher: The Economist. Printed by Times Printers (in Singapore).

M.C.I. (P) No.030/09/2016 PPS 677/11/2012(022861)

Politics

The president of the **Palestinian Authority**, Mahmoud Abbas, visited the White House to meet Donald Trump. On peace between Israel and the Palestinians, Mr Trump said "we will get it done", but offered no specifics.

Russia announced a proposal to create "safe zones" in **Syria**. But it reserves the right to attack "terrorists" in them.

Members of **South Africa's** main federation of trades unions booed President Jacob Zuma off a stage when he tried to speak at a rally, a sign of his growing unpopularity. Several other senior figures in the ruling African National Congress were similarly denied the opportunity to speak at other meetings of union members around the country.

The number of **pirate** attacks off the west coast of Africa almost doubled in 2016, according to a new report by Oceans Beyond Piracy. The report comes amid an uptick in attacks on ships around the Horn of Africa, an area that had been free of pirates for several years.

The first contingent of what will become a 4,000 strong UN "regional protection force" arrived in **South Sudan** to bolster a peacekeeping mission there. The new troops will have an expanded mandate to use force to protect civilians, which was authorised by the UN last year after fighting between the government and a rebel group killed hundreds of people.

Pope Francis visited Egypt, defying the dangers posed by Islamic State to visit a Coptic church bombed by the terrorist group last month.

The great thinker

An official newspaper in **China** published a speech by the chief of staff to the president, Xi Jinping, saying his boss's political philosophy formed a "complete theoretical system". The official's remarks appeared to signal that revisions to the Communist Party's charter, expected later this year, will include a tribute to Mr Xi's contributions to Communist ideology.

China deported an American businesswoman who had recently been sentenced to three-and-a-half years in prison for **spying**. Sandy Phan-Gillis returned to her home in the United States.

Donald Trump said he would be "honoured" to meet Kim Jong Un, **North Korea's** blood-stained dictator, in the right circumstances. He also invited Rodrigo Duterte, the president of the **Philippines**, to the White House, despite Mr Duterte's extrajudicial killing of drugs suspects that has claimed more than 7,000 lives.

Shinzo Abe, **Japan's** prime minister, said he would try to amend his country's pacifist constitution by 2020 to clarify the status of the Self-Defence Forces, Japan's armed services in all but name.

The leader of the free world

Angela Merkel, the chancellor of **Germany**, visited **Russia**, where she raised concerns with Vladimir Putin, the Russian president, about human rights, particularly the recent persecution of gay men in **Chechnya**, a semi-autonomous republic. Mrs Merkel also criticised restrictions on the freedom of assembly, the arrest of anti-government protesters and a recent ban on Jehovah's Witnesses. Meanwhile unknown assailants doused Alexei Navalny, Russia's leading opposition politician, with a green dye and acid, causing him to lose much of the sight in his right eye.

Bohuslav Sobotka, the prime minister of the **Czech Republic**, unexpectedly declared that he would ask the president to accept the resignation of his government over unexplained dealings by the finance minister, Andrej Babis. Mr Babis belongs to a different party to Mr Sobotka's centre-left social democrats and is his main political rival ahead of a general election, which is due to be held in October.

Greece secured a deal with its creditors that will allow it to receive the next tranche of funds from its bail-out agreement. Finance ministers in the euro zone will meet on May 22nd to discuss its terms.

Everyone's a winner!

A $1.1 trillion **spending bill**, running at 1,665 pages, was hammered out by Democrats and Republicans on Capitol Hill in order to avoid a government shutdown. Both parties claimed that the legislation reflected their priorities. The Democrats maintained that they had thwarted funding for Donald Trump's wall along the border with Mexico; the Republicans pointed to more money for defence.

Republicans in the House of Representatives made another effort to push their **health-care bill**. A reworked version makes it easier for states to withdraw from parts of Obamacare, which pleased conservatives. More money was made available for insurance to cover people with pre-existing conditions, one part of Obamacare that has proved popular with voters.

Puerto Rico filed for court protection to shelter it from its creditors after failing to reach an agreement on restructuring $73bn in debt. Though not technically a bankruptcy, it still represents the biggest failure of a local government under American law, far larger than Detroit's in 2013.

Rewriting the rules

Venezuela's president, Nicolás Maduro, issued a decree to convene a constituent assembly, which would write a new constitution. The opposition said the manoeuvre is intended to entrench the power of the dictatorial regime. More than 30 people have died in weeks of protests against the government.

Trade unions called **Brazil's** first general strike in 21 years to protest against the government's plans to reduce spending on pensions and liberalise labour laws. The strike disrupted business and traffic in several cities, including São Paulo and Brasília, the capital.

Multiple complications

Brexit hogged the election limelight in **Britain**, as news leaked of a fraught dinner between Theresa May, the prime minister, and Jean-Claude Juncker, the European Commission president. He reportedly claimed that Mrs May is living "in another galaxy"; she responded that the "bureaucrats of Brussels" were meddling in the election. Labour faced its own embarrassments. Diane Abbott, the shadow home secretary, fluffed her sums trying to put a price on Labour's pledge to hire an additional 10,000 police officers. It appeared at one point that she thought it would cost only a few coppers. ▸▸

Business

Apple chalked up a net profit of $11bn for the three months ending April 1st, a solid 5% rise compared with the same quarter last year. But it also reported a dip in sales of the iPhone, caused in part by another limp performance in China, where revenue fell by 14%. Consumers may be delaying updating their device in anticipation of a new model in September. Apple's cash reserves ballooned to $257bn in the quarter.

Following a spate of incidents where users posted videos of murders and suicides, **Facebook** said it would recruit another 3,000 people to screen for harmful images in addition to the 4,500 it already employs to do that job. Reporting its quarterly earnings, the social network said it had almost reached 2bn monthly users. Revenue soared in the first quarter, to $8bn.

A regulatory filing revealed that HNA, an acquisitive Chinese conglomerate, has become the biggest shareholder in **Deutsche Bank**, holding a stake of almost 10%. HNA had reported an initial stake of 3% only in February.

Miami vice

In a closely watched case, America's Supreme Court ruled that the city of **Miami** does have the right to sue **Bank of America** and **Wells Fargo** for allegedly discriminating against blacks and Hispanics by selling them risky mortgages. Miami argues that the mortgages led to a rise in foreclosures, subsequently hitting its proceeds from property taxes. The court decided that under the law in question, Miami has the legal standing of an "aggrieved" person. But it also sent the case back to the appeals court with an order to apply a much tougher standard when assessing damages.

Buoyed by higher oil prices, the world's big **oil companies** reported better-than-expected results for the first quarter. Exxon Mobil made a headline profit of $4bn, up by 120% from the same three months last year. And BP nearly tripled its earnings, to $1.5bn. It expects to fork out another $5bn this year in payments related to the Deepwater Horizon disaster of 2010, and another $2bn next year.

Serendipity

Infosys, an Indian IT services company that does most of its business in the United States, announced that it would hire 10,000 American workers over the next two years as it opens four new technology and innovation hubs. Last month Infosys was one of the companies mentioned by the White House when it laid out plans to reform the H1-B employment-visa programme, which it claims is abused by foreign firms bringing in cheap workers. Perhaps by chance, one of the new tech hubs will be built in Indiana, the home state of Mike Pence, the vice-president.

The **euro zone's** GDP grew at an annualised rate of around 2% in the first quarter. **American** GDP rose by 0.7% in the same period, the weakest pace since early 2014.

America's weak economic growth at the start of the year played a part in the **Federal Reserve's** decision to keep interest rates on hold. But with wages growing at a fast clip and the unemployment rate at a ten-year low, the central bank is still on course to raise rates twice more this year.

Britain's economy meanwhile slowed significantly in the first three months of the year, expanding by 1.2% at an annualised rate. But manufacturing grew in April at the fastest pace in more than three years, according to a respected purchasing managers' index.

Airbnb reached a settlement with **San Francisco** over a law that fined it for every person renting out their home through the website who had not registered with the city. Airbnb and other home-share sites will now check data on hosts and remove listings that fail to comply with the rules. The case was one of the biggest obstacles standing in the way of Airbnb's ambition to launch a stockmarket IPO.

For the second time in a decade, **Alitalia** filed for bankruptcy protection after workers rejected the cuts needed to underpin a capitalisation plan. The airline has been a perennial problem for Italy's government, which has ruled out a rescue. Alitalia will work out a restructuring plan while it is under special administration, from which it may emerge as a much smaller carrier.

The fast and the furious

Scene: A room in Los Angeles. It is 1am. The contract between 12,000 television and film **script writers and Hollywood studios** expired an hour ago. Clearly agitated, the writers have voted for strike action if no deal is forthcoming. White vans stand ready to take volunteers to picket lines. Suddenly, studio executives agree to most demands, including contributing more to the writers' health plan [fade to jubilant union leaders]. Possible sequel: the contract between actors and the studios expires on June 30th.

Other economic data and news can be found on pages 72-73

The world's most valuable resource

Vast flows of data give some firms unprecedented power. To keep them in check, antitrust rules must catch up

A NEW commodity spawns a lucrative, fast-growing industry, prompting antitrust regulators to step in to restrain those who control its flow. A century ago, the resource in question was oil. Now similar concerns are being raised by the giants that deal in data, the oil of the digital era. These titans—Alphabet (Google's parent company), Amazon, Apple, Facebook and Microsoft—look unstoppable. They are the five most valuable listed firms in the world. Their profits are surging: they collectively racked up over $25bn in net profit in the first quarter of 2017. Amazon captures half of all dollars spent online in America. Google and Facebook accounted for almost all the revenue growth in digital advertising in America last year.

Such dominance has prompted calls for the tech giants to be broken up, as Standard Oil was in the early 20th century. This newspaper has argued against such drastic action in the past. Size alone is not a crime. The giants' success has benefited consumers. Few want to live without Google's search engine, Amazon's one-day delivery or Facebook's newsfeed. Nor do these firms raise the alarm when standard antitrust tests are applied. Far from gouging consumers, many of their services are free (users pay, in effect, by handing over yet more data). Take account of offline rivals, and their market shares look less worrying. And the emergence of upstarts like Snapchat suggests that new entrants can still make waves.

But there is cause for concern. Internet companies' control of data gives them enormous power. Old ways of thinking about competition, devised in the era of oil, look outdated in what has come to be called the "data economy" (see page 14). A new approach is needed.

Quantity has a quality all its own

What has changed? Smartphones and the internet have made data abundant, ubiquitous and far more valuable. Whether you are going for a run, watching TV or even just sitting in traffic, virtually every activity creates a digital trace—more raw material for the data distilleries. As devices from watches to cars connect to the internet, the volume is increasing: some estimate that a self-driving car will generate 100 gigabytes per second. Meanwhile, artificial-intelligence (AI) techniques such as machine learning extract more value from data. Algorithms can predict when a customer is ready to buy, a jet-engine needs servicing or a person is at risk of a disease. Industrial giants such as GE and Siemens now sell themselves as data firms.

This abundance of data changes the nature of competition. Technology giants have always benefited from network effects: the more users Facebook signs up, the more attractive signing up becomes for others. With data there are extra network effects. By collecting more data, a firm has more scope to improve its products, which attracts more users, generating even more data, and so on. The more data Tesla gathers from its self-driving cars, the better it can make them at driving themselves—part of the reason the firm, which sold only 25,000 cars in the first quarter, is now worth more than GM, which sold 2.3m. Vast pools of data can thus act as protective moats.

Access to data also protects companies from rivals in another way. The case for being sanguine about competition in the tech industry rests on the potential for incumbents to be blindsided by a startup in a garage or an unexpected technological shift. But both are less likely in the data age. The giants' surveillance systems span the entire economy: Google can see what people search for, Facebook what they share, Amazon what they buy. They own app stores and operating systems, and rent out computing power to startups. They have a "God's eye view" of activities in their own markets and beyond. They can see when a new product or service gains traction, allowing them to copy it or simply buy the upstart before it becomes too great a threat. Many think Facebook's $22bn purchase in 2014 of WhatsApp, a messaging app with fewer than 60 employees, falls into this category of "shoot-out acquisitions" that eliminate potential rivals. By providing barriers to entry and early-warning systems, data can stifle competition.

Who ya gonna call, trustbusters?

The nature of data makes the antitrust remedies of the past less useful. Breaking up a firm like Google into five Googlets would not stop network effects from reasserting themselves: in time, one of them would become dominant again. A radical rethink is required—and as the outlines of a new approach start to become apparent, two ideas stand out.

The first is that antitrust authorities need to move from the industrial era into the 21st century. When considering a merger, for example, they have traditionally used size to determine when to intervene. They now need to take into account the extent of firms' data assets when assessing the impact of deals. The purchase price could also be a signal that an incumbent is buying a nascent threat. On these measures, Facebook's willingness to pay so much for WhatsApp, which had no revenue to speak of, would have raised red flags. Trustbusters must also become more data-savvy in their analysis of market dynamics, for example by using simulations to hunt for algorithms colluding over prices or to determine how best to promote competition (see Free exchange).

The second principle is to loosen the grip that providers of online services have over data and give more control to those who supply them. More transparency would help: companies could be forced to reveal to consumers what information they hold and how much money they make from it. Governments could encourage the emergence of new services by opening up more of their own data vaults or managing crucial parts of the data economy as public infrastructure, as India does with its digital-identity system, Aadhaar. They could also mandate the sharing of certain kinds of data, with users' consent—an approach Europe is taking in financial services by requiring banks to make customers' data accessible to third parties.

Rebooting antitrust for the information age will not be easy. It will entail new risks: more data sharing, for instance, could threaten privacy. But if governments don't want a data economy dominated by a few giants, they will need to act soon. ■

Brexit and Britain's election

Strong, stable—and short on detail

In Brussels and at home, Theresa May is being worryingly vague

ON MAY 3rd Theresa May gave what began as a speech to mark the start of the general-election campaign and ended up sounding more like a declaration of war. "Threats against Britain have been issued by European politicians and officials," she warned. "All of these acts have been deliberately timed to affect the result of the general election."

That is doubtful. But if this week's war of words between Britain's prime minister and the European Union does affect the vote, it will be in her favour. Mrs May's Conservatives were already the racing favourites to win a big majority against a feeble Labour opposition. A frosty exchange with foreigners over Brexit will only reinforce the image of strength that she has been trying to project to voters. The snag, for Britain and the EU alike, is that the needless deterioration in relations will worsen the chances of the two parties signing a good—or perhaps any—Brexit deal (see page 44).

The episode is doubly worrying for Britons because it seems to exemplify Mrs May's approach to the election campaign. Rather than explain in detail what she wants from Brexit, as the European side did this week, she has given little away, instead simply urging voters to trust her to get the best possible deal. It is a similar story on domestic matters. The weakness of Labour and its hapless leader, Jeremy Corbyn, have persuaded the prime minister to turn the campaign into a contest about leadership and little else.

With a lead of nearly 20 percentage points, Mrs May might calculate that she has more to lose than to gain by committing herself to detailed policies. She even seems reluctant to risk much interaction with voters. Last weekend she held a closed event in a hall in a remote Scottish woodland. Previously she attended a rally at a company in Leeds, whose employees tweeted that they had been sent home before things kicked off. Cornish journalists were shut in a room and forbidden from filming her on a visit to a factory. Mrs May has refused to take part in televised debates; nowadays Britain is rare among democracies in not having them as a matter of course.

This tight-lipped campaign is troubling. The Conservative Party's catchphrase of "strong and stable leadership" is already wearing thin, though there is more than a month to go. Its position on everything from Brexit to the National Health Service seems to be simply that Mrs May is the leader who will do the best job. The EU spat was more of the same: the episode was treated as just another reason to ask voters to strengthen her hand in Brussels by giving her a bigger majority. Never mind the details; put your faith in the negotiator.

Power in need of a plan

A bigger majority would indeed improve Mrs May's position, chiefly by allowing her to ignore the wackiest of her own Europhobe backbenchers, some of whom actually want a "no deal" outcome. But an essential part of strong and stable leadership is explaining what you are going to do with it. Britain deserves a proper debate about the trade-offs involved in its grand bargain with the EU. The government's reply—that such a discussion would give away its secret negotiating position—betrays its lack of experience cutting such deals. A successful outcome is likeliest when both sides lay out their objectives clearly. In any case, this week's episode bears out what those with experience of the EU have long been telling Mrs May: that private talks with Brussels immediately leak.

The party manifestos will be published soon. Mrs May has already shown plenty of steel. Britons must hope that she has more ideas up her sleeve than she has so far let on, on Brexit and much else. ■

France's election

Don't discount Marine Le Pen

Why voters who doubt Emmanuel Macron should still cast their ballot against his opponent

PUNDITS are already looking beyond the French presidential run-off that will take place on May 7th. Emmanuel Macron, the young liberal favourite, is 20 points ahead in the polls. Talk has turned to the obstacles he might face in office. The party he founded, En Marche! ("On the Move!"), will probably not win a majority in the legislature. How, they ask, will he handle the delicate task of coalition-building in a country where old certainties are going up in flames like rum on a *banane flambée*?

Steady on. Mr Macron has not won yet. And if voters take it for granted that he will, he might not. Betting on politics is banned in France, but foreign bookmakers give his populist, nationalist opponent, Marine Le Pen, a one-in-six chance of victory—the same odds as Russian roulette. The reason is that Ms Le Pen's supporters will all turn out in force, so if the other side is apathetic and abstains in large numbers, she could win. French people cannot afford to be complacent about this election, or indifferent to the choices on offer (see page 39).

Though his manifesto lacks detail, Mr Macron offers reform, realism and a chance of a more dynamic France. He would loosen the job-killing labour code, trim the gargantuan state a little, reboot Franco-German chumminess and strengthen the institutions that hold the euro zone together. ▸▸

Ms Le Pen, by contrast, offers bigotry mixed with make-believe. Vote for her, she suggests, and the state will shower you with goodies, paid for largely by being less generous to immigrants. She promises earlier retirement, bigger pensions, a short working week, tax cuts and a top-notch hospital on your doorstep. In her belief that French people can prosper by working less and consuming more public services (although government already spends 56% of GDP), she has much in common with Jean-Luc Mélenchon, the far-left candidate who won a fifth of the vote in the first round last month. Her flyers stress this point, hoping to poach his supporters or persuade them to stay at home rather than vote for Mr Macron. Ms Le Pen is also reaching out to mainstream conservatives. To woo followers of François Fillon, a former prime minister who also won a fifth of the vote in the first round, she has borrowed some of his lines about France's unique place in the universe and downplayed some of her more alarming policies, such as quitting the euro and perhaps the European Union itself.

To voters of all stripes, she promises protection. Against the possibility of being laid off, if they have jobs. Against foreign competition. Against crime: she would add 40,000 prison beds, put 15,000 more cops on the street and let them shoot first if they feel threatened. Against terrorism: she would close mosques suspected of radicalism and deport foreigners suspected of jihadist ties. And against having unfamiliar neighbours: she would cut net migration from around 65,000 people a year to 10,000. She contrasts her own patriotic platform ("Choose France") with the rootless cosmopolitanism of her opponent, a former Rothschild banker. Echoing an old barb from President François Hollande, she says that "the enemy of the French people is still the world of finance, but this time he has a name, he has a face, he has a party."

This is powerful stuff. Ms Le Pen stirs deeper passions than Mr Macron. And even among voters repelled by her party's xenophobic baggage, there is an alarming ambivalence. Many far-leftists talk of a choice between "plague and cholera", and urge abstention. "There is no hierarchy of unacceptability between Le Pen and Macron. Between xenophobia and bowing to banks," declared Emmanuel Todd, a public intellectual.

Vote for the banker. It's important

If enough voters swallow such sophistry, Ms Le Pen could prevail. Her promised handouts would not materialise, since France is already perilously indebted and her scheme to print francs again would spark a financial crisis. Her bid to protect French jobs would lead to more unemployment. Her plan to shut out foreign goods and ideas would make France poorer and less productive. But the division that she fosters and exploits will endure, even if she loses. Nearly half of voters in the first round backed anti-EU candidates. French Muslims and non-Muslims are far from reaching a modus vivendi. And Ms Le Pen will be back in 2022. French voters should give Mr Macron a thumping majority, and a mandate to address the malaise that makes his opponent's demagoguery so popular. ■

South Korea

Moon mission?

As the country goes to the polls, its leaders must recognise how politics is failing voters

LAST year millions of South Koreans took to the streets to secure the impeachment of Park Geun-hye, their conservative president. She is now behind bars; her trial, on charges of corruption and abuse of power, began this week. On May 9th the country will pick a new president in a snap election. The winner looks almost certain to be Moon Jae-in, the liberal whom Ms Park defeated at the last election in 2012.

The scandal tested South Korea's young, raucous democracy—and it passed. No one was killed. The often cautious press vigorously pursued the allegations that Ms Park had divulged state secrets to a confidante and colluded with her in extorting large sums from private firms. Legislators, including many from Ms Park's own party, voted convincingly to impeach her. The constitutional court unanimously upheld their decision.

South Korea, in contrast with its northern neighbour, is an inspiration to many. In 1970 less than half of South Koreans went to secondary school; now they are more likely to graduate from university than people in any other country. In five decades GDP per person has risen 20-fold, to nearly $40,000 (adjusted for the local cost of living). In a single generation, the country went from beggar to donor, showing that rapid growth and democracy can go hand in hand. Its economy remained turbo-charged throughout its transition away from military rule in the 1980s and 1990s. Its recent record of holding a sitting government to account is an example to all.

Yet there is a nagging sense that politics has not kept up with social change. South Koreans are increasingly disillusioned (see page 18). Like disgruntled voters elsewhere, they feel that their political system is not working for them. Growth is faltering. Unemployment is surging, especially among the young. And even those who have jobs feel that there is one set of rules for the elite and another, harsher one for the masses.

Tormented Seoul

Ms Park's removal has brought some comfort to the disenchanted. She was out of touch, surrounding herself with yes-men. Her chief-of-staff had helped to draft the martial law that underpinned the regime of her father, Park Chung-hee, a military strongman who ran South Korea for 18 years until he was assassinated in 1979. Now her nemesis, Mr Moon, has promised a less imperious governing style. He says that, if elected, he will not live or work in the presidential mansion, the Blue House. Ahn Cheol-soo, another liberal candidate, says he would shrink the president's office and work more closely with his ministers. But South Koreans want their institutions to be more responsive, so more change will be needed.

One way to curb the "imperial presidency" would be constitutional reform. At the moment presidents hire and fire prime ministers chiefly in the hope of boosting their own political standing. They have little incentive to heed voters, because ▸▸

only one five-year term is allowed. Most leave office with rock-bottom approval ratings and mired in scandal. To force leaders to pay more attention to the public, South Korea should allow two-term presidencies and give more power to the national assembly. That would require a two-thirds majority of MPs and a national referendum—but it could help mend the rift between citizens and their government.

Political parties need to shape up, too. Four-fifths of South Koreans do not feel that their MP represents them properly. Parties constantly split and coalesce around new presidential candidates. The two main ones have changed their names 14 and ten times respectively since 1948, making it hard for voters to keep up. With a powerful national assembly parties might represent sets of ideas, rather than serve as vehicles for individual ambition. The media could help, too, by holding all politicians more fiercely to account, as they did Ms Park.

The anti-Park protests have allowed long-ignored voices to be heard. Before the vote on impeachment, some 929,000 citizens wrote to their MPs—an unheard-of engagement with politics. A culture of impunity within corporate and political circles is being eroded, too. Lee Jae-yong, the boss of Samsung, the country's biggest conglomerate, is behind bars for allegedly bribing Ms Park. (He denies it.) That is a striking change: his father, who remains Samsung's chairman, was convicted of graft in 2008 but received a presidential pardon.

Outrage at Ms Park has united South Koreans previously divided by ideology. The liberal, dovish Mr Moon has gone out of his way to court conservative and hawkish voters. If he wins, he has a chance to write the next chapter of the South Korean miracle. The rest of the world should wish him well, for South Korea matters. If, one day, the odious northern regime collapses, the South will have to pick up the pieces. ■

Synthetic biology

Breaking free from cells

A new approach could deliver the benefits of nature without the hassle of life

LIVING creatures are jolly useful. Farmers rear animals and then harvest their flesh, eggs and milk for humans to eat. Drug companies genetically engineer animal cells and grow them in vats, so they can churn out drugs to treat disease. There is a catch, however. It is hard work to corral cells and higher organisms to do humans' bidding.

There may be a better way. Cell-free biology, an idea first proposed about a century ago, is at last having its coming-out party. The technique involves extracting the protein-making machinery from living cells. Cell walls, useless molecules and the organism's own DNA are all thrown away. By adding doses of new DNA to the resultant gloop, proteins can then be made to order (see page 64). This month, in California, a 1,000-litre vat of cellular machinery belonging to a company called Sutro Biopharma will start churning out components of a cancer drug, which will go through tests with the Food and Drug Administration, America's medical regulator, next year. It will be the first commercial product made in this way. Other firms are working on similar techniques to produce everything from plastics to pesticides. Cell-free biology could also help those trying to produce artificial meat without relying on animals.

It is still early days, and the commercial viability of these techniques has yet to be proved. Synthetic biology smacks to many of "playing God": regulators will have a big say in how quickly the technology is adopted. But divorcing biological production from living things makes sense, for three reasons.

The first is efficiency. Living organisms are shaped by evolution to survive and reproduce. That wastes energy. Consider insulin, which used to be harvested from pig carcasses, and these days is made in vats of genetically modified yeast or bacteria. Those bacteria (and their porcine predecessors) use valuable nutrients to build a host of other proteins besides insulin which are vital for their own survival but worthless to humans. With cell-free biology, more of those nutrients could be turned into the end-product that is being produced.

Living creatures are also irritatingly fragile. Genetically engineered bacteria can be used, for instance, to make a fuel called isobutenol. But it is a solvent, and kills the bacteria before they can make very much. A cell-free system is more robust. Or consider Genzyme, the maker of Cerezyme and Fabrazyme, drugs for treating rare genetic disorders, which are produced in vats of hamster-ovary cells. In 2009 production was stopped for more than a month after these delicate cells caught a viral disease. That shutdown cost hundreds of millions of dollars. But because cell-free production systems are not alive, they cannot fall ill.

The second benefit of cell-free biology is that it has the potential to avoid some of the social and environmental drawbacks associated with relying on living organisms. Growing corn (maize) as a feedstock to make ethanol occupies land that could otherwise be used for growing food, for example. Livestock farming takes up about a quarter of the planet's ice-free land and contributes to climate change. Generating fuel or food in vats could be an attractive alternative.

A cultural shift

The third reason is ethical. Animals have a capacity for suffering that the cellular machinery from which they are built does not. Modern technology has replaced many natural products with synthetic alternatives. But humans still rely on animals for food, fabrics and a few medicines. Snake farms, crude and expensive, produce antivenom. Factory farming of pigs, chickens and cows has many opponents. Animals' skins and coats, used to make leather and fur, are often the most valuable part of their farmed carcasses. You do not have to be a vegetarian or an animal-rights activist to welcome the possibility of making such products in more humane ways.

There are many pitfalls on the road from the laboratory to mass production. But cell-free biology should be cheered on. Humans will always need the bounty that nature provides, whether in the form of nutrients, drugs or chemicals. But they may not always need living things to produce them. ■

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Letters

Japan's new law on terror

"Nabbing imaginary terrorists" (April 22nd) raised concerns over personal liberty in Japan, including a new law that would punish people who plan to commit terrorism and organised crime. While several criticisms in the article deserve refuting, allow me to focus on the new law.

In 2000, the UN adopted a convention against transnational organised crime which has 187 parties including G7 countries and both Belgium and Sweden, which have recently suffered terrorist attacks. Although Japan signed the convention, the lack of necessary domestic laws prevent us from co-operating with other countries. This law will eliminate those loopholes and enable Japan to contribute towards preventing organised crime and terrorism, which are genuine concerns for us as we prepare to host the Rugby World Cup and Olympic and Paralympic Games.

Regarding civil liberties, the government has carefully drafted the bill to clarify crimes covered under the new law so that groups conducting legitimate activities will not be punished.

NORIO MARUYAMA
Press secretary
Ministry of Foreign Affairs
Tokyo

State freeloaders

Your article on public land in the United States quoted a finding that state trust lands agencies return $14.51 for every dollar spent, compared with 73 cents on every dollar spent by federal forest and land agencies ("Elliott less", April 15th). However, these estimates do not account for the freeriding behaviour of state trust lands.

Departments of agriculture at the state level provide pro bono range-management expertise for grazing lands held by state trust lands. The bulk of wildfire suppression and mitigation costs are incurred by the US Forest Service, regardless of who manages the land. Finally, state trust lands often have a mission of maximising revenue, which stands in contrast to the mandate federal agencies must follow that land has multiple uses.

A better accounting of land-management costs is in order. Any government entity can look profitable if it is allowed to book revenues while pushing its costs onto other agencies.

PROFESSOR PAUL JAKUS
Department of Applied Economics
Utah State University
Logan, Utah

German productivity

Your analysis of the shrinking population in the former East Germany made for a depressing read, but one which myself and many other economists predicted ("Fading echoes", April 15th). The article concluded that productivity in the former East Germany is 20% lower than in West Germany. That is a two-folded example of both a problem and a solution. The problem was that at the time of unification, West German unions forced wage parity on their less productive East German workers, driving unemployment up and migration westward. The warped solution is that as more people leave the country, and providing output remains constant, the likelier it is that productivity levels will finally converge.

WILL PAGE
London

Hit North Korea in the wallet

Jonathan Pollack is right to be sceptical about negotiating with North Korea ("The land of lousy options, April 8th). No one tried harder than Bill Clinton in the 1990s to negotiate a stop to Pyongyang's nuclear-weapons programme. He provided lots of inducements: a light-water reactor to solve the North's power-generation problems, free monthly bunker-oil deliveries, lifting its terrorist designation and ending financial sanctions against the Kims' family bank in Macau. Yet the North's weapons programme continued.

Those limited banking sanctions were the most personal and the most galling to the then leader, Kim Jong Il. That suggests that your proposal of swingeing financial sanctions on the North and on any bank dealing with it will have the most effect. North Korea's backer, China, will hurt. But it would be better to face that problem in Sino-American relations now than later. It would also show China that the United States still retains the clout to do grave damage to China's economy and its vaulting ambitions in the region, even if it is reluctant to face down China's preposterous claims in the South China Sea.

PETER ROWE
Australian ambassador to South and North Korea, 2006-09
Sydney

Mind your language

The real difficulty for e-commerce in India is the language problem ("Delayed delivery", April 6th). Most e-commerce companies primarily use English on their customer interface. Yet none of India's top 20 channels or print titles are in English. E-commerce thus limits itself to 100m people through English rather than the language of 1.2bn potential users. The market for English-speaking Indians is saturated. It is surprising that the investors in these firms never asked the question about using the vernacular. If Flipkart had launched in Russia it would have been given a Russian name and a Russian-language website.

TEJESH SRIVASTAV
Delhi

Knot a problem

While the research into the causes of a shoelace coming undone is undoubtedly a valuable scientific effort, there is a very simple solution that just requires the common sense of a five-year-old (A knotty problem", April 15th). Tie a stopper knot at the end of each lace.

BILL MACRAE
Red Deer, Canada

This research should definitely win an Ig Nobel prize. All you have to do is double-tie the knot and it lasts all day even if you are hiking several miles. Job done.

HILARY POTTS
London

You broached a topic close to my heart. But I think perhaps by focusing on the mechanical-geometric aspects of the shoe-tie-unwind problem, the research team has missed a pragmatic point. It has been my observation in recent years that the cords from headphones are increasingly able to generate knots of Gordian propensity within seconds of being left to their own devices.

I believe the materials scientists already have the answer. Were all shoelaces made from headphone cord, and vice versa, life would be measurably freer from stress.

NICHOLAS WARD
Vienna

Goody goody yum yum

I cannot allow Bagehot's peremptory traducing of "The Goodies" to go unchallenged (April 22nd). Many enjoyed the TV show during the 1970s and the comedy had some topical content. Who can forget the sight of an Icelandic gunboat patrolling the Serpentine in London at the time of the cod wars? I look forward to a balanced analysis of the process of disentanglement from the common fisheries policy.

RICHARD ABLETT
Bridlington, East Yorkshire ■

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Fuel of the future

Information is giving rise to a new economy. How is it shaping up?

AN OIL refinery is an industrial cathedral, a place of power, drama and dark recesses: ornate cracking towers its gothic pinnacles, flaring gas its stained glass, the stench of hydrocarbons its heady incense. Data centres, in contrast, offer a less obvious spectacle: windowless grey buildings that boast no height or ornament, they seem to stretch to infinity.

Yet the two have much in common. For one thing, both are stuffed with pipes. In refineries these collect petrol, propane and other components of crude oil, which have been separated by heat. In big data centres they transport air to cool tens of thousands of computers which extract value—patterns, predictions and other insights—from raw digital information.

Both also fulfil the same role: producing crucial feedstocks for the world economy. Whether cars, plastics or many drugs—without the components of crude, much of modern life would not exist. The distillations of data centres, for their part, power all kinds of online services and, increasingly, the real world as devices become more and more connected.

Data are to this century what oil was to the last one: a driver of growth and change. Flows of data have created new infrastructure, new businesses, new monopolies, new politics and—crucially—new economics. Digital information is unlike any previous resource; it is extracted, refined, valued, bought and sold in different ways. It changes the rules for markets and it demands new approaches from regulators. Many a battle will be fought over who should own, and benefit from, data.

There is an awful lot to scrap over. IDC, a market-research firm, predicts that the "digital universe" (the data created and copied every year) will reach 180 zettabytes (180 followed by 21 zeros) in 2025 (see chart on next page). Pumping it all through a broadband internet connection would take over 450m years. To speed the transfer into its data centres, Amazon, an e-commerce giant with a fast-growing cloud-computing arm, uses trucks pulling shipping containers each packed with storage devices holding 100 petabytes (a mere 15 zeros). To ingest it all, firms are speedily building data refineries. In 2016 Amazon, Alphabet and Microsoft together racked up nearly $32bn in capital expenditure and capital leases, up by 22% from the previous year, according to the *Wall Street Journal*.

The quality of data has changed, too. They are no longer mainly stocks of digital information—databases of names and other well-defined personal data, such as age, sex and income. The new economy is more about analysing rapid real-time flows of often unstructured data: the streams of photos and videos generated by users of social networks, the reams of information produced by commuters on their way to work, the flood of data from hundreds of sensors in a jet engine.

From subway trains and wind turbines to toilet seats and toasters—all sorts of devices are becoming sources of data. The world will bristle with connected sensors, so that people will leave a digital trail wherever they go, even if they are not connected to the internet. As Paul Sonderegger, a big-data strategist at Oracle, a software-maker, puts it: "Data will be the ultimate externality: we will generate them whatever we do."

It is what you know

Most important, the value of data is increasing. Facebook and Google initially used the data they collected from users to target advertising better. But in recent years they have discovered that data can be turned into any number of artificial-intelligence (AI) or "cognitive" services, some of which will generate new sources of revenue. These services include translation, visual recognition and assessing someone's personality by sifting through their writings—all of which can be sold to other firms to use in their own products.

Although signs of the data economy are everywhere, its shape is only now becoming clear. And it would look pretty familiar to J.R. Ewing. There are the data majors, a growing number of wildcatters and plenty of other firms trying to get a piece of the action. All are out to exploit a powerful economic engine called the "data-network effect"—using data to attract more users, who ▸▸

then generate more data, which help to improve services, which attracts more users.

The majors pump from the most bountiful reservoirs. The more users write comments, "like" posts and otherwise engage with Facebook, for example, the more it learns about those users and the better targeted the ads on newsfeeds become. Similarly, the more people search on Google, the better its search results turn out.

These firms are always looking for new wells of information. Facebook gets its users to train some of its algorithms, for instance when they upload and tag pictures of friends. This explains why its computers can now recognise hundreds of millions of people with 98% accuracy. Google's digital butler, called "Assistant", gets better at performing tasks and answering questions the more it is used.

Uber, for its part, is best known for its cheap taxi rides. But if the firm is worth an estimated $68bn, it is in part because it owns the biggest pool of data about supply (drivers) and demand (passengers) for personal transportation. Similarly, for most people Tesla is a maker of fancy electric cars. But its latest models collect mountains of data, which allow the firm to optimise its self-driving algorithms and then update the software accordingly. By the end of last year, the firm had gathered 1.3bn miles-worth of driving data—orders of magnitude more than Waymo, Alphabet's self-driving-car division.

"Data-driven" startups are the wildcatters of the new economy: they prospect for digital oil, extract it and turn it into clever new services, from analysing X-rays and CAT scans to determining where to spray herbicide on a field. Nexar, an Israeli startup, has devised a clever way to use drivers as data sources. Its app turns their smartphones into dashcams that tag footage of their travels via actions they normally perform. If many unexpectedly hit the brake at the same spot on the road, this signals a pothole or another obstacle. As compensation for using Nexar's app, drivers get a free dashcam and services, such as a detailed report if they have an accident. The firm's goal is to offer all sorts of services that help drivers avoid accidents—and for which they, or their insurers, will pay. One such is alerts about potholes or when a car around a blind corner suddenly stops.

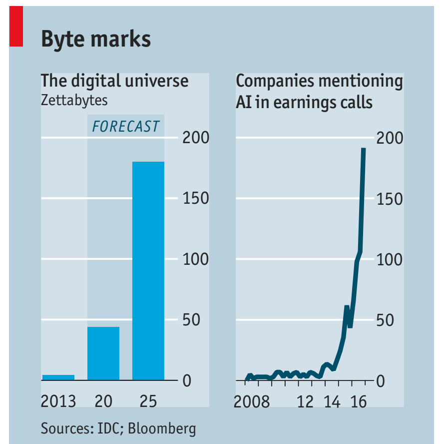
Non-tech firms are trying to sink digital wells, too. GE, for instance, has developed an "operating system for the industrial internet", called Predix, to help customers control their machinery. Predix is also a data-collection system: it pools data from devices it is connected to, mixes these with other data, and then trains algorithms that can help improve the operations of a power plant, when to maintain a jet engine before it breaks down and the like.

As in oil markets, bigger data firms keep taking over smaller ones (see table). But another aspect of the data economy would look strange to dealers in black gold. Oil is the world's most traded commodity by value. Data, by contrast, are hardly traded at all, at least not for money. That is a far cry from what many had in mind when they talked about data as a "new asset class", as the World Economic Forum (WEF), the Davos conference-organiser-cum-think-tank, did in a report published in 2011. The data economy, that term suggests, will consist of thriving markets for bits and bytes. But as it stands, it is mostly a collection of independent silos.

Keep it to yourself

This absence of markets is the result of the same factors that have given rise to firms. All sorts of "transaction costs" on markets—searching for information, negotiating deals, enforcing contracts and so on—make it simpler and more efficient simply to bring these activities in-house. Likewise, it is often more profitable to generate and use data inside a company than to buy and sell them on an open market.

Their abundance notwithstanding, flows of data are not a commodity: each stream of information is different, in terms of timeliness, for example, or how complete it may be. This lack of "fungibility", in economic lingo, makes it difficult for buyers to find a specific set of data and to put a price on it: the value of each sort is hard to compare with other data. There is a disincentive to trade as each side will worry that it is getting the short end of the stick.

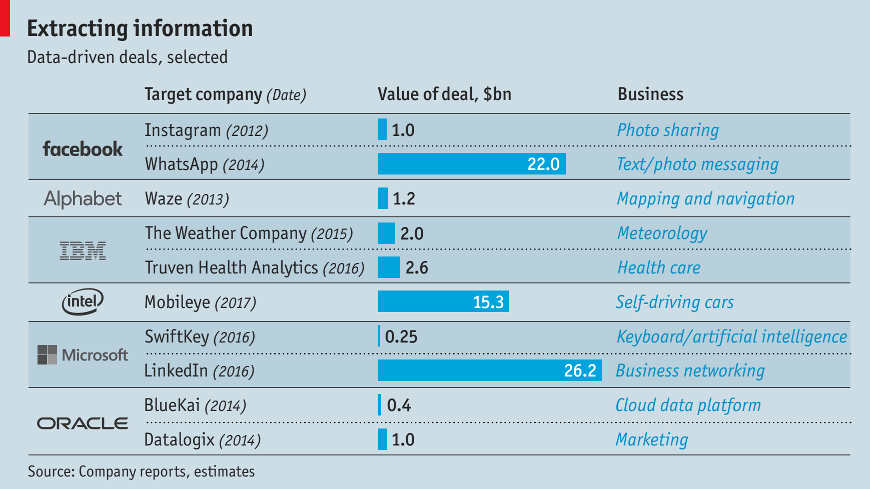


Researchers have only just begun to develop pricing methodologies, something Gartner, a consultancy, calls "infonomics". One of its pioneers, Jim Short of the University of California in San Diego, studies cases where a decision has been made about how much data are worth. One such involves a subsidiary of Caesars Entertainment, a gambling group, that filed for bankruptcy in 2015. Its most valuable asset, at $1bn, was determined to be the data it is said to hold on the 45m customers who had joined the company's customer-loyalty programme over the previous 17 years.

The pricing difficulty is an important reason why one firm might find it simpler to buy another, even if it is mainly interested in data. This was the case in 2015 when IBM reportedly spent $2bn on the Weather Company, to get its hands on mountains of weather data as well as the infrastructure to collect them. Another fudge is barter deals: parts of Britain's National Health Service and DeepMind, Alphabet's AI division, have agreed to swap access to anonymous patient data for medical insights extracted from them.

The fact that digital information, unlike oil, is also "non-rivalrous", meaning that it can be copied and used by more than one person (or algorithm) at a time, creates further complications. It means that data can easily be used for other purposes than those agreed. And it adds to the confusion about who owns data (in the case of an autonomous car, it could be the carmaker, the supplier of the sensors, the passenger and, in time, if self-driving cars become self-owning ones, the vehicle itself).

"Trading data is tedious," says Alexander Linden of Gartner. As a result, data deals are often bilateral and ad hoc. They are not for the fainthearted: data contracts



Extracting information

Data-driven deals, selected

Acquirer	Target company *(Date)*	Value of deal, $bn	Business
facebook	Instagram *(2012)*	1.0	*Photo sharing*
	WhatsApp *(2014)*	22.0	*Text/photo messaging*
Alphabet	Waze *(2013)*	1.2	*Mapping and navigation*
IBM	The Weather Company *(2015)*	2.0	*Meteorology*
	Truven Health Analytics *(2016)*	2.6	*Health care*
intel	Mobileye *(2017)*	15.3	*Self-driving cars*
Microsoft	SwiftKey *(2016)*	0.25	*Keyboard/artificial intelligence*
	LinkedIn *(2016)*	26.2	*Business networking*
ORACLE	BlueKai *(2014)*	0.4	*Cloud data platform*
	Datalogix *(2014)*	1.0	*Marketing*

Source: Company reports, estimates

often run over dozens of pages of dense legalese, with language specifying allowed uses and how data are to be protected. A senior executive of a big bank recently told Mr Linden that he has better things to do than sign off on such documents—even if the data have great value.

In the case of personal data, things are even more tricky. "A regulated national information market could allow personal information to be bought and sold, conferring on the seller the right to determine how much information is divulged," Kenneth Laudon of New York University wrote in an influential article entitled "Markets and Privacy" in 1996. More recently, the WEF proposed the concept of a data bank account. A person's data, it suggested, should "reside in an account where it would be controlled, managed, exchanged and accounted for".

The idea seems elegant, but neither a market nor data accounts have materialised yet. The problem is the opposite to that with corporate data: people give personal data away too readily in return for "free" services. The terms of trade have become the norm almost by accident, says Glen Weyl, an economist at Microsoft Research. After the dotcom bubble burst in the early 2000s, firms badly needed a way to make money. Gathering data for targeted advertising was the quickest fix. Only recently have they realised that data could be turned into any number of AI services.

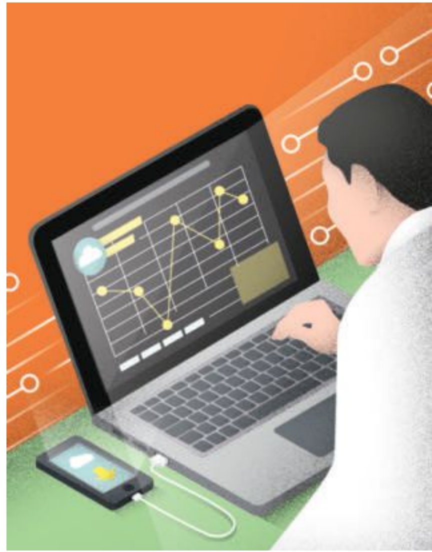
Slave to the algorithm

Whether this makes the trade of data for free services an unfair exchange largely depends on the source of the value of the these services: the data or the algorithms that crunch them? Data, argues Hal Varian, Google's chief economist, exhibit "decreasing returns to scale", meaning that each additional piece of data is somewhat less valuable and at some point collecting more does not add anything. What matters more, he says, is the quality of the algorithms that crunch the data and the talent a firm has hired to develop them. Google's success "is about recipes, not ingredients."

That may have been true in the early days of online search but seems wrong in the brave new world of AI. Algorithms are increasingly self-teaching—the more and the fresher data they are fed, the better. And marginal returns from data may actually go up as applications multiply, says Mr Weyl. After a ride-hailing firm has collected enough data to offer one service—real-time traffic information, say—more data may not add much value. But if it keeps collecting data, at some point it may be able to offer more services, such as route planning.

Such debates, as well as the lack of a thriving trade in data, may be teething problems. It took decades for well-functioning markets for oil to emerge. Ironically, it was Standard Oil, the monopoly created by John D. Rockefeller in the late-19th century, that speeded things up: it helped create the technology and—the firm's name was its programme—the standards that made it possible for the new resource to be traded.

Markets have long existed for personal data that are of high value or easy to standardise. So-called "data brokers" do a swift trade in certain types of data. In other areas, markets, or something akin to them, are starting to develop. Oracle, which dominates the market for corporate databases, for example, is developing what amounts to an exchange for data assets. It wants its customers to trade data, combine them with sets provided by Oracle and extract insights—all in the safe environment of the firm's computing cloud, where it can make sure, among other things, that information is not misused. Cognitive Logic, a startup, has come up with a similar product, but leaves the data in separate IT systems.



Other young firms hope to give consumers more of a stake in their data. Citizenme allows users to pull all their online information together in one place and earn a small fee if they share it with brands. Datacoup, another startup, is selling insights from personal data and passing on part of the proceeds to its users.

So far none of these efforts has really taken off; those focusing on personal data in particular may never do so. By now consumers and online giants are locked in an awkward embrace. People do not know how much their data are worth, nor do they really want to deal with the hassle of managing them, says Alessandro Acquisti of Carnegie Mellon University. But they are also showing symptoms of what is called "learned helplessness": terms and conditions for services are often impenetrable and users have no choice than to accept them (smartphone apps quit immediately if one does not tap on "I agree").

For their part, online firms have become dependent on the drug of free data: they have no interest in fundamentally changing the deal with their users. Paying for data and building expensive systems to track contributions would make data refiners much less profitable.

Data would not be the only important resource which is not widely traded; witness radio spectrum and water rights. But for data this is likely to create inefficiencies, argues Mr Weyl. If digital information lacks a price, valuable data may never be generated. And if data remain stuck in silos, much value may never get extracted. The big data refineries have no monopoly on innovation; other firms may be better placed to find ways to exploit information.

The dearth of data markets will also make it more difficult to solve knotty policy problems. Three stand out: antitrust, privacy and social equality. The most pressing one, arguably, is antitrust—as was the case with oil. In 1911 America's Supreme Court upheld a lower-court ruling to break up Standard Oil, which then controlled around 90% of oil refining in the country.

Some are already calling for a similar break-up of the likes of Google, including Jonathan Taplin of the University of Southern California in his new book "Move Fast and Break Things". But such a radical remedy would not really solve the problem. A break-up would be highly disruptive and slow down innovation. It is likely that a Googlet or a Babyface would quickly become dominant again.

Yet calls for action are growing. The "super-platforms" wield too much power, says Ariel Ezrachi of the University of Oxford, who recently published a book entitled "Virtual Competition" with Maurice Stucke of the University of Tennessee. With many more and fresher data than others, he argues, they can quickly detect competitive threats. Their deep pockets allow them to buy startups that could one day become rivals. They can also manipulate the markets they host by, for example, having their algorithms quickly react so that competitors have no chance of gaining customers by lowering prices (see Free exchange). "The invisible hand is becoming a digital one," says Mr Ezrachi.

Beware the digital hand

At a minimum, trustbusters have to sharpen their tools for the digital age. The European Commission did not block the merger of Facebook and WhatsApp. It argued that although these were operating the two largest text-messaging services, there were plenty of others around and that the deal would also not add to Facebook's data hoard because WhatsApp did not collect much information about its users. But Facebook was buying a firm that it feared might evolve into a serious rival. It had built an alternative "social graph", the network of connections between friends,

which is Facebook's most valuable asset. During the approval process of the merger Facebook had pledged that it would not merge the two user-bases, but started doing so last year, which has led the commission to threaten it with fines.

The frustration with Facebook helps explain why some countries in Europe have already started to upgrade competition laws. In Germany legislation is winding through parliament which would allow the Federal Cartel Office to intervene in cases in which network effects and data assets play a role. The agency has already taken a special interest in the data economy. It has launched an investigation into whether Facebook is abusing its dominant position to impose certain privacy policies. Andreas Mundt, its president, wants to do more: "Can we further optimise our investigation techniques? How can we better integrate dynamic effects into our analyses?"

A good general rule for regulators is to be as inventive as the companies they keep an eye on. In a recent paper Messrs Ezrachi and Stucke proposed that antitrust authorities should operate what they call "tacit collusion incubators". To find out whether pricing algorithms manipulate markets or even collude, regulators should run simulations on their own computers.

Another idea is to promote alternatives to centralised piles of data. Governments could give away more of the data they collect, creating opportunities for smaller firms. They could also support "data co-operatives". In Switzerland a project called Midata collects health data from patients, who can then decide whether they want them to be included in research projects.

Distributing the data

For some crucial classes of data, sharing may even need to be made mandatory. Ben Thompson, who publishes *Stratechery*, a newsletter, recently suggested that dominant social networks should be required to allow access to their social graphs. Instagram, a photo-sharing service which has also been swallowed by Facebook, got off the ground by having new users import the list of their followers from Twitter. "Social networks have long since made this impossible, making it that much more difficult for competitors to arise," Mr Thompson points out.

Mandatory data sharing is not unheard of: Germany requires insurers jointly to maintain a set of statistics, including on car accidents, which smaller firms would not be able to compile on their own. The European Union's new General Data Protection Regulation (GDPR), which will start to apply in May 2018, requires online services to make it easy for customers to transfer their information to other providers and even competitors.

But "data portability", as well as data sharing, highlights the second policy problem: the tension between data markets and privacy. If personal data are traded or shared they are more likely to leak. To reduce this risk, the GDPR strengthens people's control over their data: it requires that firms get explicit consent for how they use data. Fines for violations will be steep: up to 4% of global revenues or €20m ($22m).

Such rules will be hard to enforce in a world in which streams of data are mixed and matched. And there is another tension between tighter data protection and more competition: not only have big companies greater means to comply with pricey privacy regulation, it also allows them to control data more tightly.

In time new technology, which goes beyond simple, easy-to-undo anonymisation, may ease such tensions. Bitmark, another startup, uses the same "blockchain" technology behind bitcoin, a digital currency, to keep track of who has accessed data. But legal innovation will be needed too, says Viktor Mayer-Schönberger of the University of Oxford. He and other data experts argue that not only the collection of data should be regulated but its use. Just as foodmakers are barred from using certain ingredients, online firms could be prohibited from using certain data or using them in such a way that could cause harm to an individual. This, he argues, would shift responsibility toward data collectors and data users who should be held accountable for how they manage data rather than relying on obtaining individual consent.

Such "use-based" regulation would be just as hard to police as the conventional rules of notice and consent which currently govern what data are collected and how they are used. It is also likely to worsen what some see as the third big challenge of the data economy in its current form: that some will benefit far more than others, both socially and geographically.

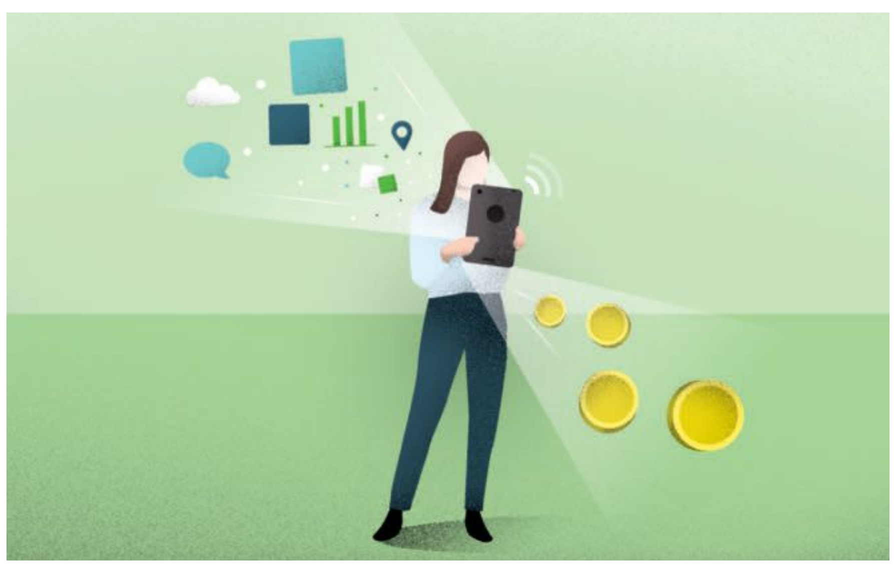
For personal data, at least, the current model seems barely sustainable. As data become more valuable and the data economy grows in importance, data refineries will make all the money. Those who generate the data may balk at an unequal exchange that only sees them getting free services. The first to point this out was Jaron Lanier, who also works for Microsoft Research, in his book "Who Owns the Future?", published in 2014.

Mr Weyl, who collaborates with Mr Lanier and is writing a book about renewing liberal economics with Eric Posner of the University of Chicago, advances another version of this argument: ultimately, AI services are not provided by algorithms but by the people who generate the raw material. "Data is labour," says Mr Weyl, who is working on a system to measure the value of individual data contributions to create a basis for a fairer exchange.

Data workers of the world, unite!

The problem, says Mr Weyl, is getting people to understand that their data have value and that they are due some compensation. "We need some sort of digital labour movement," he says. It will take even more convincing to get the "siren servers", as Mr Lanier calls the data giants, to change their ways, as they benefit handsomely from the status quo.

A more equal geographic distribution of the value extracted from data may be even more difficult to achieve. Currently, most big data refineries are based in America or are controlled by American firms. As the data economy progresses, this also hardly seems sustainable. Past skirmishes between America and Europe over privacy give a taste of things to come. In China draft regulations require firms to store all "critical data" they collect on servers based in the country. Conflicts over control of oil have scarred the world for decades. No one yet worries that wars will be fought over data. But the data economy has the same potential for confrontation. ■



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South Korean politics

Post-Park life

GWANGJU

The political revolution that ousted the president is not complete

ON A balmy Saturday afternoon, crowds cluster around an election van on the busiest shopping street in Gwangju. Jaunty white-gloved women, dressed in the blue of the liberal Minjoo party, have just performed a mincing dance number. Moon Jae-in (pictured), the party's candidate, has come to rally the citizens of the south-western city ten days before the presidential election on May 9th.

The Korean pop music blasted from speakers outside gleaming shopfronts makes the streets pulsate. As recently as 1980, they shook because of the tanks rumbling down them. Paratroopers crushed an uprising in the city against Chun Doo-hwan, who had seized power in a coup after the assassination of Park Chung-hee, another military dictator. Hundreds of Gwangju's citizens were killed.

Seven years later there was another uprising against Mr Chun's rule—this one successful. Millions flooded the streets of Seoul, the capital, and other big cities to protest over the death of a student at the hands of the strongman's torturers. A struggle that had once been the preserve of student activists and labour unions spread to housewives and the "necktie brigade" of salarymen, who came out of their offices to demonstrate. After a crippling war with North Korea and nearly three decades of authoritarian rule, South Koreans at last secured the direct and free presidential election they had been demanding. A country that was already a model of development, having sprouted huge carmaking and shipbuilding industries that were the envy of Asia, was now proving that breakneck industrialisation and democracy could complement each other—an inspiration to political activists everywhere.

Back to the barricades

Thirty years on, dogged South Korean protesters have turned the country's politics upside down once again. Mass demonstrations spurred the National Assembly to impeach the president, Park Geun-hye, paving the way for the impending election. The immediate cause of the protests was Ms Park's abuse of power: she shared state secrets with an old friend and colluded with her to extort money from big companies. But the scandal aroused such passion—several marches in Seoul attracted as many as 1m people—because it seemed emblematic of a broader concern, with parallels all around the world: that the system is rigged in favour of the elite, and that politicians seem incapable of responding to the grievances of ordinary people.

On the face of things, ordinary people have got their way. Politicians at first pooh-poohed the demonstrations. One MP scoffed that the candles the protesters carried could be snuffed out by a gust of wind; in response, the marchers brought electric lights instead. (In Gwangju some resorted to flaming torches.) As the protests grew into the biggest since 1987, politicians began to take notice. In the end, the National Assembly voted to impeach Ms Park by the hefty margin of 234 to 56. Many MPs from her Saenuri party voted against her. The eight justices of the constitutional court unanimously upheld the assembly's decision, even though two of them had been appointed by Ms Park.

Both Ms Park and the friend at the centre of the scandal are now in jail while on trial over it. Lee Jae-yong, the boss of Samsung, South Korea's biggest company, is behind bars too, accused of giving money to organisations controlled by Ms Park's friend in return for government support for a controversial restructuring at the conglomerate. (He denies the charges.) Mr Moon, who has promised to stamp out cronyism, leads the presidential race.

Yet the massive protests were about much more than bringing Ms Park to book. A sense of injustice had been simmering for years. Young South Koreans are deeply anxious. The number of graduates out of a job, or who have given up looking for one, recently exceeded 3.5m out of a total of roughly 14m. An educational rat-race and intense competition for socially respected jobs, concentrated in the biggest conglomerates, makes life for teens and 20-somethings stressful. Long hours and low pay make lesser jobs a grind too.

Young Koreans have for some time been known as the *sam-po* or three-renunciation generation, since they have neither ▸▸

the time nor the resources for dating, marriage or children. More recently the term has evolved to *o-po* (five renunciations, adding housing and skill-building) and even *chil-po* (seven, adding hobbies and hope), as young people complain that they must give up ever more just to earn a living. They have nicknamed the country the "hellish kingdom".

Their disillusion is compounded by the knowledge that those with money and connections can evade the rat-race. In parallel surveys in 44 countries conducted by the Pew Research Centre, a think-tank, South Korea was the only place where the most commonly cited path to success in life was knowing the right people. The friend of Ms Park at the centre of the scandal, Choi Soon-sil, is alleged to have used some of the money she extracted from big companies to pay for her daughter's competitive horse-riding. She is also said to have induced a prestigious university to change its admissions criteria to make skill at dressage a plus, to ensure that her daughter won a place. These claims sent ordinary families undergoing exam hell into a fury. The supposedly equitable admissions process for universities is one of the few ways that South Koreans from humble backgrounds can get ahead.

Ms Park won the presidency in 2012 thanks to older voters who remembered with fondness the regime of her father, Park Chung-hee, South Korea's military dictator from 1961 to 1979. He is credited with initiating the country's dizzying economic ascent: since 1960 its annual GDP per person fattened by a factor of 20, to almost $40,000, after adjusting for inflation and the local cost of living (see chart).

Many in this conservative, older generation view demands for social and political change as a messy, worrying distraction from the existential threat that North Korea continues to pose. But their children, born in the 1960s (and known as the 386ers, after Intel's then-widely-used microchip), balk at the authoritarianism that Park justified on the grounds of national security. They formed their new, liberal ideology in stark opposition to it.

Today South Korea's youth are pushing a third narrative: despite development and democratisation, they feel that they are living in Daehan Mangguk, the Failed State of Korea, a play on South Korea's official name, Daehan Minguk, the Republic of Korea. According to Pew's surveys, 20-something South Koreans are the only youngsters who are more pessimistic about their future income than their parents are on their behalf. Economic growth, after all, has slowed markedly of late. Only two young South Koreans in ten are satisfied with the direction of their country, compared with four in ten of those aged 50 and over—and that despite the fact that rates among the elderly of both poverty and suicide are the highest in the rich world.

Black marks

Ms Park seemed to have no feel whatsoever for the public sense of disillusion. She ruled the country like a queen, isolated from voters. She seldom gave interviews or press conferences, and often holed herself up in the presidential mansion, the Blue House. Her chief-of-staff, Kim Kichoon, was her father's former spy chief. He is now on trial for orchestrating a blacklist under Ms Park of 10,000 artists deemed anti-government or left-leaning. The government withheld funding from exhibitions, films and performances involving anyone on the list.

Another incident that fuelled public ire was the sinking in 2014 of the *Sewol*, a passenger ferry. Hundreds of schoolchildren died because of a botched rescue; the captain was among the first to abandon ship. Ms Park was absent for much of the crisis, and has yet to explain fully her whereabouts that day. The trust of the young in the state's ability to protect them fell from 47% before the accident to 8%, according to a poll conducted four months later.

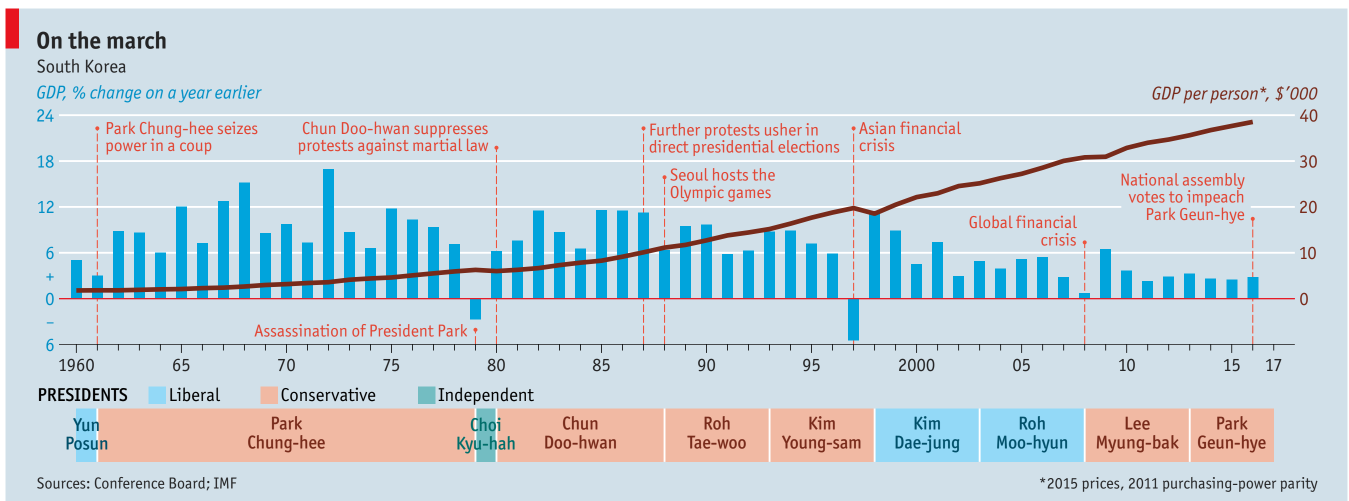
All this has sharpened a sense that the gains of 1987 have not been built on. Kim Soon-heung of the Korea Social Research Centre, a think-tank in Gwangju, says the transformation to a fully fledged democracy has been delayed; compared with the country's breakneck industrialisation, its democratisation has slowed. Many fear a comedown after the heady success of the protests. Some draw parallels with 1987, when a split in the pro-democracy movement allowed another general and former coup leader, Roh Tae-woo, to win the presidency with only 37% of the vote.

Mr Moon is no Mr Roh. Though certainly a familiar face—he narrowly lost to Ms Park in 2012—he has promised voters "regime change" after almost a decade of conservative rule, including the rooting out of elite corruption. He has led national polls for four months, garnering around 40% support in the run-up to the one-round election. Another liberal, Ahn Cheol-soo, a software tycoon who also ran in the previous race, is in second place, with around half Mr Moon's support. The leading conservative, Hong Joon-pyo, has climbed in the polls, but still garners less than 20%.

At Mr Moon's rally in Gwangju, Minjoo activists promised to carry forward the "spirit of May 18th", a reference to the date of Gwangju's uprising in 1980. He has made vague promises about amending the constitution to reduce the powers of the presidency and thus limit the scope for abuses like Ms Park's.

The "imperial presidency" is indeed a problem, says Lee Sook-jong, a professor of public administration at Sungkyunkwan University in Seoul. The ruling party typically dominates all positions within government; the president names the heads of most agencies or has a strong say in their appointment. Yet Ms Lee notes that despite such vast powers, presidents often become lame ducks early on, because they are limited to a single five-year term—a safeguard from 1987 intended to prevent a return to authoritarianism.

Parties, meanwhile, are constantly mu-



Park may be gone but resentment lingers

tating to stay in power. Since the republic was founded in 1948, the main liberal party has changed its name 14 times and splintered 11 times; its conservative counterpart has fared little better, with ten name-swaps and ten fractures. The endless manoeuvring makes it impossible to pursue a concerted legislative agenda—and hard for voters to keep track. Citizens do not feel that their MPs represent them, which is perhaps why they channel their anger at the president. Only 9% trust the legislature; four-fifths say the previous parliament did a bad job, too. Ms Park dismissed the National Assembly as "vegetative".

Others point to a lack of diversity in the media, which are bad at articulating public demands. The mainstream press is dominated by "Cho-joong-dong", a triumvirate of conservative newspapers that toes the state line and self-censors on contentious nationalist issues. All three are controlled by rich families. In its World Press Freedom Index, Reporters without Borders placed South Korea in 70th position last year, below Haiti and Malawi.

Yet signs of change are sprouting. South Koreans were taken by surprise when the most conservative of the three big newspapers, *Chosun Ilbo*, was among the outlets that broke the news of Ms Park's wrongdoings last autumn. In March the ministry of culture said it would put up a bill to guarantee artists' rights and create an independent watchdog. It will provide 8.5bn won ($7.5m) to revive projects starved of funding because of the blacklist.

Mr Moon, too, has been doing his bit to defy expectations. To many, he represents the old-school dovish liberalism of those who fought for democracy in the 1980s; as he spoke in Gwangju, a huge banner was unfurled above the crowd with pictures of two crusading liberal presidents, Roh Moo-hyun and Kim Dae-jung, whose legacy he promises to uphold. But he also says he wants to win the election not just in his party's stronghold around Gwangju, but in the conservative heartlands of the southeast as well, where he officially launched his campaign. He has made much of his military service, and abandoned his most dovish stances regarding North Korea, to appeal to nervous hawkish voters.

South Koreans, meanwhile, are growing more comfortable with speaking out. In the 1980s many parents discouraged their children from joining anti-government demonstrations, which often turned violent, leading to mass arrests. This time they went together, sometimes with grandparents in tow. Protesters handed flowers to riot police. Crowds sang along to celebrity performances, snacking from food stalls set up for the occasion. Jeong Moon-young of The May 18 Memorial Foundation, an NGO in Gwangju, says that young people want to have fun while demanding change.

In a country with such stark generational splits, Mr Jeong says the protests against Ms Park should be celebrated as a rare "meeting of memory and ages". On the weekend of Mr Moon's rally, a group of young South Koreans gathered on the other side of Gwangju, at Chonnam University, where the protests of 1980 began. They were commemorating Park Seung-hee, a former student. She set herself on fire in 1991 to challenge continuing police violence under President Roh. But no tears were shed; instead, students staged a play in which her stand inspired a modern-day student to join the protests against Ms Park. An audience of classmates and parents cheered the newly minted protester on. ■

Japanese politics

On the offensive

TOKYO

Shinzo Abe sets a deadline for revising the constitution

ALL this week, crowds have been waiting in hushed lines to view a yellowing document on display at the National Archives in Tokyo. For many, Japan's war-renouncing constitution, written by an occupying army during a few sweltering days in 1946, is something of a sacred text. But Japan's prime minister, Shinzo Abe, has made little secret of his desire to amend it. He chose the 70th anniversary of its entry into force, on May 3rd, to announce that he would try to secure changes to it by 2020, when Tokyo hosts the Olympics. That will require the approval of both houses of the Diet, along with popular assent through a referendum. The inevitably contentious debate will consume a huge amount of political energy over the next three years, possibly at the expense of Mr Abe's already flagging economic reforms.

Mr Abe wants to end questions about the legality and appropriate use of Japan's not-quite army, the Self-Defence Forces (SDF), by amending Article 9, the constitution's iconic pacifist clause. This prohibits Japan from maintaining land, sea or air forces, which sits a little awkwardly with the SDF's 250,000-odd servicemen, 1,600 aircraft and a fleet boasting four large helicopter-carriers. It also leads to endless debates about whether it is legitimate for Japan to participate in international peacekeeping missions, for example.

Just don't call it an army

Many in Mr Abe's Liberal Democratic Party (LDP) have long viewed Article 9 as a humiliation, imposed by the victorious Americans. After all, says Keiji Furuya, a politician, the party was born in 1955 with the explicit aim of amending the constitution. Mr Abe's grandfather, Nobusuke Kishi, tried hard to revise it while he was prime minister in the 1950s. (He failed.)

Mr Abe has started his campaign on a forceful note. "Those members of the public who think of the constitution as an immortal tome are now a small minority," he told his supporters. He has some reason to be confident: his ruling coalition has a hefty parliamentary majority and, with the help of like-minded parties, commands two-thirds of both houses—the required strength needed to call a referendum. North Korea's frequent missile tests are helping to make his case for him.

Yet there is ample room for miscalculation. A new poll by NHK, Japan's state broadcaster, finds that just 25% of the public want Article 9 rewritten, with 57% opposed. Support for constitutional change peaked over a decade ago; young people, in particular, have grown wary of foreign entanglements, says Eiji Oguma, a sociologist. Mr Abe himself concedes that the economy is a bigger concern for most voters. By pursuing unfinished family business too eagerly, he may end up delaying its completion yet again. ■

Timor-Leste

Wake up and sell the coffee

DILI

A young republic risks running out of money. Its big-spending leaders are to blame

COFFEE trees loom over a village in the hills above Dili, the capital of Timor-Leste. Though their fruit has provided income for decades, Alarico Soares De Cruz, the local headman, says the pickings are gradually growing slimmer. Some of the trees are 40 years old, he explains, and ought to be pruned or completely replanted. But doing so would mean sacrificing the next couple of harvests, and no one is eager for that.

This month marks 15 years since Timor-Leste—a former Portuguese colony, once known as East Timor—regained its independence after a quarter-century of oppressive Indonesian rule. In that time its leaders have stitched together a relatively stable democracy and brought electricity to its remote hamlets. But they have struggled to reduce widespread poverty among the 1m-odd Timorese, or to revive ailing farms. With reserves of oil and gas dwindling, the government is ploughing the country's savings into grand development schemes. But some fear they could lead to ruin. A general election in July provides a chance to change direction, but voters seem unlikely to seize it.

Timor-Leste has pocketed more than $18bn from Bayu-Undan, its biggest oil and gas field, since its first wells were sunk in 2004. But this income looks set to vanish entirely by 2023, as the field runs dry (see chart on next page). Although a sovereign-wealth fund worth around $16bn will provide a cushion, the government has been dipping deep into this capital lately to fund investments. Last year La'o Hamutuk, a dogged local think-tank, warned that at present spending rates the cash pile could evaporate within ten years.

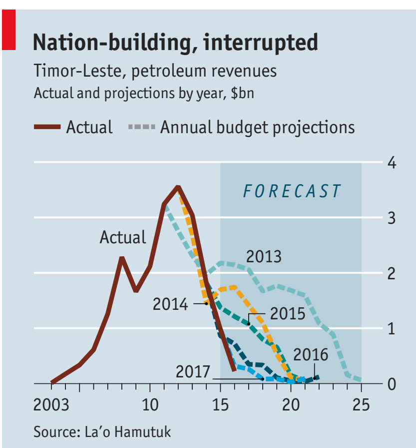
A handful of industries could sustain Timor in the lean years ahead. The most obvious is agriculture. The coffee business provides some income to about a third of all households; coffee is the country's only significant export apart from oil. Yet the government reckons that around a third of the country's coffee trees are unproductive, withered by age and neglect; others yield only a fraction of what should be achievable. Coffee farmers are producing only about a quarter of the quantities that were shipped during the industry's colonial heyday.

Another opportunity is to draw in more tourists. A survey published in 2014 by the Asia Foundation, a charity, found that foreigners—mostly diplomats, development workers and their guests—were spending about as much on leisure as the country was earning from exporting its coffee. Timor has pristine reefs, unspoilt hillsides and a compelling national story. Peeling away even a tiny fraction of the 4m holidaymakers who visit nearby Bali each year could make a big difference to the country's fortunes.

The government is trying to foster both industries. After some missteps Timor's tourism ministry has cooked up a natty logo and a flashy website. International outfits such as the Asian Development Bank are working to help boost coffee production; some Timorese beans are sold in Starbucks. Fernando Santana of the agriculture ministry says it plans to use a mixture of education and incentives to help farmers rejuvenate some 500 hectares of coffee plants this year.

The problem is that the government is devoting more time and money to a few risky mega-projects than to these worthy but dull schemes. A new port, the country's first public-private partnership, is being built west of Dili. It may gradually cheapen imports but will not immediately boost Timor's home-grown industries. A bigger concern is whether the government will see a return on the hundreds of millions of dollars it is ploughing into a special economic zone (SEZ) in Oecusse, an exclave tucked into the Indonesian half of the island of Timor, for which the business plan remains worryingly vague.

Perhaps the most alarming expense is a corridor of oil refining and exporting facilities being planned just as Timor's reserves are running dry. Spread along the coun-



try's south coast—perhaps for no other reason than to give several places a share in the supposed income—these installations are to be connected by a gleaming and costly new motorway which will bypass existing towns and villages.

The idea is that this new complex will be used, in part, to process the output of Greater Sunrise, a gas field found in contested waters south of Timor which has lain untapped since its discovery in the 1970s. The Timorese government claims that a treaty in 2006, in which it agreed to split the field's revenues equally with Australia, is unfair; after a lengthy standoff, the two countries agreed in January to renegotiate it. But piping the field's bounty to new plants in Timor is likely to be vastly more expensive than using existing Australian infrastructure. And even if Timor-Leste gets most of what it wants from the negotiations, the revenue from Greater Sunrise will only delay the economic reckoning by a few years.

It's not the economy, stupid!

These issues played only a minor role during campaigning for the presidential election, which was held in March. Since 2015 Timor has been run by a coalition comprising its two largest parties, Fretilin and CNRT. The candidate they backed, Francisco Guterres, won easily enough to avoid a second round. Though the media are free and fairly diverse, Timor's poorly educated voters have little grounding in economic matters and broad faith in a generation of leaders seen to have delivered the country from Indonesian occupation. Having witnessed violence as recently as 2006, when competing political factions engaged in lethal skirmishes, Timorese are generally happy that the bigwigs appear to be getting along.

The worry is that this apathy will last beyond parliamentary elections in July, leaving Timor-Leste bereft of meaningful opposition at a critical juncture. Some useful friction could perhaps come from a new party led by Taur Matan Ruak, the outgoing president who, towards the end of his time in office, began to question the government's schemes. The poll in March produced one surprise: voters in Oecusse, site of the woolly but expensive SEZ, chose not to back the government's man. But although these may be indications of an eventual realignment, the chance of an upset in the near term looks small.

Old hands in Dili remain hopeful that Timor's leaders can find a face-saving way to change course. A foreign businessman says that so far this year ministers have been preoccupied with campaigning; in a few months that will change. It is a good sign that Timorese granted scholarships to study abroad are generally choosing to come back home to work. Half of Timorese are under 17 years old, and they will eventually need jobs. As scores of women gather for noisy aerobics classes on Dili's waterfront—their backs turned to a rosy twilight—the unrest of the past seems a distant memory. But if the economy crashes, it could easily return. ■

Food in Pakistan

Stepping up to the plate

LAHORE

One province is beginning to take food safety seriously. Will it last?

SOMETHING catches the eye on Anarkali Food Street in Lahore, the capital of Punjab province. Bakers are pulling nan bread out of a tandoor oven, just as they did when the 200-year-old bazaar was founded. One detail, however, is strikingly contemporary: synthetic paper hairnets, in a vivid shade of green. "We are worried about the food inspector," explains Muhammad Aslam, as he wraps dough around a stone.

The feared scrutineers belong to the Punjab Food Authority (PFA), the first agency of its kind in Pakistan. Founded in 2011, it has its work cut out: some restaurants use rancid cooking oil, keep raw chicken on the floor or try to pass off donkey as beef. Such a scandal is the state of hygiene in Pakistan's restaurants that television shows about crime often feature exposés of particularly abhorrent eateries, using jerky footage from handheld cameras.

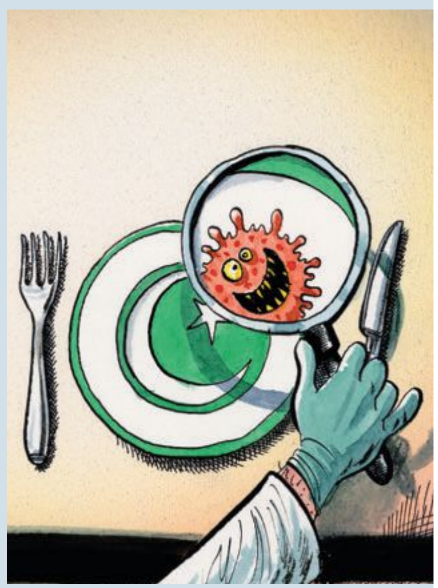
The PFA's new chief, Noorul Amin Mengal, says it cannot hope to keep tabs on all Punjab's food outlets. On April 17th he proposed that restaurant customers conduct their own food inspections, using a smartphone app produced by the PFA. But restaurants will be hostile to such intrusion: most of them do not welcome visitors to their kitchens. Your correspondent asked to enter several in Lahore, in both down-at-heel establishments and ritzy ones, and was barred each time.

Pakistan's government, however, is keen on food inspections. In the past two months it has approved an expansion of the PFA's operations from cities to rural areas, and signed off on the creation of equivalent agencies in the province of Sindh and in Islamabad, the capital.

A fomer PFA official, Ayesha Mumtaz, made it wildly popular. In just over a year at the agency, she ordered almost 3,000 restaurants to close until they had made improvements, and arrested close to 400 people for selling dodgy fare. She transformed the food culture of Lahore, says Yasmin Khan, a restaurant-owner. Lookalikes of the so-called "fearless lady" used to send the kebab-hawkers on Anarkali Food Street running for cover.

Mrs Mumtaz has 61,000 fans on Facebook; the central-government minister responsible for food safety has barely 4,000. But she made enemies in the food business and among politicians connected with it. She was removed from her post in October, after allegations of corruption involving her driver surfaced. Since then, Lahoris say, there has been a lull in inspections.

The fear Mrs Mumtaz inspired still keeps some food-sellers on their toes. "If Ayesha Mumtaz wasn't so strict, I wouldn't be wearing this glove," says a cupcake-salesman who had not realised that she had been replaced. But as temperatures rise and inspections wane, others are already abandoning their bothersome hygienic garb.



Banyan | Back from the dead

Who needs 12 members to make a team? A big trade deal may go ahead without America

WHEN, three days after his inauguration, Donald Trump pulled America out of the Trans-Pacific Partnership (TPP), a 12-country free-trade deal that his predecessor, Barack Obama, wanted to be his legacy in Asia, it was the fulfilment of a campaign promise. "Great thing for the American worker, what we just did," he said, as he signed away new markets for American carmakers, farmers and drugs companies, along with the prospect of over 100,000 new American jobs.

Among the other 11 members, the shock was not just over the new president's hostility to America's historical role as promoter of an open, rules-based trading order, of which the Asia-Pacific region has been the greatest beneficiary. Without the United States, which accounted for three-fifths of the bloc's combined GDP, TPP was, in the words of the Japanese prime minister, Shinzo Abe, "meaningless". After all the sweat and political capital expended in crafting the agreement, which was signed in late 2015 but which only Japan has ratified, TPP was, nearly everyone agreed, now fit only to be buried.

Revival meeting

What a difference three months make. This week in Toronto, the surviving members—Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam—met to discuss how to move the partnership forward without America. At the end of May, they will meet again for a more substantive gathering in Hanoi. There, bet on TPP confounding the undertakers and rising from the dead.

That may seem strange. After all, although Mr Trump convinced himself that TPP was lousy for America, it was the other members who had to make most of the "concessions" in terms of opening markets. They did so because the American market is a huge prize. (Their own tariffs are bad for consumers, too, but this never seems to matter politically.) Some, including Japan, also saw TPP as a mark of America's strategic commitment to the region in the face of a rising China. So they promised to lower barriers, open their service industries to investment and competition, strengthen patent protection and tighten environmental standards. It really was, as its boosters said, a "gold-standard" deal.

Yet Deborah Elms of the Asian Trade Centre, a trade-advisory group in Singapore, says the remaining 11 members' gains from TPP would still be large even without America (as are the forgone gains for America in several sectors including food and services). The gains apply even to the poorest member, Vietnam, whose garment and footwear industries, underpinned by cheap labour, would benefit from access to the markets of the other rich members. For instance, Ms Elms points out, Australia has a 9.5% tariff on swimwear. Assuming every beach-lover owns three or four costumes, Australia alone represents a big potential market for Vietnamese bikinis and budgie-smugglers. Some aspects of implementing an agreement without America might even prove easier. One example: communist Vietnam was forced to agree to a "side letter" with America insisting on higher labour standards, including allowing verifiably independent trade unions. After America's withdrawal, this uncomfortable obligation falls away.

Yet most countries have been shy about being seen to take the lead in reviving the TPP—with all respect to tiny New Zealand, always an unabashed champion of open trade. For several members, including Singapore, Malaysia and Vietnam, a chief concern is for a revived club not to be seen as an affront to China. For Japan, in contrast, that is precisely the point—though it will never admit it in public. Its bigger concern, given its reliance on American security, is not to be seen as anti-Trump.

Here, Mr Abe's tour of the golf courses at Mar-a-Lago with the American president in February paid dividends. Their joint statement afterwards referred to Japan "continuing to advance regional progress on the basis of existing initiatives". In other words, Mr Trump gave his blessing for Japan to try to keep TPP going. The Hanoi gathering is a Japanese initiative. Most other members, once reassured that a revived TPP will be structured as neither anti-China nor anti-Trump, seem ready to follow.

Another set of multilateral negotiations is under way to liberalise trade in Asia: the Regional Comprehensive Economic Partnership, or RCEP. Some mistakenly call it a China-led initiative, and are suspicious of it as a consequence. In fact, as Bilahari Kausikan, a Singaporean ambassador-at-large, underlines, it is led by the ten-member Association of Southeast Asian Nations (ASEAN) and is intended to meld existing free-trade agreements that ASEAN has with six other countries. One of the countries is indeed China. But four others—Japan, South Korea, Australia and New Zealand—are American allies, while the sixth, India, as Mr Kausikan puts it, is "hardly a Chinese stooge".

Others think there is scope for TPP and RCEP to come closer or even merge, given their seven shared members. But RCEP is far from a gold standard. TPP would open up all services to all members. RCEP negotiations, by contrast, take place at a snail's pace, from a low base. It was seen as a breakthrough, Ms Elms points out, when ASEAN's members agreed among themselves to allow foreign competition in the market for food deliveries by bicycle.

Meanwhile, much needs to be done before TPP rises again. Not least, the surviving team of 11 needs to find a form of words to deal with the fact that the agreement of 2015 speaks of 12 members. A provisional fix ought to be possible, however. And for some, one incentive is the hope that a future administration in Washington, aware of the damage Mr Trump's withdrawal has done to American credibility, will interest itself again in Asian trade. For now, as the 11 prepare to give it a go, they can console themselves with the thought that had it not been for American pressure during the original negotiations, there would be no agreement to revive now. ■

Also in this section

25 Repression in Xinjiang

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The new silk route (1)

All aboard the belt-and-road express

BEIJING

Xi Jinping is preparing to host a gathering of world leaders to discuss his most ambitious foreign policy. The first of two articles examines resistance to the scheme

ON APRIL 10th a freight train pulled out of Barking station in London carrying Scotch whisky, baby milk and engineering equipment. It arrived in Yiwu in eastern China (see map) nearly three weeks later, completing the second-longest round-trip train journey ever made (after Yiwu to Madrid and back, a record set in 2014). It lopped around a month off the time of a sea journey from Britain to China.

A day after the train's departure, a less ballyhooed but potentially more significant event took place in the port of Kyaukphyu in Myanmar. Workers started transferring oil from a tanker into a new pipeline that runs from the Burmese port north to Kunming, the capital of Yunnan province in south-western China. The pipeline bypasses the Malacca Strait, through which 80% of Chinese oil imports are shipped. Eventually, energy supplies to Chongqing, the largest city in the west of China, will no longer be vulnerable to political disruption in the strait.

Both events show that Xi Jinping's "Belt and Road Initiative", a central feature of the Chinese president's foreign policy, is establishing what generals like to call facts on the ground. By financing around $150bn of infrastructure spending a year in countries to China's south and west (along the old Silk Road), Mr Xi hopes to create new markets for Chinese firms and new spheres of influence for his government.

The president is preparing to host a lavish party in Beijing to celebrate the project—the Belt and Road Forum, as the event is known. On May 14th and 15th leaders from 28 or so countries will join the festivities, including Russia's Vladimir Putin and Myanmar's de facto leader, Aung San Suu Kyi. Mr Xi will use the gathering to project his country's self-confidence and his own as a global leader. But looks can deceive. In reality, Mr Xi faces a backlash against his project. At the forum, he will try to reassure his partners that he is not attempting to stuff their mouths with gold.

Not so fast

The scheme is running into three linked problems. First, it is unclear what its priorities are, or who is running it. "We haven't really come up with a specific goal," says Zou Tongxuan of Beijing International Studies University. Every province has its own belt-and-road investment plan. So do hundreds of state-owned firms. The government's strong backing has helped to get many projects up and running faster than might have happened otherwise (Mr Xi first began to talk about the idea only in 2013). But no one is in day-to-day charge, so thousands of financially dubious schemes have the imprimatur of a belt-and-road project. And the overweening behaviour of Chinese companies in some countries where they operate has stoked fears in some places of an over-mighty China.

The different names given to the project reflect China's struggle to make it sound palatable to foreigners. Mr Xi first talked about a "Silk Road economic belt". That was uncontroversial, but to expand its geographical scope a new term was devised: *Yidai Yilu*, or One [land] Belt, One [maritime] Road. That sounded ugly in English and, officials realised, risked implying that it was all about a big Chinese plan: they wanted the venture to be seen as a co-operative one. So they came up with the anodyne-sounding belt-and-road translation (despite the unfortunate acronym it produces for the forum: BARF).

A second problem is finding enough profitable projects to match the vaulting ambition of the scheme, which aims to create a Eurasian trading bloc rivalling the American-dominated transatlantic area. It is not certain, for example, how successful the London-Yiwu rail line will be, given that (though faster) it is more than twice as costly as shipping. The Chinese hope to export their expertise in building high-speed rail. But China's speedy construction of thousands of kilometres of it at home depended on cheap labour and the power to evict anyone who got in the way. That may be hard to replicate.

Belt-and-road projects are failing already. In Kara-Balta in Kyrgyzstan, Zhongda China Petrol, a state-owned company, built a big oil refinery—then found it could not buy enough crude oil to run it at more than 6% of capacity. The country's deputy prime minister called the plant's construction "ridiculous"; locals are protesting against its environmental impact.

China hopes the belt and road will bring others into its orbit, including Af- ▸▸

Correction: In our story last week about Guo Wengui, a tycoon ("Fox and hounds"), we incorrectly stated that his name was the most searched-for term on Weibo. It is the most searched-for term on Freeweibo.

ghanistan, Pakistan, Iraq, Syria and Ukraine. But these countries are not exactly champions in the World Bank's ease-of-doing-business league. According to Tom Miller of Gavekal, a consultancy, the Chinese think they will lose 80% of their money in Pakistan, 50% in Myanmar and 30% in Central Asia. Perhaps they can afford this, but it would be a costly success.

Third, locals in some countries are angry about what they view as China's heavy-handedness. In parts of Asia, democratic politics have been challenging China's commonly used approach to deal-making—cosying up to unsavoury regimes. This had begun before Mr Xi devised the belt-and-road scheme. In 2011 Myanmar suspended work on a vast Chinese-financed dam at Myitsone, to popular acclaim. In Sri Lanka, the government elected in 2015 has been engaged in endless wrangling with China over the building of a Chinese-invested port in the home town of the country's autocratic former president. In January protests against China's plans there turned violent.

Even in Pakistan, one of China's closest friends in Asia, Mr Xi has been forced to abandon his usual mantra of "non-interference" in others' internal affairs. Late last year China openly appealed to Pakistan's opposition politicians not to resist construction of the China-Pakistan Economic Corridor, a part of the belt that links Xinjiang, China's westernmost province, with Gwadar on the Indian Ocean. Pakistan deploys a force of around 10,000 soldiers to guard the corridor against militant attacks.

The problem is partly one of scale: China is so vast that belt-and-road countries fear being overwhelmed by it. Loans from one bank, China Eximbank, for example, account for a third of Kyrgyzstan's foreign debt. Yunnan is one of China's poorer provinces. Yet its economy is still four times bigger than that of its more populous neighbour, Myanmar. Countries both long for and dread Chinese investment.

China is trying to change its ways. NGOs in South-East Asia say that Chinese firms, which had previously treated local critics with disdain, have started to take their concerns more seriously. Chinese banks are asking international institutions—sovereign-wealth funds, pension funds and so on—to join them in lending to belt-and-road projects, in the hope that this will help ensure higher standards. At the forthcoming forum, China is likely to emphasise links between the belt-and-road programme and other infrastructure projects that have been launched independently of it, such as a new transport network around Baku in Azerbaijan. The aim will be to show that Mr Xi's project is not a threat. But this will be another minor adjustment of wording. The belt-and-road express has left the station. China is merely trying to improve the on-board service. ■

The new silk route (2)

One belt, one roadblock

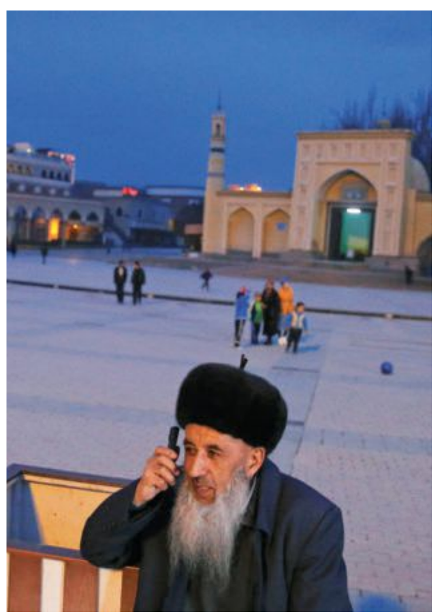
BEIJING

Humiliating Muslims will not help China build a new silk road

CHINESE officials describe the far western province of Xinjiang as a "core area" in the vast swathe of territory covered by the country's grandiose "Belt and Road Initiative" to boost economic ties with Central Asia and regions beyond. They hope that wealth generated by the scheme will help to make Xinjiang more stable—for years it has been plagued by separatist violence which China says is being fed by global jihadism. But the authorities are not waiting. In recent months they have intensified their efforts to stifle the Islamic identity of Xinjiang's ethnic Uighurs, fearful that any public display of their religious belief could morph into militancy.

Xinjiang's 10m Uighurs (nearly half of its population) have long been used to heavy-handed curbs: a ban on unauthorised pilgrimages to Mecca, orders to students not to fast during Ramadan, tough restrictions on Islamic garb (women with face-covering veils are sometimes not allowed on buses), no entry to many mosques for people under 18, and so on.

But since he took over last August as Xinjiang's Communist Party chief, Chen Quanguo has launched even harsher measures—pleased, apparently, by his crushing of dissent in Tibet where he previously served as leader. As in Tibet, many Xinjiang residents have been told to hand their passports to police and seek permission to travel abroad. In one part of Xinjiang all vehicles have been ordered to install satellite tracking-devices. There have been several shows of what officials call "thunderous power", involving thousands of paramilitary troops parading through streets.



Nothing abnormal

Last month, new rules came into effect that banned "abnormal" beards (such as the one worn by the man pictured in front of the main mosque in Kashgar in southwestern Xinjiang). They also called on transport workers to report women wearing face veils or full-body coverings to the police, and prohibited "naming of children to exaggerate religious fervour". A leaked list of banned names includes Muhammad, Mecca and Saddam. Parents may not be able to obtain vital household-registration papers for children with unapproved names, meaning they could be denied free schooling and health care.

Residents have also been asked to spy on each other. In Urumqi, the region's capital, locals can report security threats via a new mobile app. People living in Altay in northern Xinjiang have been promised rewards of up to 5m yuan ($720,000) for tip-offs that help capture militants—over 200 times the local income per person.

Across Xinjiang residents have been asked to inform the authorities of any religious activities, including weddings and circumcisions. The government is also testing its own people's loyalty. In March an official in Hotan in southern Xinjiang was demoted for "timidity" in "fighting against religious extremism" because he chose not to smoke in front of a group of mullahs.

Mr Chen is widely rumoured to be a contender for a seat in the ruling Politburo in a reshuffle due late this year. Displays of toughness may help to ingratiate him with China's president, Xi Jinping, who has called for "a great wall of iron" to safeguard Xinjiang. Spending on security in Xinjiang was nearly 20% higher in 2016 than the year before. Adverts for security-related jobs there increased more than threefold last year, reckon James Leibold of La Trobe University and Adrian Zenz of the European School of Culture and Theology at Korntal, Germany.

Uighurs have been blamed for several recent attacks in Xinjiang. In one of them in February, in the southern prefecture of Hotan, three knife-wielding men killed five people and injured several others before being shot dead by police (local reports suggested the violence occurred after a Uighur family was punished for holding a prayer session at home). Officials may be congratulating themselves on the success of their tactics; reported large-scale attacks by Uighurs inside and outside Xinjiang have abated in the past 18 months. Yet as in Tibet, intrusive surveillance and curbs on cultural expression have fuelled people's desperation. "A community is like a fruit," says a Uighur driver from Kashgar. "Squash it too hard and it will burst." ■

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Health care

Political self-amputation

In trying to revive health-care reform, Republicans are causing themselves great political pain

THROUGH the troubled seven-year history of the Affordable Care Act, Barack Obama's health-care law, most Americans have agreed on one thing. They like the provision which ensures that people with pre-existing medical conditions can buy health insurance at the same price as everyone else. Even when more than half of Americans disapproved of "Obamacare", more than four in five supported this bit of it. That simple political fact explains why the latest Republican attempt to rewrite the health-care law, which seemed likely to come to a vote in the House of Representatives soon after *The Economist* went to press, is probably doomed.

When the Republicans who control the House tried to reform Obamacare in March, their bill did not even make it to a vote. The fatal blow was struck by the Freedom Caucus, a group of deeply conservative legislators, who thought the bill left too much of Obamacare intact. In particular it changed, rather than abolished, subsidies for those buying health insurance for themselves (instead of getting it from an employer, as most Americans do). Obamacare's subsidies are targeted at low- and middle-earners. The Republican plan, by contrast, offered help to everyone; its universal tax credits varied only with age. Hardline conservatives recoiled at a "new entitlement programme".

This time round, the Freedom Caucus is on board. The universal tax credits remain in the bill, with the result that many low-earners, particularly the old, would see their bills soar if it passes (see chart). Critics have instead been placated by a change that gives states more freedom to regulate insurance markets as they see fit. For example, they could shorten the list of "essential benefits" that insurers must cover without ever limiting the amount they pay out.

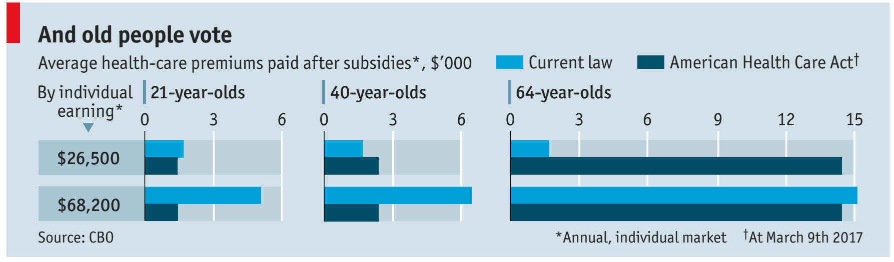
States could also gut protections for those with pre-existing conditions. To do so, they would need to promise to provide some other safety net. For example, they could create a "high-risk pool", in which the sick could buy coverage that is directly subsidised (yet probably more expensive). Such mechanisms have been woefully underfunded in the past. In 2011 Florida's high-risk pool contained only 200 people.

Paul Ryan, the Speaker of the House, says that no insurer could turn customers away because of their health. In a strict sense, then, the rule remains intact. Yet states could allow insurers to charge the sick prohibitively high prices, and the healthy attractively low ones, when selling to those who had failed to maintain coverage in the past. Discouraging people from waiting until they fall ill before they buy insurance is not a bad idea. But this provision could unravel the market, argues Matthew Fiedler of the Brookings Institution, a think-tank. Healthy people would be keen to have their fitness taken into account when shopping for a plan. So they might let their coverage lapse to escape the communal pool of buyers. With healthy people siphoning themselves off, premiums for the sick would soar.

Such loopholes can be closed. Yet they demonstrate the fragility of insurance markets, in which details matter enormously. Another problem is that Republicans hope eventually to allow sales of insurance across state lines to increase competition. If healthy people across the country can buy insurance from whichever state makes it easiest to charge them lower prices, insurers in more regulated states will be left with only sick customers.

The threat to health care for the vulnerable has stoked opposition among moderate Republicans. Even congressmen who tried to repeal Obamacare when its author was still in office, such as Fred Upton of Michigan, have wavered. Mr Upton said that he could not support the bill without more protection for those with pre-existing conditions, only to change his mind after a little more money was forthcoming.

If the reform bill scrapes through the ▸▸



House, its prospects in the Senate (which is also, barely, controlled by Republicans) look dubious. That was true even before the latest amendment, because the bill would pare back Medicaid—health insurance for the poor. Obamacare expanded Medicaid in compliant states. Unwinding this policy accounts for more than half of the 24m rise in the ranks of the uninsured that was projected to occur by 2026 under the original version of the bill. Republican senators from states which expanded Medicaid will not want to deprive their constituents of health insurance.

If, as seems likely, the health-care bill is rewritten by the Senate, conservatives in the House may abandon ship yet again. Republicans will have voted against a popular policy, to no end. It is the political equivalent of bloodletting. ■

Innovative cities

Night time turned into day

TULSA

How a city copes when a state is almost broke

DAN ZIELINSKI, director of the planetarium at Jenks High School in Oklahoma, whizzes through his greatest hits. First he projects onto its dome a 3D image of a human heart; next comes the Sistine Chapel, then the solar system. The planetarium is an impressive asset for a high school, as is its aquatic centre, with an Olympic-size pool and grandstand seating. But there is a hitch, says Bonnie Rogers of Jenks Public Schools: filling the new buildings with teachers is much harder than erecting them.

At once bountiful and hard-pressed, the school district covers a well-heeled suburb of Tulsa and spans the Arkansas river to take in part of the city proper. The financial paradox has a simple explanation. The shiny facilities were paid for by municipal bonds, but teachers are financed by the state, and similar top-ups for their salaries are not allowed. In Oklahoma, state education funding has withered: since the crash of 2008 spending per pupil has been slashed by 27% in real terms, the biggest fall in America. Some districts run only four days of classes a week. Teachers earn much more across the border in Texas. The area is an extreme case of a wider trend, in which cities and their residents find ways to cope with miserly state governments.

In Oklahoma, the squeeze is extreme. Cuts to income taxes, generous incentives for fracking companies and low oil prices have choked revenues. Overall, this year's state budget is 15% lower than that of 2009; Medicaid and welfare have been pinched along with schools, as have state troopers, whose mileage is now circumscribed. Mary Fallin, the governor, acknowledges that something has to give. She wants to expand the tax base and raise rates on fuel and cigarettes. But the Republican-controlled legislature has yet to agree on a fix. The state's voters are not helping: in a referendum last year they rejected a plan to add a percentage point to the sales tax to boost education spending. Gene Perry of the Oklahoma Policy Institute notes that rugged ideology is not the only obstacle. The state constitution specifies that revenue measures must be approved by 75% of both legislative chambers—requiring some bipartisan agreement—or by the people.

As G.T. Bynum, Tulsa's new, babyfaced mayor, laments, his scope for manoeuvre is just as narrow. Oklahoma sets tight limits on cities' use of property taxes, leaving them reliant on sales taxes. That is a volatile source of revenue—the dependence can lead, for instance, to police officers being laid off during a recession—and one now undermined by online shopping. Mr Bynum's cousin and grandfather were also mayors of Tulsa, as, in the frontier years of 1899-90, was a great-great-grandfather: the six-shooter he carried is in a cabinet in Mr Bynum's office. Not long afterwards Tulsa became the "oil capital of the world", memorialising its glory in skyscrapers. Mr Bynum wants to revive the clout lost in the oil and telecoms busts.

Fiscal constraints make that tricky. Still, the state legislature is considering a change that would let cities raise property taxes to help pay for policing. Meanwhile Tulsa is making the best of a tough predicament through bond issues (like those in Jenks and other cities), as well as a sales-tax increase which, unlike the statewide proposal, was approved by local residents last year, when Mr Bynum was still a city councilman. As with other successful local referendums, it helped that the initiative came with concrete details about where the extra cash would go: on public transport, the police, and investments in museums and other public facilities. By the time of the vote, smiles Mr Bynum, "everyone was sick of hearing about it".

The miniature culture wars fought between cities and states—such as North Carolina's tussle with Charlotte over its anti-discrimination rules—are well known. The financial tensions between them are quieter but as important. "Money is usually the main problem," says Larry Jones of the United States Conference of Mayors, and especially divisive in lean times.

In this stand-off Tulsa, like other American former boomtowns, benefits from the afterglow of industrial wealth. Several times its tycoons have ridden to its rescue: to supply its water, to build a bridge to connect it with oilfields, and to buy the land for its airport. These days country-music stars live in some of the oil barons' grand villas but, by way of compensation for the economic pendulum, the paternalism lives on. "Philanthropy is an industry here in Tulsa," says Mr Bynum.

The George Kaiser Family Foundation, for example, has renovated several blocks in the city centre, and set up a diversion scheme for female prisoners and an early-years education programme. It has contributed $200m for a new 100-acre park on the river, while raising the same amount from other donors. Riding around the muddy construction site, Jeff Stava, the project's boss, points to where the splash zone, skate park and giant adventure playground will be, and the stretch of water where perching pelicans will soon be ousted by rafts and kayaks. After the huge growth of the 20th century, but a tentative start to this one—the population is stagnating at around 400,000—the aim is to make Tulsa a place professionals will move to. The city is stumping up the money for a footbridge near the park. ■

Immigration enforcement

Cities under siege

CHICAGO

Sanctuary cities are under attack, but may not have much to lose

HOLDING signs saying "Amnistia para Latinos!" and "My dreams are not illegal", protesters gathered in a park on Chicago's mostly Latino West Side on May 1st. Chris Kennedy, who is running for governor of Illinois next year, joined the crowd, as did Dick Durbin, a Democratic senator. Seeking to reassure his audience, Mr Durbin noted that a spending bill now in Congress stipulates "not one penny" for a new border wall, no new officers for Immigration and Customs Enforcement (ICE), which pursues illegal immigrants, and "no penalty for sanctuary cities like Chicago".

Illegal immigrants and their defenders are both fearful and perplexed. In January Donald Trump signed an executive order for "enhancing public safety in the interior of the United States". This threatens to pull federal funding from cities and counties that fail to help the federal government deport illegal immigrants. For a city like Chicago, which is beyond broke, that could spell disaster. But it is not at all clear how much money is at stake.

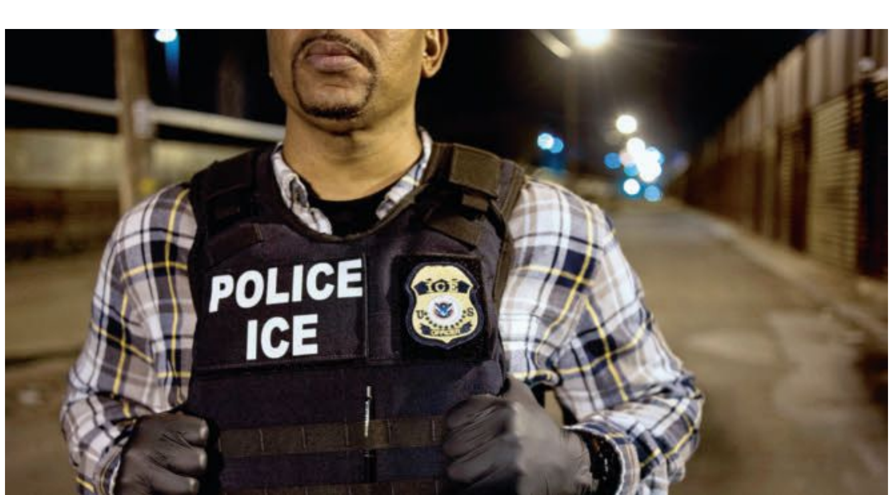
Police and mayors in some 300 cities and counties turned to sanctuary policies for pragmatic reasons. They fear that if officers alert immigration agents when undocumented migrants are booked into their cells—even for fingerprinting after being caught driving without a licence—then immigrants will cease contact with officials of all kinds. Opponents retort that sanctuary policies protect foreign criminals from deportation, and gleefully recount crimes committed by released immigrants.

Rahm Emanuel, Chicago's mayor, and Toni Preckwinkle, president of the Cook County board, insist they will stand firm. Illinois has introduced a bill restricting co-operation with federal immigration officials—as have California, Maryland, Nevada and New York. Yet in the past three months at least 33 mostly Republican states have introduced or passed laws requiring local police to comply with ICE requests to hold a soon-to-be-released inmate for a further 48 hours to work out whether he can be deported, according to Muzaffar Chishti at the Migration Policy Institute, a think-tank. Miami-Dade was one of the first to retreat, ditching its sanctuary policies in February. Texas has passed the toughest anti-sanctuary bill in the country (see next story).

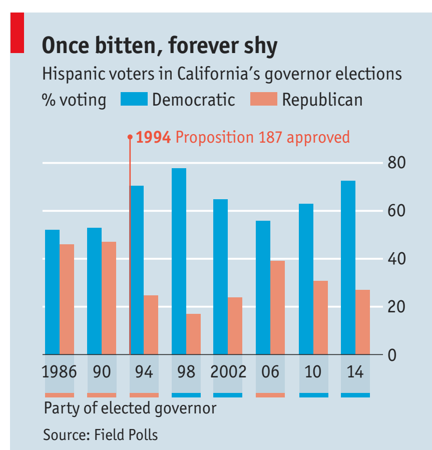
When pleading the government's case in April before William Orrick, a district judge in San Francisco, government lawyers argued that the order would affect only federal funds for policing. If so, the financial harm to cities like Chicago would be slight. Mr Chishti estimates that Cook County risks losing just $2m in federal funding, and all of California only $18m. If all federal funds are affected, the loss would be huge: the Better Government Association, a watchdog in Chicago, has estimated that the city alone would lose a whopping $3.6bn this year.

On April 25th Judge Orrick ruled that the president had overstepped his powers by tying federal funds to the enforcement of immigration law. Mr Trump will almost certainly appeal, and the case is likely to go to the Supreme Court. Mr Trump could win with the narrow interpretation of his order, which will make little difference to the finances of sanctuary cities.

Above the noise of grinding legal gears, though, there is a chorus of alarm from illegal immigrants and officials who deal with them. At a school in California's Central Valley only 75 out of 200 pupils turned up the day after a recent ICE raid in the community, says Lena Graber at the Immigrant Legal Resource Centre. Their parents feared they would be next. ■



Knock, knock



The law in Texas

No refuge

AUSTIN

A draconian law in Texas may change the state's politics

JOE STRAUS, the Speaker of the Texas House, asked his colleagues to show respect for each other, and a sense of civility, while debating a bill that would ban sanctuary cities. Eddie Lucio III, a Democrat, put the point a bit differently. Republicans control the legislature by 95 seats to 55; still, Mr Lucio warned, they should proceed with caution: "We are very emotionally charged. Do not mess with us today."

So much for that. Early on April 27th, after a fraught debate, the Texas House approved a remarkably stringent bill. SB4 will penalise local officials who fail to co-operate with federal immigration authorities by allowing police to inquire into the legal status of people who are merely detained (even in traffic stops), rather than arrested. Amendments that would have created exemptions for nurseries and women's shelters were struck down. It is perhaps the most sweeping measure of its kind since 2010, when Arizona passed a measure that came to be known as the "Show Me Your Papers" law. Republicans in Texas may come to regret their achievement.

The state's governor, Greg Abbott, had made a ban on sanctuary cities one of his priorities for the legislative session that began in January. Polls have found that roughly half of Texans—and a large majority of Republicans—are in favour of the idea. SB4 sailed through the Texas Senate in February, despite opposition from companies, police chiefs and civil-rights advocates. Republican leaders in the House had retooled the bill in committee hearings in order to address some of the worries raised. But their efforts at moderation were thwarted during the floor debate, after right-wing Republicans offered an amend- ▸▸

ment expanding the measure's scope.

Art Acevedo, Houston's police chief, has argued that SB4 will discourage illegal immigrants from reporting crimes and will undermine his authority to direct his force to focus on dangerous criminals. Opponents of the law are already preparing to challenge the measure in court (Arizona's law was gradually rendered almost toothless). But the political damage may linger.

Republicans in Texas have mostly avoided antagonising Latinos, who account for 40% of the population. In 1994, after California approved Proposition 187, which aimed to bar illegal immigrants from access to public services, George W. Bush, then governor-elect of Texas, said: "I am opposed to not educating or providing social services to people who are in our state." His successor, Rick Perry, was similarly sceptical about Arizona's law.

Supporters of SB4 doubt that it will nudge many Latinos to vote Democratic. The experience of California, where the Hispanic vote swung firmly Democratic around 1994, suggests they may be wrong (see chart). Texas is a Republican state in part because the local party has won more support from Latino voters there than elsewhere. Those voters, however, have supported Republicans who supported them. If the party has changed, they might change their minds, too. ■

The Supreme Court

Man in the middle

NEW YORK

The chief justice tries to tamp down partisanship on the bench

ON MAY 1st John Roberts, America's conservative chief justice, listed left to form a rare majority with the Supreme Court's four liberal members. Cities may have grounds to sue, the quintet said, when banks make predatory loans to racial minorities. The timing, for some, was suggestive. With Neil Gorsuch now in Antonin Scalia's old chair and retirement rumours flying about Anthony Kennedy, the 80-year-old perennial swing justice who has spent nearly three decades on the bench, could Chief Justice Roberts be emerging as the court's new median vote?

The chief, who runs hearings with an amiable professionalism from the middle seat on the bench, may indeed find himself in the ideological centre of the court—perhaps with the left-leaning Stephen Breyer, who wrote the predatory-loans ruling—if Justice Kennedy hangs up his robe. But he has been rehearsing for this part for some time. In 2012 he infuriated the right by voting to save Obamacare from its first legal assault. He came to the health-care law's rescue again three years later, this time with Justice Kennedy in tow. Also in 2015, he abandoned his conservative colleagues to uphold campaign-finance rules in judicial elections. His revealing opinion in that case, *Williams-Yulee v Florida Bar*, traded on a distinction between jurists and legislators: "Judges are not politicians," he insisted, "even when they come to the bench by way of the ballot."

Wild and unpredictable

Keeping the judiciary fair in the eyes of the public has long been a priority for the chief justice. During his 2005 confirmation hearings he compared a judge's job to a baseball umpire's, calling balls and strikes. In 2014 he decried the partisan stain the judicial nomination process left on the court, and last year he lamented that Americans fail to appreciate that the court is "different from the political branches of government". He sharpened his tone after the Senate upended its filibuster rules to seat Justice Gorsuch: "The new justice is not a Republican and not a Democrat," he said in April. "He is a member of the Supreme Court. But it's hard for people to understand when they see the process that leads up to it."

A wider look at Chief Justice Roberts's record does not suggest even-handedness. His votes striking down spending limits by outside groups in political campaigns, gutting the Voting Rights Act and forbidding school-desegregation plans—as well as votes against gay marriage and in favour of abortion restrictions—show him reliably conservative on most issues. His leftward lean in the cities ruling may have been influenced by the threat of a 4-4 split, something he much dislikes, since only eight justices were considering that case. But in one of the most politicised eras of the Supreme Court's history, the chief seems keen to tamp down public perceptions that the court, too, is bitterly partisan. ■

Transport in New York

On the wrong track

NEW YORK

Local railways are in bad shape, threatening the region's economy

ON MARCH 24th an Amtrak train derailed in New York's Penn station, hitting a regional commuter-line train. The resulting delay affected 250,000 passengers on the Long Island Railroad (LIRR) and New Jersey Transit, commuter lines which share Amtrak's tunnels and tracks in and around Penn Station. Ten days later another Amtrak train derailed, this time taking out a set of points and eight of Penn station's 21 tracks. The delays and cancellations lasted a week. Then on April 14th, just as the Easter weekend began, a New Jersey Transit train got stuck for three hours in an approach tunnel. This caused long delays on the Northeast Corridor (NEC) the busiest passenger railway line in the country. On the same day a false report of gunfire at Penn triggered a stampede in which 16 were hurt. New York's tabloids now call America's dingy, claustrophobic and busiest railway terminus "Pain Station".

The station's 600,000 daily users will soon feel more pain. Amtrak, which owns and operates the station, tracks and tunnels, said last month that it will need to shut down tracks to do repairs. These will take place over 44 days, mainly weekdays, in the summer. The Partnership for New York City, which represents large companies, estimates that every hour of delay to commuters from Long Island and New Jersey costs Manhattan employers $14.5m. The Northeast Corridor Commission, created by Congress, estimates that every day the NEC is out of service costs $100m in lost economic activity.

Yet repairs are badly needed. The two tunnels under the Hudson river, which serve the station and the main NEC arteries, are a century old and move with the tides. Like the rest of the network, they suffer from over-use and chronic under-investment. Damage caused by Hurricane Sandy in 2012 has not yet been repaired. Another storm, a tunnel crack or a high-speed derailment would be catastrophic. Richard Barone of the Regional Plan Association, a think-tank, puts it bluntly: "We're operating on borrowed time."

The NEC is, however, the only part of Amtrak that turns a profit. Amtrak is an odd entity, a commercial service which has its board appointed by the president and receives funding from Congress. Since the funding comes annually, Amtrak struggles to have a multi-year capital plan. With a repairs backlog estimated at $28bn, and tunnels and track needing upgrades all

over the region, it cannot do much beyond basic maintenance. Congress is said to be increasing Amtrak funding to $1.5bn this year, $105m more than last year. That is pretty small beer where railway tunnels under rivers are concerned.

The proposed Gateway tunnel, a new $24bn rail link between Newark, New Jersey and New York City under the Hudson river, would help to ease pressure on the network. Last year the federal government agreed to split the cost with New York, New Jersey and Amtrak. But little federal money has been spotted yet.

Meanwhile, the subway is still operating on a 1930s signal system; Eastside Access, a plan to bring some LIRR riders to Grand Central station, is delayed; the bus terminal needs a complete overhaul; the area's three major airports are at capacity. But getting big projects built in New York is a costly, lengthy enterprise thanks, in part, to expensive labour and over-regulation. The Second Avenue subway, the first new line in decades, cost $5.5bn for four miles of track and three new stations. ■

School vouchers

Going public

Private schools are ailing in Washington, DC. That is a good sign

IMAGINE you are a poor parent in Washington, DC. You assumed you would send your child to a public school. But you have been offered a voucher worth up to $12,000 towards tuition at a private one. Should you use it?

Until recently the evidence suggested that you should. In 2004 Congress created the DC Opportunity Scholarship Programme, the first school-voucher scheme directly subsidised by the federal government (states and charities subsidise many others). Since then up to 2,000 families a year have been handed vouchers to attend private school after winning lotteries. In 2010 a study found that 82% of pupils offered a voucher went on to graduate from high school, compared with 70% of similar peers who attended public schools.

Studies of Milwaukee, which introduced vouchers in 1990, have found similar effects on graduation rates. A 2015 study of a privately funded programme in New York found that blacks who received vouchers had higher rates of college enrolment. In Vermont the value of a house is higher if it is in an area that offers school vouchers, suggesting that parents will pay to become eligible for them.

Yet evidence is piling up on the other side. In the past two years studies of Louisiana and Ohio have found that pupils using a voucher did worse on state tests than peers at public schools. A recent literature review concluded that "the effects of vouchers have been disappointing relative to early views on their promise".

On April 27th another study put the boot in. The Institute of Education Sciences, the research arm of the Department of Education, analysed the results of children in Washington, DC's scheme between 2012 and 2014. It found that, on average, pupils who attended private school had lower maths scores at the end of their first year than those who did not.

Children often take time to adjust to new schools. Still, the results seem disappointing for advocates of school vouchers, a group that includes many Republican governors and Betsy DeVos, Donald Trump's education secretary.

They nevertheless suggest that other education reforms are working. The relatively lacklustre performance of private schools in Washington, DC reflects improvement in public schools. A decade ago Adrian Fenty, then the mayor, took away powers from the city's elected board of education and installed a new schools chancellor, Michelle Rhee.

She began to hold teachers at traditional public schools accountable for pupils' performance. The worst were fired and the best earned bonuses and pay rises. The city also encouraged the growth of independently-run public schools, known as charter schools. In 2015-16, 45% of pupils in public schools in the city were at charters, up from 24% a decade previously.

Meanwhile private schools, many of which are attached to churches, have struggled. In America as a whole, the Catholic ones have swapped nuns for professional teachers and have been hit financially as dioceses have paid compensation for historical sexual-abuse cases. Competition from charter schools has suppressed enrolment, too. Good statistics are lacking, but the Urban Institute, a think-tank based in Washington, estimates that the number of pupils aged between five and 17 in private schools may have dropped by two-thirds between 1999 and 2014.

To survive, several Catholic schools in Washington have shed their religious affiliation and converted to charter schools, thereby adding pupils to the public rolls. Overall enrolment in public schools has increased since 2008-09, from 70,919 pupils to 87,344 in 2015-16. Most of that growth was a result of swelling attendance at charter schools, but traditional public schools expanded, too.

Between 2011 and 2015 traditional public schools in Washington made larger gains in the National Assessment of Educational Progress, a nationwide set of tests, than those in any other large city. Pupils at charters tend to score even higher on citywide tests than those at other public schools. Gentrification is one reason for the increased scores, notes Matthew Chingos of the Urban Institute. But his research also shows that the gains are larger than demographics alone would suggest.

The latest study indicates that, at least initially, vouchers are only as effective as the schools they allow children to attend. But it does not undermine the argument for competition, since the pressure from charters is one reason why public schools have improved. A parent with a voucher may increasingly think twice about using it. That is a good choice to have. ■

Lexington | Constant foe, fickle friend

Adversaries may find Donald Trump easier to handle than his allies do

ONE question about Donald Trump obsesses foreign governments more than any other: will this president, who campaigned as an "America First" insurgent, continue to trample norms in office? Strikingly often, foes and friends answer this in different ways.

Such hostile or rival powers as China, Russia or Iran increasingly find that Mr Trump's policies resemble those pursued by his predecessors. Candidate Trump called China a trade cheat, bent on "rape" of the American economy. President Trump now calls that country's leader, Xi Jinping, a "highly respected" and indispensable partner in efforts to curb North Korea's nuclear ambitions—a position not far from that adopted by Barack Obama, and George W. Bush before him. Trump aides no longer talk about a grand bargain with Russia, offering President Vladimir Putin a free hand in Ukraine in exchange for iron-fisted support in the fight against Islamic State: a loud advocate for such a deal, Michael Flynn, the president's first national security adviser, was fired for lying about contacts with Russian envoys. Nor has Mr Trump torn up an Obama-era deal to freeze Iran's nuclear programme, although he calls it a "disaster". Instead he seems minded to buttress it with sanctions targeting Iranian misconduct in other fields: a policy that Hillary Clinton favoured.

Often, Mr Trump's worldview has not so much evolved as collided with reality. That process is welcomed in such friendly capitals as Berlin, which Lexington visited last week. Yet maintaining amicable ties with this president still feels anything but straightforward. Official Berlin is glad that Mr Trump takes a more conventional view of America's interests than it once feared. There is less confidence that he respects the values underpinning the rules-based, Western-led international order. Germans are dismayed by Mr Trump's tolerance for authoritarian strongmen, from the Turkish president, Recep Tayyip Erdogan, to the president of the Philippines, Rodrigo Duterte (whose blood-soaked campaign against drug-dealers earned him Mr Trump's praise on April 29th and a White House invitation). The mood in official Berlin is best described as relief mixed with real sadness.

The German chancellor, Angela Merkel, prepared meticulously for her first meeting with Mr Trump on March 17th. Mrs Merkel has spent a career handling swaggering men, from German political rivals to Mr Putin. Her aim was not to befriend Mr Trump, who as a candidate called her refugee policies "insane", but to suggest where he might be misjudging America's interests. Team Merkel knew that Peter Navarro, a senior White House trade adviser, holds that Germany's success as an exporter to America is explained by manipulation of the European single currency and by cunning Teutonic negotiators who outsmarted Mr Obama and previous presidents. Mr Trump favours bilateral trade pacts, believing that America suffers when many countries cram into one negotiating room. Mrs Merkel duly explained that Germany does not negotiate trade pacts or control its currency, ceding authority on both fronts to the European Union. If Mr Trump wants trade talks with just two players, it is the EU that offers that opportunity, Mrs Merkel told him.

Trump aides have warned that their boss does not respond well to detail-heavy briefings, preferring stirring stories, pictures and maps. Mrs Merkel brought a group of company bosses and apprentices to talk about vocational education. Turning to the agenda of a G20 summit to be held in July, she engaged Mr Trump and his daughter, Ivanka, on the dire risks posed by global pandemics and antibiotic resistance. Mrs Merkel invited Ms Trump to speak at a women's summit in Berlin. (That visit saw the First Daughter hissed by some in the audience when she called her father a champion for families.)

In common with other foreign visitors to the Trump White House, Mrs Merkel found the president a good listener, perhaps because much of what he was hearing seemed new to him. Allies have begun taking advantage of this trait, conferring before visits to reinforce such messages as the need to negotiate with Russia warily and from a position of strength. Surprisingly wonky subjects pique Mr Trump's interest: the Danish prime minister, Lars Lokke Rasmussen, told him how wind power has helped Denmark reduce its carbon emissions while strengthening its economy. Allies have begun giving much thought to crafting policy wins that Mr Trump can call his own.

When a president does not think America exceptional

Still, public antipathy towards Mr Trump runs deep, which raises the costs of doing business with him. Mrs Merkel, for instance, saw the case for increased German defence spending long before Mr Trump demanded that her government pay what he claimed it "owes" to America in NATO contributions. As soon as Mr Trump made defence spending sound so personal, selling an increase to Germans became harder. Perceptions will be hard to change. As Norbert Röttgen, chairman of the foreign-affairs committee of the German parliament and a member of Mrs Merkel's Christian Democratic Party, laments, "Even if Donald Trump turns back to a more normal foreign policy, he will remain a provocative figure in German eyes." A Social Democrat on that committee, Dagmar Freitag, is unsure that Germany and Mr Trump "share common values", making relations "more fragile".

German leftists who dislike or distrust America face a different puzzle, notes Boris Vormann of the Free University in Berlin. Such sceptics have traditionally raged at the hypocrisy of American claims to moral superiority. Mr Trump makes no such claims, leaving anti-Americans oddly bereft, too.

Even Mr Trump's mercurial nature plays differently with friends and foes. It can be helpful to surprise adversaries. Unpredictability is harder for friends to love. But allies know now that Mr Trump is not about to change—nor sees why he should. ■

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Venezuela

It's up to the army

CARACAS

The armed forces, not people power, will decide the fate of the regime

BEFORE Nicolás Maduro, Venezuela's president, delivered his second May Day address, spelling out plans for a new constitution, he paused to acknowledge some VIP guests. A dozen generals, in full ceremonial uniform, were in the audience. He asked them to stand and be applauded.

It was a telling moment. Mr Maduro is facing the biggest threat to his rule since he took office in 2013. Four-fifths of the "*pueblo*" he claims to represent want him to stand down. Street protests, provoked by shortages of food and the regime's thuggery, erupt daily and are sometimes massive. The economy is in such an appalling state, and inflation is so high, that Venezuelans greeted a rise of 60% in the minimum wage on May 1st with shrugs of "so what?" A political shift to the centre-right in several of Venezuela's neighbours makes Mr Maduro's "Bolivarian" socialist regime look ever more isolated.

But, for the president, none of that may matter. His future will be decided by the armed forces, not directly by the people. If they withdraw support from his beleaguered regime, change will come soon. If not, hunger and repression will continue.

So far, there is little sign of dissent in the top ranks. Vladimir Padrino López, the head of the armed forces and minister of defence, hailed Mr Maduro's call for a new constitution as "a clear demonstration of democratic will". With that, he endorsed the latest stage in the president's progressive dismantling of democracy.

The constitution Mr Maduro wants to replace is the handiwork of Hugo Chávez, his political mentor, who died in 2013. The 500 members of the constituent assembly that will convene to write it will have almost absolute power while they deliberate. Half will be appointed. The rest will be selected by "people's committees" similar to communist soviets. The whole process is intended to pre-empt other meaningful political activity. It will distract attention from the regime's subversion of the existing constitution. It has carried this out by, for example, depriving the opposition-controlled legislature of its rightful powers.

All eyes turn to the men in green

The opposition is increasingly directing its appeals to the armed forces, or to factions within them. Julio Borges, the legislature's president, says it is time for the men in green to "break their silence". Henrique Capriles, a potential challenger to Mr Maduro who has been banned from seeking office for 15 years, asked ordinary soldiers to consider whether they want to "share the fate" of the doomed ruling party.

The army is not the regime's only prop. The National Guard fires tear-gas at and wields truncheons against demonstrators; informal gangs called *colectivos* enforce submission to the regime in neighbourhoods and are responsible for many of the 33 deaths in protests over the past month. Mr Maduro wants to provide a half-million guns to an expanded "national militia", a sort of home guard.

But the armed forces, though constitutionally required to be apolitical, are the final arbiters of power. *Chavismo*, the movement that guides the regime, has been military-led since its inception. Chávez began his career in politics as a left-wing commander who attempted a coup in 1992 (and won a presidential election six years later). Officers or former officers run 11 of the 32 ministries; 11 of the 23 state governors are retired officers. Mr Maduro has been a prolific producer of generals. On one day last year he promoted 195 officers to that rank, bringing their number to more than 2,000. The United States somehow gets by with no more than 900 generals.

The Venezuelan top brass are not a monolithic group. There are "diverse" factions, both between and within branches of the armed forces, says Rocío San Miguel, a lawyer and defence specialist. A group of "originals" fought alongside Chávez in 1992. They include Diosdado Cabello, a former president of the legislature and still-influential hardliner. An overlapping clique helps drug-trafficking gangs through its control of ports and airports. A bigger group of non-ideological "opportunists" dabbles in that and other businesses.

These divisions matter less than the generals' shared interest in the regime's survival. Most profit handsomely from Mr Maduro's chaotic rule. Some have access to dollars at the ridiculously cheap price in bolívares set by the government. The army is in charge of the lucrative business of food distribution, a recipe for abuse.

The lower ranks are less happy, though they are better housed than most Venezue- ▸▸

lans and some profit from sidelines such as smuggling. According to *Caracas Chronicles Political Risk Report*, a journal with sources in the armed forces, DCI, an agency that snoops on the barracks, has been hearing of "deepening disaffection", especially in the army's middle ranks, since February, before the latest protests began. Much of this appears linked "with mid-ranking officers barely bothering to suppress their contempt for a general staff it perceives as corrupt", it reported. In April three lieutenants posted a video saying they rejected Mr Maduro as commander-in-chief. They sought asylum in Colombia.

Raúl Baduel, a jailed former defence minister, has become an icon for dissenters. They share a 14-second recording in which he says he is in prison because he spurned "the scoundrels and criminals ...who give you orders". Junior soldiers, and their families, share the privations that drive Venezuelans onto the streets in protest. They are angry. But that does not mean that they will stop following orders. ■

Cannabis in Uruguay

Chemists v criminals

MONTEVIDEO

Pharmacies are supposed to drive street dealers out of business

ON THE outskirts of Libertad, a small town an hour's drive from Montevideo, barbed wire and guard towers surround a ten-hectare plot of state-owned land. Inside, greenhouses shelter thousands of marijuana plants. These belong to ICC and Simbiosys, the two firms licensed by Uruguay's government to grow cannabis for recreational use. Uruguayans will soon be able to sample their product. Since May 2nd they have been able to register at the post office as prospective customers for the corporate weed, which will be sold through pharmacies from July.

That will be the last and most important stage of a long process. In 2013 the senate voted to legalise marijuana and regulate its production and sale, making Uruguay the first country to do so. (Canada proposed a bill to legalise cannabis for recreational use on April 13th.) Uruguay's goal is to stamp out the black market, controlled mainly by Paraguayan smugglers, without encouraging more consumption. Registered Uruguayans (but not visitors) will be able to get the drug in one of three ways. They can grow up to six plants at home; join a club, where 45 members can cultivate as many as 99 plants; or buy it in pharmacies. All consumers are restricted to 40g (1.4 ounces) a month, enough to roll a joint or two a day. About 10% of adults smoke at least once a year.

More than 6,600 people have already registered to grow cannabis at home; 51 clubs have opened. But Uruguayan officials expect pharmacies to be the biggest retailers, and are counting on them to drive illegal dealers out of business. They will start out selling weed in 5g packets, with the concentration of THC, the active ingredient, capped at 15%. With a price of $1.30 a gram, store-bought marijuana will be cheaper than what is available on the street. The quality will be better, says Milton Romani, who oversaw the law's implementation until last July. Street cannabis can contain 52 toxins; pharmacies will sell purer weed. The government sought advice on potency from regular smokers. "They are the ones who know about this stuff," laughs Mr Romani.

Strait-laced pharmacists, used to selling remedies for aching joints, are nervous about supplying the makings of joints. "They would prefer not to stock a recreational drug," says Alejandro Antalich, vice-president of the Centre for Uruguayan Pharmacies, a trade association. "It's a conscientious objection." Some fear being dragged into competition with drug gangs. So far, just 30 of the country's 1,000 pharmacies have signed up. The interior ministry is installing alarms connected to police stations to reassure them.

Cannabis clubs have no such qualms. They can grow a wider variety of plants than pharmacies are allowed to sell, with no limits on THC. They see themselves as catering to aficionados. "It's the equivalent of comparing a bottle of wine with a box of wine," says Marco Algorta, a grower at the 420 Cannabis Club in Montevideo. "The clubs sell excellent wine." His worry is that 99 plants are not enough to supply members with their full entitlement. He wants permission to grow more.

Even then, clubs and home growers will cater to a niche market. The pharmacies' business will build slowly. The 30 outlets that have signed up cover much of the country. But their corporate suppliers are allowed to grow just four tonnes a year. That is 15% of what Uruguayans smoke. If the country is to drive pushers off the streets, pharmacies will have to sell a lot more weed alongside the dental floss. ■

Canada

Parles-tu québécois?

MONTREAL

Culture shock for French immigrants in French Canada

ON A chilly spring evening about 40 French immigrants gathered in the ornate bar of L'Union Française, a social club in downtown Montreal, for what amounted to a group-therapy session. Their dreams of starting a new life in Canada were not working out the way they had imagined. Employers did not welcome them, locals were at once friendly and aloof, the winters were awful. Cécile Lazartigues-Chartier, the group leader, counselled immersion in the culture, networking and winter sports. "Remember," she advised, "you are immigrants."

That is not as obvious as it sounds. France ceded most of its North American possessions, including Quebec, to the British in 1763. But French people who settle in the French-speaking province regard it as a rough outpost of empire, or so some Quebeckers grumble. "We are cultured and educated, and they don't see that," complains one. Fred Fresh, a French singer who moved to Montreal's trendy Le Plateau district in 2011, listed his neighbours' grievances in a song, *Y'a trop de Français sur le Plateau* (There are too many French in Le Plateau): pushing up rents, smoking smelly cigarettes and seducing women. "My neighbourhood feels like it's occupied by all these snobs," he sings, channelling what he takes to be the attitude of native-born Quebeckers.

Despite such laments, more French folk are coming. Jobs are scarce and politics is fraught in France; Quebec promises opportunity and stability. In 2015 France sent more migrants than any other country; in 2016 only Syrian refugees outnumbered them. Nearly 70,000 French citizens are registered at the consulate in Montreal, double the number of a decade ago.

Surprisingly, some stumble on the language. Quebeckers have retained more ancient French, and adopted more English sentence structure, than have their European cousins. The local expression

"*chauffer le char*" ("to drive the car") means "heat up the chariot" to the French.

A bigger shock is the Canadians' promiscuous use of "*tu*", the familiar form of "you", which French people reserve for intimates (*vous* is for acquaintances and people on higher rungs of hierarchy). French people who stick to *vous* appear haughty to Quebeckers. The Europeans are in turn confused by *tutoyer*-ing Canadians, who seem to be signalling openness to a friendship or business relationship, which then often does not happen. "Some people never get used to it," says Jonathan Chodjaï, a French consultant who has lived in Montreal for 18 years.

While European business relationships start cold and then warm up, in Quebec the sequence is reversed, he says. He tells clients to think of the French as coconuts, with hard shells and soft insides, and Quebeckers as soft peaches with hard cores.

Some French migrants seek to synthesise the two cultures. Jérôme Ferrer, a restaurateur, has added foie gras, lobster and mushroom cream sauce to poutine, a local confection of chips, cheese curds and gravy. Mamie Clafoutis, a chain of bakeries owned by two Frenchmen, marks the start of the maple-tree tapping season in early spring by baking cake in a syrup tin.

It takes time for newcomers to accept that they have swapped not just countries but cultures. "If you go to Australia or the States, you know it's a different culture," said a recent immigrant in the therapy group. It took him a while to recognise that Quebeckers are North Americans, not Europeans. Once French people understand that, things get easier, says Marie-Claude Ducas, a Montrealer who has worked with them in the media industry, a profession that attracts many. "They can be very good employees—the ones who realise they are immigrants," she says. ■

Bello | Can the centre hold?

To make peace stick, Colombia's government needs to do better

ON MAY 3rd a delegation from the United Nations Security Council arrived in Colombia for a two-day inspection of the implementation of last year's peace agreement between the government of Juan Manuel Santos and the FARC guerrillas. "They are coming because it is the only success story that the UN has in the whole world at the moment," crowed Mr Santos. That is not how many Colombians see it. A long-standing gap between the upbeat view of outsiders, symbolised in the award of the Nobel peace prize to Mr Santos, and disgruntlement at home has widened to a chasm. With a presidential election scheduled for May 2018, that is worrying.

The discontent starts with the peace agreement itself, which punishes FARC leaders who confess to terrorist crimes with "restrictions on liberty" (but not jail) and grants their new political party ten seats in congress. The accord was narrowly rejected in a plebiscite in October. After some hasty tweaking, the undeterred Mr Santos secured its approval in congress.

By June 1st the UN is supposed to remove from collection points weapons turned in by 6,500 guerrillas (plus 3,500 associated urban militia members) and the fighters should begin civilian life. But the FARC stalled while they haggled over the specifications for the camps where ex-guerrillas are to live temporarily. The government has been slow to build the 26 camps, many in impossibly remote areas. Sergio Jaramillo, the government's peace commissioner, insists that the deadline for the removal of personal arms of the rank-and-file will still be met. Destruction of some 900 arms dumps will take longer. And the FARC have passed to the Red Cross only 70 or so of hundreds of child soldiers. All this means that Colombians find it hard to understand why 60 FARC leaders already have a licence to roam the country, popping up at events in universities or at the Bogotá book fair with an arrogant message of political victory.

The peace agreements run to 310 dense pages. Implementing them requires a huge effort of political and bureaucratic co-ordination, ranging from setting up a special "peace tribunal" to approving a new land law and, perhaps, an electoral reform. To be credible, the tribunal must be independent and tough-minded. Securing peace on the ground means maintaining security, strengthening justice, undertaking public works and cracking down on rapidly expanding coca plantations (which supply the drug trade) in former FARC areas.

Mr Santos, a patrician who lacks the popular touch, has never been loved, notes Fernando Cepeda, a political scientist and former minister. One poll gives him an approval rating of just 16%, making him less popular even than Venezuela's incompetent tyrant, Nicolás Maduro. He has proved to be a poor manager, with a penchant for creating rival and overlapping fiefs in the executive. Squabbling among officials adds to the sense that the government is not up to managing the aftermath of conflict. The main hope lies with Óscar Naranjo, a former police chief, whom Mr Santos has named as his vice-president with a brief to take charge of this.

Mr Santos has also had bad luck, some of which he helped to create. The fall in the oil price punched a hole in public finances, filled only by unpopular tax rises. The economy is weak; the central bank has cut its forecast for growth this year to 1.8%. Businesses are delaying investment because of political uncertainty. The president has faced unremitting opposition to the peace agreement from Álvaro Uribe, his predecessor. Mr Santos has been hurt by revelations that his campaign received undeclared money from Odebrecht, a Brazilian construction firm notorious for corrupt practices (though so did Mr Uribe's candidate). The ELN, a smaller guerrilla group, and organised-crime gangs still pose a threat to security.

Delays and problems in implementing the peace deal were inevitable: Colombia is not Switzerland. What makes them dangerous is the political context. By acting together, Colombia's politicians have transformed a country that was close to being a failed state 20 years ago into one with a potentially bright future. Now the political establishment is discredited and divided. "What kept it together was the guerrillas," says Mr Cepeda. "The consensus is broken."

This leaves the election wide open. Unless the national mood improves, a run-off between a far-right *uribista* and Gustavo Petro, a maverick far-leftist, is possible. Both would pose risks for peace. Mr Santos's government has a year to persuade Colombians that outsiders are right to hail the peace accord and highlight their country's progress rather than its problems.

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A cotton boll's journey

From shrub to shirt to shelf

KASESE

What the tale of a T-shirt reveals about Africa's manufacturing potential

HUNDREDS of bright blue T-shirts with the slogan "smile" pass down a row of tables where they are inspected, folded, bagged and tagged. From here they will embark on an arduous journey of more than 1,000km (600 miles). A lorry will haul them from Kampala, Uganda's capital, across Kenya to the port of Mombasa. A week later they will be loaded onto a ship for Hamburg, Germany. There they will be sold for €10 ($11) each by Bonprix, part of a family-owned mail-order firm with sales of $13bn a year.

These shirts began as cotton bolls in fields on the equator in the far west of Uganda, where the red-earth plains turn upwards into the Rwenzori mountains. Their odyssey reveals much about Africa's manufacturing potential. By following in the footsteps of China and Bangladesh, which began their industrial revolutions with textiles, Africa could in theory create millions of jobs. But as the T-shirts' travels also illustrate, it will not be easy.

Several African countries have tried in the past to become tailors and cloth-makers to the world. Nigeria's northern cities of Kaduna and Kano were once home to textile mills that employed 350,000 people. Yet these factories are now rusting, and employ perhaps a tenth of that number.

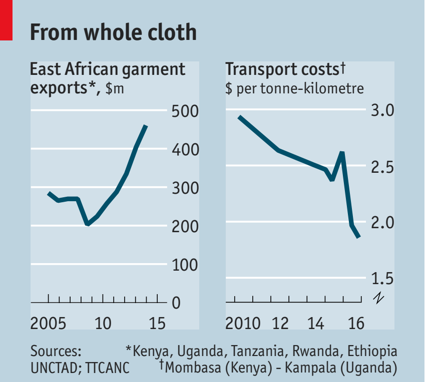
This mirrors a wider trend. In 1990 African countries accounted for about 9% of the developing world's manufacturing output. By 2014 that share had slumped to 4%. As the world's labour-intensive jobs left the rich world for countries with lower wages, Africa lost out to Asia because of bad governance, political instability and poor infrastructure. Another shift of similar proportions now seems in the offing as China grows richer. But there are some signs that, this time, Africa might catch the wave of industrialisation.

In the shade of a large tree just a few kilometres from Uganda's border with the Democratic Republic of Congo, a group of farmers have gathered to discuss their bumper cotton crop and the obstacles they had to overcome to grow it. Elephants sometimes rampage out of a nearby game reserve and trample the neat rows of cotton, they complain. They plant barriers of chili peppers and keep beehives to keep the jumbos out.

Markets are even less predictable than pachyderms. All the farmers at this meeting are tenants who rent small plots. "When the price of cotton goes up, so does the rent we pay," says one woman bitterly. African farmers, who use ox-drawn ploughs and pick cotton by hand, are competing against vast mechanised farms in Texas that still receive subsidies. About 80% of Uganda's cotton is exported, but because its fields are far inland and the cotton has to travel over rutted roads past rapacious officials, the price these farmers receive is only 60-70% of the international benchmark for delivery to Asia, a lower share than goes to American farmers.

Yet the Ugandan farmers' income is rising because of two changes further along the chain between shrub and shirt. One occurs at the ginnery, where huge clumps of seed-studded fluff are shovelled into gigantic machines that clean and comb them. At the entrance, two officials of the government's Cotton Development Organisation diligently record each sale in order to tax it. The money goes back into buying good seeds and pesticides that are then given to farmers. New seeds introduced from Zimbabwe last year produce bolls that yield about a third more usable cotton than the old variety.

Better farming techniques also help. Western Uganda Cotton Company (WUCC), a ginnery with British shareholders, is trying to get more of the fluffy stuff by training farmers about when to weed and how to space out the seeds as they plant. Those who follow these in- ▸▸



structions have seen their yields double to about 600kg an acre (twice as much as farmers in America manage—a testament to Uganda's fertile soil). "I will double my cotton planting next year," says Joshua, a middle-aged man. But farmers face huge hurdles in doing so, even though there is plenty of land available. One says that after setting aside money for her children's school fees she will have enough left to rent only a single acre again next year. Borrowing is not an option. Bank loans are too expensive and cheap ones from government agencies are wrapped in red tape.

Although Uganda still exports most of its cotton, the bags of lint emerging from WUCC's ginnery are trucked to Fine Spinners Uganda, a factory in Kampala that turns them into clothing. Because the factory is so close to the fields, the cotton it buys costs much less than it would in Asia, giving it a small advantage over competitors from places such as Bangladesh, the world's second-largest clothing exporter.

In this plant employees gingerly open the bales of lint and feed the cotton into an assortment of machines that first spin it into yarn, then knit it into cloth and dye it. Then the fabric follows an orderly procession past long lines of work stations where it is cut and then stitched back together. Colourful designs are printed onto the finished shirts. Some will be flown out to California to be sold by EDUN, a clothing brand started by Ali Hewson, an Irish businesswoman, and Bono, her rock-star husband. Others are for sale in a local market that has been squeezed by imports of second-hand clothing. The rest are destined for Europe, where they will have to compete on price with imports from Asia.

Uganda's main advantages, for the moment, are cheap cotton and labour, and preferential access to American and European markets. When exporting to the rich world "Africa has an 18-35% duty advantage over any other continent", says Nick Earlham, a shareholder in WUCC and in Fine Spinners. "It's very competitive."

Textile workers in Kampala earn about $85 a month, compared with $150 in Kenya and $108 in Vietnam, never mind up to $700 in China. But these savings are offset by problems in almost every other sphere. Power cuts keep plunging the factory into darkness, and an erratic supply of steam to the dyeing machines makes it hard to ensure that each batch of fabric looks alike.

In a cramped meeting room alongside the factory, executives of Bonprix visiting from Europe make their unhappiness clear. Their inspectors in Hamburg are discovering more defects than they would like, and one big shipment of T-shirts will be unexpectedly late. "What would happen if this item was on the cover of our catalogues?" one asks.

Yet for all the tough talk, Bonprix is placing orders at higher prices than it might pay elsewhere and offering technical help to nurture an industry which it hopes will, in time, become competitive. As its rivals look to countries such as Vietnam and Bangladesh, which are starting to replace China as big suppliers of clothing, Bonprix is already seeking out the countries that will, in turn, replace them. "East Africa has a lot of potential to develop a strong textile and garment industry," says Rien Jansen of Bonprix. As Asia grows richer, its pool of cheap labour will eventually run dry—and Africa is next in line.

In turning to Africa, the company is helping to generate what may become a huge wave of exports. After years of stagnation, east Africa's clothing industry has more than doubled its exports since 2009 (see first chart). Dirk Willem te Velde of the Overseas Development Institute, a British think-tank, reckons that this is not only because of rising wages in Asia and preferential access to markets. As important, he argues, are investor-friendly government policies, as well as improvements in infrastructure that have cut transport costs.

These are starting to reverse the factors that held Africa back during the previous big shift in the global economy. But unless Africa's leaders keep improving governance, investing in skills and developing infrastructure, as well as opening up to foreign investment, they may miss out on the next wave of industrialisation, too. Robots are not yet much good at fiddly sewing jobs on floppy fabric; less than 0.1% of the world's industrial robots are in the clothing trade. But they will improve. ■

South Africa

Bury him, praise yourself

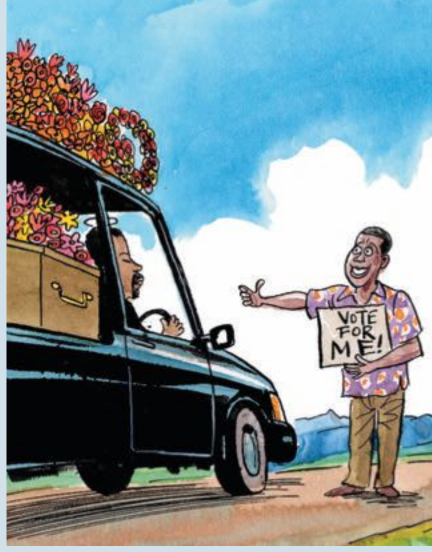
JOHANNESBURG

Why ANC politicians campaign at funerals

TO BECOME a leader of South Africa's ruling party takes a talent for speaking sideways. The African National Congress (ANC) forbids open campaigning for leadership positions, a holdover from more secretive times as an underground resistance movement. Instead, during ANC election years such as this one, politicians turn up at a succession of Sunday church services, memorial lectures and funerals of party stalwarts to give thinly disguised stump speeches. The trick is saying enough, but not too much, since flagrant campaigning can mean disciplinary action.

The outdated rules will be challenged at an ANC policy conference in late June. But for now, ahead of a five-yearly leadership vote in December, where Jacob Zuma will be replaced as party president (though his term as the country's president lasts until 2019), covert campaigning persists.

The queen of the non-campaign event is Nkosazana Dlamini-Zuma, a former head of the African Union who hopes to succeed her ex-husband. She pops up at everything from an "Israeli Apartheid Week" lecture in the mining-belt city of Rustenburg to the opening of a mega-church in Thokoza township. Though jobless at present, Ms Dlamini-Zuma travels under the guard of a VIP protection unit. "It involves a humongous convoy. The aim is to make her look presidential," says Ralph Mathekga, a political analyst and the author of "When Zuma Goes". She is a dull speaker, but the ANC women's-league leader nonetheless likened her to Jesus, saying she was "both a lion and a lamb".



Her presumed main rival for Mr Zuma's job is the deputy president, Cyril Ramaphosa. He is said to have "launched" his campaign last month in the Eastern Cape, where he segued a tribute to Chris Hani, an anti-apartheid leader murdered in 1993, into a jab at Mr Zuma. He complained about "the politics of patronage" and speculated that Hani must be wondering, "Why are we messing up this country?"

Mr Ramaphosa is not explicitly running for the top job, but an unofficial website devoted to him has a snappy slogan ("Build. Renew. Unite.") and a slick logo, "CR17", suggesting his initials and campaign year. Another new website promotes the achievements of Ms Dlamini-Zuma, coyly without saying why.

Egypt

Judgment day

CAIRO

Abdel-Fattah al-Sisi goes after one of the few remaining checks on his power

THOUGH it presented no evidence, the Egyptian government wasted little time in blaming the Muslim Brotherhood for the car bomb that killed Hisham Barakat, the prosecutor general, in June 2015. Abdel-Fattah al-Sisi, Egypt's president, naturally concurred—he had, after all, booted the Brotherhood from power—but he also had harsh words for the judicial system. "The arm of justice is being chained by the law," said Mr Sisi at the time. He did not mean this as a compliment. Long appeals delay executions, he grumbled. (Much of the Brotherhood's leadership sits on death row.) As the president left Mr Barakat's funeral, he dressed down a crowd of judges, saying: "No courts should work this way."

Most Egyptian judges come from the country's elite and are "fundamentally pro-regime and fundamentally conservative", says Nathan Brown of George Washington University. Some took to issuing mass death sentences to hundreds of Brotherhood members after the group was forcibly removed from power. But the president has nonetheless appeared vexed by the judiciary's protracted procedures, its semblance of independence and its occasional checks on his power. The Court of Cassation, one of Egypt's highest, has voided capital convictions for members of the Brotherhood obtained with evidence exclusively from (often uncorroborated) national-security investigations. In January the highest administrative court upheld a decision rejecting Mr Sisi's unpopular effort to transfer two islands in the Red Sea back to Saudi Arabia.

Fed up, Mr Sisi is now trying to neuter the courts, with the help of a pliant parliament. As attention was fixed on Pope Francis's first visit to Egypt, the president ratified a bill on April 27th that gives him the power to appoint the chief judges of the highest courts. Until now, even under Egypt's past strongmen, the courts had selected their own chiefs, usually by seniority. Under the new law, Mr Sisi will choose one judge from a list of three which the courts in question must submit. Chief judges have nearly complete power to assign cases and control budgets.

Many Egyptians are outraged. "Judges have their own will, and they will impose it through the rule of law," said Mohamed Mansour, the head of the Judges' Club. Some have threatened to strike. Members of Egypt's State Council say that they will not supervise the next parliamentary elections. The Supreme Constitutional Court could even reject the law altogether, setting up a showdown with the president.

Defenders of the bill argue that the government needs more powers to fight terrorism. Trying suspects takes "five or ten years", which allows them to "give orders from their cells", Mr Sisi complains. But under the state of emergency, declared after two church bombings in April, Mr Sisi already has the power to try civilians in special courts which he runs. Egyptians who are found guilty in these proceedings cannot appeal.

Mr Sisi's real motive may be to block the promotion of judges who irritatingly rule againt him. Yehia al-Dakroury, who had been expected to become chief judge of the State Council in July, ruled against the president's handover of the islands. Anas Omara, who was next in line to lead the Court of Cassation, revoked the Brothers' death sentences (he would also have chaired the electoral commission).

During his three years in office Mr Sisi has dismantled most checks on his power. Protests are banned. Harsh laws limit the activities of NGOs. Critical media outlets have been shut down and muckraking journalists locked up. Even al-Azhar University, the Islamic world's most prestigious centre of learning, has come under pressure. Another bill in parliament threatens to impose greater government control over that already tame institution.

Judges in Egypt persevered after Gamal Abdel Nasser, Egypt's old dictator, purged nearly 200 in 1969. They extracted concessions during the 30-year reign of Hosni Mubarak, such as the power to supervise elections. But in Mr Sisi they may have encountered their stiffest challenge yet. ■

America, Israel and the Palestinians

Movement, but any change?

TEL AVIV

A new policy document and a White House visit

IT WAS a dramatic final act for Khaled Meshal, soon to be the ex-leader of Hamas, the Islamist movement that rules the Gaza Strip and hopes one day to run all of biblical Palestine. After months of speculation he unveiled a policy document meant to amend (though not replace) the militant group's founding charter of 1988. Most strikingly, it endorses the creation of a Palestinian state in just the West Bank and Gaza. As such, it moves a bit closer to the "two-state solution" that has been the aim of American-led peace talks for more than two decades. Hamas has never accepted it. But now, it says, Palestinian statehood is a

Consulting America's expert on land deals

"formula of national consensus", although it still thinks that peace with Israel is anathema. The document is also notable for what it does not say. The anti-Semitic language of the charter of 1988 is not repeated. Nor is the declaration that Hamas is a "wing of the Muslim Brotherhood".

Good reasons for scepticism remain. The same document also declares that "no part of the land of Palestine shall be compromised or conceded." As Mr Meshal prepares to step down, a hardliner, Yahya Sinwar, has risen to the group's number two spot as part of a reshuffle. And Hamas's military wing continues to restock its arsenal ahead of a possible war with Israel, which would be its fourth in ten years. A spokesman for Binyamin Netanyahu, Israel's prime minister, calls the charter an effort to "deceive the world".

Perhaps more important than the document's content were its timing and motivation. Hamas's comparatively moderate politburo is vying for power with a belligerent military wing. And the document came out hours before Mahmoud Abbas, the overall Palestinian leader, whose nationalist Fatah faction lost Gaza to Hamas in 2007, landed in Washington for his first meeting with America's president, Donald Trump (see picture). Mr Abbas has long vowed to regain control of both parts of a would-be Palestinian state, striking a series of abortive "unity" pacts meant to end the schism. The new document was in part aimed at stealing his thunder.

Mr Abbas's visit to the White House on May 3rd was remarkably cordial, given the pro-Israel platform on which Mr Trump ran. The property mogul has decided he wants to make what he calls the "ultimate deal." He did not affirm his support for a two-state solution, an omission which disappointed the Palestinians. But his opti- ▸▸

mism was unmistakable. "Maybe [it's] not as difficult as people have thought over the years," he told Mr Abbas as they sat down to lunch.

Like his three predecessors, he will soon discover otherwise. The first step is simply bringing both sides back to the table for the first round of direct talks since 2014. But the deeply unpopular Palestinian leader is unlikely to accept an Israeli and American demand that he first stop paying salaries to the families of jailed and dead Palestinian terrorists. Prisoners are always a resonant issue in Palestinian society—especially now, with about 1,000 of them on a mass hunger strike (organised by his chief rival) to demand better conditions. Nor can Israel's right-wing coalition offer a settlement freeze in the occupied territories as a carrot to the Palestinians.

In the short term, Mr Trump will therefore focus on bolstering the anaemic economy in the West Bank, where the official unemployment rate stands at 18%. This closely mirrors Mr Netanyahu's strategy of "economic peace," which has brought neither growth nor calm. The Americans also want both sides to open a quiet back channel, to talk away from the spotlight. The last time they tried this, in Barack Obama's second term, Mr Abbas eventually disavowed everything his envoy agreed to. ■

The state of Arab men

Down and out in Cairo and Beirut

CAIRO

Struggling Arab men are clinging to the patriarchy for comfort

AHMED, who lives in Cairo, allows his wife to work. "At first, I insisted she stay at home, but she was able to raise the kids and care for the house and still have time to go to work," he says. Still, he doesn't seem too impressed. "Of course, as a man, I'm the main provider for the family. I believe women just cannot do that."

Ahmed's outlook is widely shared throughout the region, where men dominate households, parliaments and offices. Chauvinist attitudes are reflected in laws that treat women as second-class citizens. A new survey by the UN and Promundo, an advocacy group, examines Arab men's views on male-female relations. (One of the authors, Shereen El Feki, used to write for *The Economist.*) It finds that around 90% of men in Egypt believe that they should have the final say on household decisions, and that women should do most of the chores.

So far, so predictable. But the survey sheds new light on the struggles of Arab men in the four countries studied (Egypt, Lebanon, Morocco and Palestine) and how they hinder progress towards equality. At least two-thirds of these men report high levels of fear for the safety and well-being of their families. In Egypt and Palestine most men say they are stressed or depressed because of a lack of work or income. Women feel even worse, but for Arab men the result is a "crisis of masculinity", the study finds.

Far from relaxing their patriarchal attitudes, Arab men are clinging to them. In every country except Lebanon, younger men's views on gender roles do not differ substantially from those of older men. There may be several reasons for this, but the study suggests that the struggle of young Arab men to find work, afford marriage and achieve the status of financial provider may be producing a backlash against assertive women. In other words, male chauvinism may be fuelled by a sense of weakness, not strength.

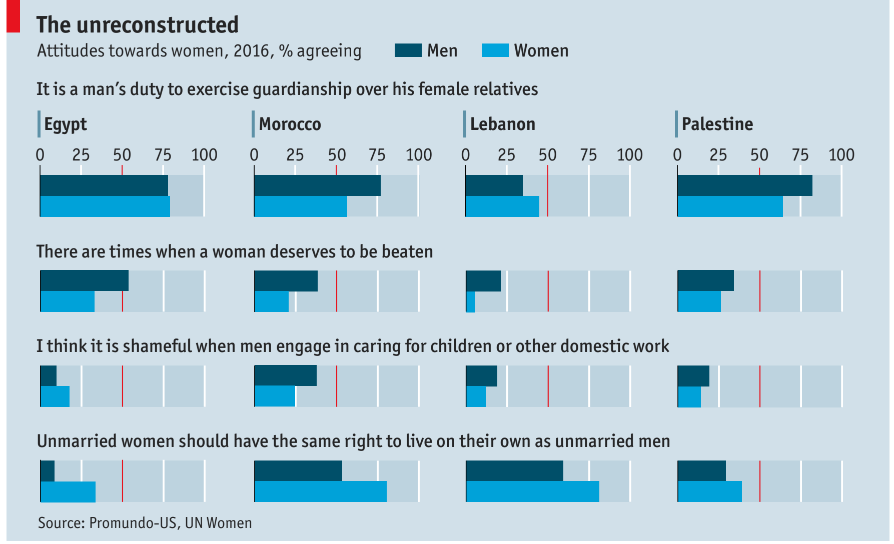
Another explanation is that a general climate of religious conservatism makes men suspicious of newfangled liberties. Muslim legal scholars promote a notion of *qiwamah* (guardianship) that gives men authority over women. In conservative countries, such as Saudi Arabia, this is official policy. But the attitude persists even in relatively liberal parts of the Arab world, such as Morocco, where 77% of men believe it is their duty to exercise guardianship over female relatives (see chart).

In such an atmosphere, violence and harassment are common. In the four countries surveyed, 10% to 45% of men who have ever been married admitted to having beaten their wives. Between 31% and 64% of men admitted that they had harassed women in the street. Fewer than half of Moroccan men think marital rape should be criminalised; most expect their wives to have sex on demand. Some 70% of Egyptian men still approve of female genital mutilation (FGM).

Well over half of Egyptian women also say they approve of FGM. In fact, Arab women espouse many of the same views as men. In Egypt and Palestine, over half of men and women say that if a woman is raped, she should marry her rapist. In at least three of the countries, more women than men say that women who dress provocatively deserve to be harassed. Most of the women surveyed say they support the idea of male guardianship.

Activists have tried hard to encourage Arab women to assert themselves. They have made little effort, however, to soften men's attitudes. This is changing. ABAAD in Lebanon is one of several NGOs in the region confronting the rigid norms of manhood; it uses awareness campaigns and psychological counselling. The study's authors see an opening in men's relatively liberal attitudes towards fatherhood and women in the workplace. They also want to stop the thrashing of boys at home and in schools, which makes them more likely to harm women later on.

Studies suggest that greater equality would make Arab countries richer as well as fairer—liberated women earn more. Yet although some biased laws have changed, official support has been grudging. "We don't have a Justin Trudeau in the Arab region yet," says Dr El Feki, referring to Canada's hunky feminist prime minister. But Lebanon recently appointed its first-ever women's affairs minister—a man. ■



The Economist

SPECIAL REPORT

INTERNATIONAL BANKING

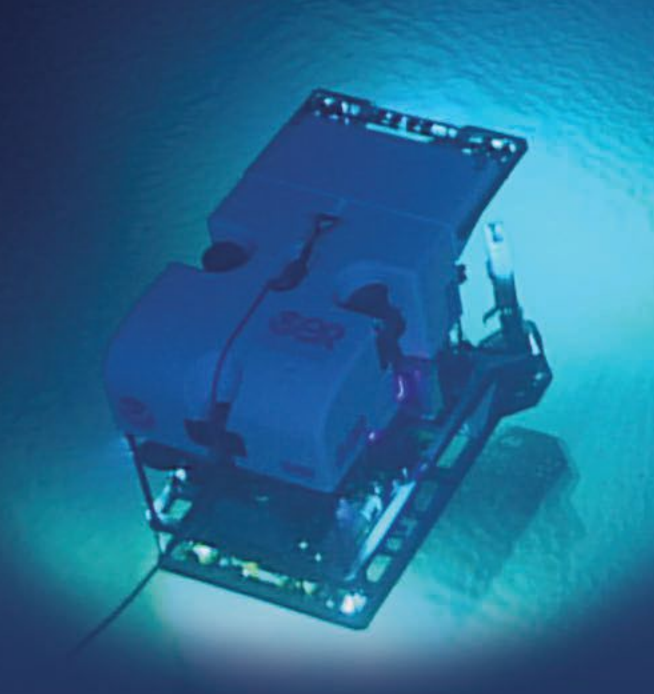
May 6th 2017

Ten years on

OCEAN

THE DEEP

How cutting-edge technology is unlocking the largely unexplored realm of the ocean floor



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Ten years on

Though the effects of the financial crisis in 2007-08 are still reverberating, banks are learning to live with their new environment, writes Patrick Lane. But are they really safer now?

THE ELECTION OF Donald Trump as America's 45th president dismayed most of New York; Mr Trump's home city had voted overwhelmingly for another local candidate, Hillary Clinton. But Wall Street cheered. Between polling day on November 8th and March 1st, the S&P 500 sub-index of American banks' share prices soared by 34%; finance was the fastest-rising sector in a fast-rising market. At the time of the election just two of the six biggest banks, JPMorgan Chase and Wells Fargo, could boast market capitalisations that exceeded the net book value of their assets. Now all but Bank of America and Citigroup are in that happy position.

Banks' shares were already on the up, largely because markets expected the Federal Reserve to raise interest rates after a long pause. It obliged in December and March, with three more rises expected this year. That should enable banks to widen the margin between their borrowing and lending rates from 60-year lows. Mr Trump's victory added an extra boost by promising to lift America's economic growth rate. He wants to cut taxes on companies, which would fatten banks' profits directly as well as benefiting their customers. He has also pledged to loosen bank regulation, the industry's biggest gripe, declaring on the campaign trail that he would "do a big number" on the Dodd-Frank Wall Street Reform and Consumer Protection Act, which overhauled financial regulation after the crisis.

So have the banks at last put the crisis behind them? This special report will argue that many of them are in much better shape than they were a decade ago, but the gains are not evenly spread and have further to go. That is particularly true in Europe, where the banks' recovery has been distinctly patchy. The STOXX Europe 600 index of bank share prices is still down by two-thirds from the peak it reached ten years ago this month. European lenders' returns on equity average just 5.8%.

America's banks are significantly stronger. In investment banking, they are beating European rivals hollow. They are no longer having to fork out billions in legal bills for the sins of the past, and they are at last making a better return for their shareholders. Mike Mayo, an independent bank analyst, expects their return on tangible equity soon to exceed their cost of capital (which he, like most banks, puts at 10%) for the first time since the crisis.

But financial crises cast long shadows, and even in America banks are not back in full sun yet. Despite the initial Trump rally, the S&P 500 banks index is still about 30% below the peak it reached in February 2007 (see chart, next page). Debates about revising America's post-crisis regulation are only just beginning. And the biggest question of all has not gone away: are banks—and taxpayers—now safe enough?

Plenty of Americans, including many who voted for Mr Trump, are still suspicious of big banks. The crisis left a good number of them

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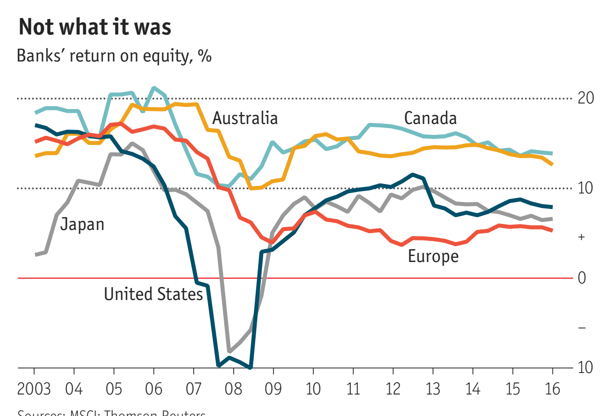
ACKNOWLEDGMENTS

As well as those mentioned in the text, the author would like to thank, among others: Wayne Abernathy, Carla Antunes da Silva, Philip Aquilino, Matt Austen, Mike Baxter, Richard Bove, Louise Brett, Gerard du Toit, Douglas Elliott, Douglas Flint, Vishal Garg, Aaron Klein, Julia Lane, Max Levchin, Christian Meissner, Philippe Morel, Hans Morris, Vikram Pandit, Trent Reasons, Yorke Rhodes, Matthew Richardson, Meg Tahyar, Larry White and Michael Zeltkevic.

A list of sources is at **Economist.com/specialreports**

Not what it was

Banks' return on equity, %



Sources: MSCI; Thomson Reuters

(though few bankers) conspicuously poorer, and resentment easily bubbles up again. Last September Wells Fargo, which had breezed through the crisis, admitted that over the past five years it opened more than 2m ghost deposit and credit-card accounts for customers who had not asked for them. The gain to Wells was tiny, and the fine of $185m was relatively modest. But the scandal cost John Stumpf, the chief executive, and some senior staff their jobs, as well as $180m in forfeited pay and shares. Wells has been fighting a public-relations battle ever since, and mostly losing.

This report will take stock of the banking industry, chiefly in America and Europe, a decade after the precipitous fall from grace of banks on both sides of the Atlantic (see box, next page). The origins of the crisis lay in global macroeconomic imbalances as well as in failures of the financial system's management and supervision: a surfeit of savings in China and other surplus economies was financing an American borrowing and property binge. American and European banks, economies and taxpayers bore the brunt.

Banks in other parts of the world, by and large, fared far better. In Australia and Canada, returns on equity stayed in double figures throughout. It helped that Australia has just four big banks and Canada five, which all but rules out domestic takeovers and keeps margins high. As commodity prices have sagged recently, so has profitability in both countries, but last year Australia's lenders returned 13.7% on equity and Canada's 14.1%, results that banks elsewhere can only envy.

Japan's biggest banks, which had been reckless adventurers in the heady 1980s and 1990s, did not remain wholly unscathed. Mizuho suffered most, writing down about ¥700bn ($6.8bn). The Japanese were able to pick through Western debris for acquisitions to supplement meagre returns at home. Some chose more wisely than others: MUFG's stake in Morgan Stanley was a bargain, whereas Nomura's purchase of Lehman Brothers' European business proved a burden. Chinese lenders were mostly bystanders at the time, remaining focused on their domestic market.

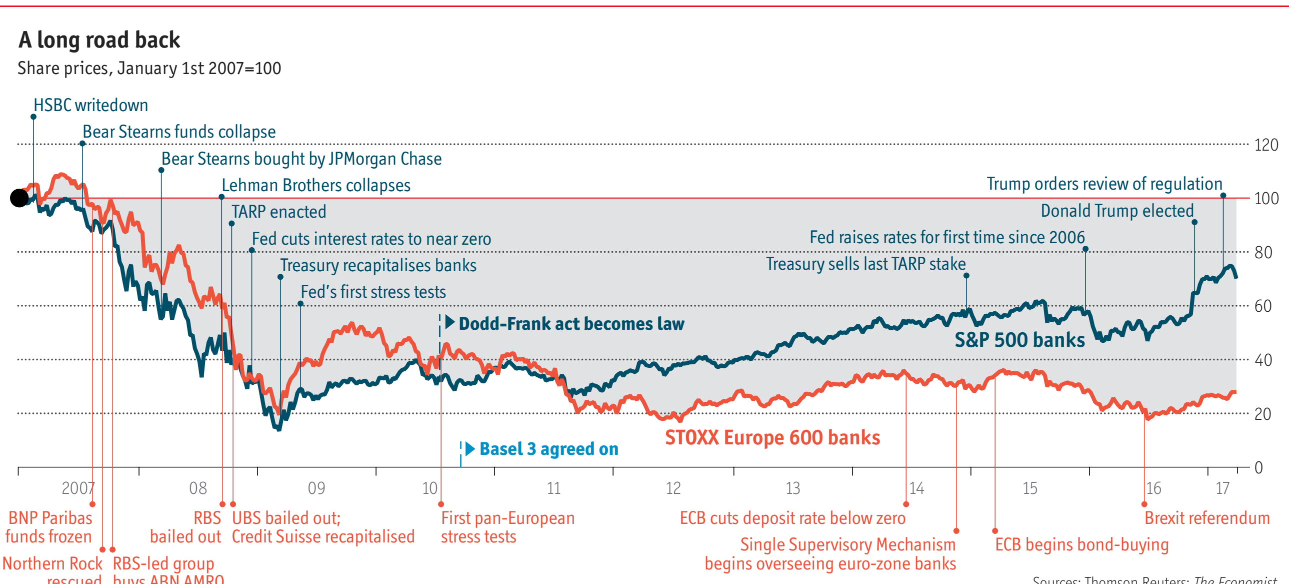
The seven consequences of apocalypse

Ask bankers what has changed most in their industry in the past decade, and top of their list will be regulation. A light touch has been replaced by close oversight, including "stress tests" of banks' ability to withstand crises, which some see as the biggest change in the banking landscape. Before the crisis, says the chief financial officer of an international bank, his firm (and others like it) carried out internal stress tests, for which it collected a few thousand data points. When his bank's main supervisor started conducting tests after the crisis, the number of data points leapt to the hundreds of thousands. It is now in the low millions, and still rising. The number of people working directly on "controls" at JPMorgan Chase, America's biggest bank, jumped from 24,000 in 2011 (the year after the Dodd-Frank act, the biggest reform to financial regulation since the 1930s) to 43,000 in 2015. That works out at one employee in six.

The second big change is far more demanding capital requirements, together with new rules for leverage and liquidity. Bankers and supervisors agree that the crisis exposed banks' equity cushions as dangerously thin. For too many, leverage was the path first to profit and then to ruin. Revised international rules, known as Basel 3 (still a work in progress), have forced banks to bulk up, adding equity and convertible debt to their balance-sheets. The idea is that a big bank should be able to absorb the worst conceivable blow without taking down other institutions or needing to be rescued. Between 2011 and mid-2016 the

A long road back

Share prices, January 1st 2007=100



Sources: Thomson Reuters; *The Economist*

world's 30 "globally systemically important" banks boosted their common equity by around €1trn ($1.3trn), mostly through retained earnings, says the Bank for International Settlements in Basel.

Third, returns on equity have been lower than before the crisis. In part, that is a natural consequence of a bigger equity base. But the fallout from the crisis has also squeezed returns in another way. Central banks first pushed interest rates to ultra-low levels and then followed up with enormous purchases of government bonds and other assets. This was partly intended to help banks, by making funding cheaper and boosting economies. But low rates and flat yield curves compress interest margins and hence profits.

Balance-sheets have been stuffed with cash, deposited at central banks and earning next to nothing. According to Oliver Wyman, a consulting firm, the share of cash in American banks' balance-sheets jumped from 3% before the crisis to a peak of 20% in 2014. As the world economy is at last reviving after several false starts, earnings may pick up in Europe as well as in America.

Sweat your assets

Fourth, sluggish revenues, combined with the competing demands of supervisors and shareholders, have forced banks to screw down their costs and to think much harder about how best to use scarce resources. "If I'm going to get a good return on a high amount of capital, I'd better focus on what I'm good at," says Jim Cowles, Citigroup's boss in Europe, the Middle East and Africa. Citi, which under Sandy Weill in the late 1990s had become a sprawling financial supermarket, selling everything from investment-banking services to insurance, has retreated to become chiefly a corporate and investment bank, much as it had been in the 1970s and 1980s. Its bosses emphasise its "network", a presence in nearly 100 countries that multinationals' treasurers can count on. It once also had retail banks in 50 countries, many of them second-string. That total is now down to 19.

Such retreat from marginal businesses has also meant fewer jobs and lower bonuses, even if bankers' pay is still the envy of most. That has brought about a fifth change: banks have become less attractive employers for high-powered graduates. "The brightest people no longer want to go to banks but to Citadel [a hedge-fund firm]," laments a senior banker. Some millennials, he adds, are drawn to technology companies instead. Others "don't want to deal with business at all". That is because of a sixth change: the financial sector's reputation was trashed by the crisis. One scandal followed another as the story of the go-go years unfolded: providing mortgages to people who could not afford them; mis-selling securities built upon such loans; selling expensive and often useless payment-protection insurance; fixing Libor, a key interest rate; rigging the foreign-exchange market; and much more.

Seventh and last, financial technology is becoming ever more important. That may be better news for banks than it sounds, despite the creakiness of some of their computer systems. Plenty of financial startups are trying to muscle in on their business, but in a highly regulated industry heavyweight incumbents are harder to usurp than booksellers or taxi drivers. As a result, there is a good chance of banks and technology companies forming mutually beneficial partnerships to improve services to their customers rather than fighting each other. ■

When the music stopped

A brief history of the financial crisis

EXACTLY TEN YEARS ago, on May 6th 2007, ABN AMRO rejected a $24.5bn bid by three European rivals for LaSalle, a Chicago bank which the Dutch lender had owned since 1979. The previous month Britain's Royal Bank of Scotland (RBS), Spain's Santander and Belgium's Fortis had offered €72.2bn (then $98bn), almost all in cash, for the whole of ABN AMRO. By October that year RBS and its partners had won their prize, minus LaSalle, in what is still banking's biggest takeover. When ABN AMRO was carved up, RBS briefly enjoyed the glory of being the world's largest bank by assets.

A giddy party was in full swing. "As long as the music is playing," Chuck Prince, then boss of Citigroup, told the *Financial Times* in a quip that became notorious, "you've got to get up and dance." But the tunes were already off-key. American house prices, driven skyward by low interest rates and rash lending to "subprime" borrowers (people with poor or non-existent credit histories) had peaked a year earlier. In February 2007 Britain's HSBC shocked markets by raising its bad-debt provisions to $10.5bn, $1.8bn more than analysts had expected, because of failing American subprime mortgages. During that summer two hedge funds run by Bear Stearns, an investment bank, collapsed after losing money on soured subprime investments.

As banks started to worry about exposure to subprime lending and the piles of complicated derivatives connected to it, credit markets began to seize up, causing BNP Paribas, a French bank, to suspend withdrawals from three funds in August. The following month Northern Rock, a British mortgage lender that had funded its rapid expansion in the flighty wholesale markets, asked the Bank of England for liquidity support. Depositors queued round the block to retrieve their money. In November 2007 the music stopped even for Mr Prince: he resigned. That quarter Citi took subprime-related write-downs of $18.1bn.

The euphoric frenzy came to a total halt with Lehman Brothers' implosion in September 2008. The mergers of that period, unlike the opulent, record-breaking deal of 2007, were hasty, embarrassed dashes to the altar. JPMorgan Chase saved Bear Stearns in March 2008 when Bear's failure became inevitable. After Lehman's collapse, JPMorgan took over Washington Mutual, which had become America's seventh-biggest bank on the back of the housing boom. Bank of America absorbed Countrywide, another over-eager housing lender, and then Merrill Lynch. Japan's MUFG bought 20% of Morgan Stanley. Wells Fargo snapped up Wachovia, America's fourth-biggest bank.

After its moment in the sun, RBS would have followed Lehman into oblivion but for a £45bn ($78bn) bail-out from the British government. Today, after nine years of losses, it remains in state ownership. Fortis was rescued by the governments of Belgium, Luxembourg and the Netherlands and dismembered. Santander played its hand far better. It emerged from the crisis without a single quarter of losses, and remains the euro zone's most valuable bank.

European banks

Sheep and goats

Most of Europe's banks were slow off the mark after the crisis

"THE SHORT ANSWER is Hank Paulson," snorts a European banker. "They got TARPed." The question had been why America's banks recovered so much faster than Europe's from the debacle of ten years ago. Within days of Lehman's demise in 2008 Mr Paulson, then America's treasury secretary, forced the banks, as well as AIG, a giant insurer, and other companies to take equity injections from the federal government, whether they needed and wanted them or not.

TARP, the Troubled Asset Relief Programme, at first earmarked around $700bn for companies in difficulty. That was later cut to $475bn, of which $245bn was pumped into banks. With interest and dividends, the banks eventually repaid $275bn, having replaced public money with private funding. In 2014 the government sold its last shares in a TARP bank: Ally Financial, formerly the financial wing of General Motors.

The recapitalisation of Europe's banks has been as gradual as that of America's was swift, and in dribs and drabs of tens of billions a year rather than in one big splurge (see chart). It is still continuing. So far this year Deutsche Bank and UniCredit, the biggest lenders in Germany and Italy respectively, have raised €21bn in new equity.

European banks could have done a lot more sooner. Hyun Song Shin, of the Bank for International Settlements, calculates that between 2007 and 2015, 90 euro-zone banks retained €348bn of their earnings and paid €223bn in dividends. Had they kept the lot, they would have been able to stuff 64% more into their equity cushions. Because stronger banks tend to lend more, Mr Shin adds, profits, earnings and capital would have been that much higher if they had done so.

Nicolas Véron, of Bruegel, a Brussels think-tank, and the Peterson Institute for International Economics in Washington, DC, contrasts Mr Paulson's "tough love" favourably with the reaction to the financial crisis of national supervisors in Europe. Authorities in the euro area were too concerned with protecting national champions from embarrassment, he says, "a story very much of forbearance and denial". British and Swiss regulators were quicker than their counterparts in the euro zone, bailing out Lloyds, Northern Rock, RBS and UBS, even if British taxpayers paid a "scandalously high price" to save RBS.

From major to minor

Capital raised, $bn

US banks | European banks

140, 120, 100, 80, 60, 40, 20, 0

2008, 09, 10, 11, 12, 13, 14, 15, 16, 17 Q1

Sources: Dealogic; Autonomous Research

Stress tests by European authorities were sometimes way off the mark. For example, they gave Ireland's banking system a clean bill of health in 2010, just before it collapsed, and in 2011 allowed Dexia, a Franco-Belgian bank, to pass with flying colours just a few months before it was caught by exposure to Greek sovereign debt and bailed out by the governments of Belgium, France and Luxembourg.

The authorities eventually got their act together. Spain's banking system, for instance, is much the stronger for a consolidation eventually co-ordinated by the state, although weak spots remain. Several *cajas* (local savings banks) clobbered by the country's property bust were folded into more robust institutions. A grand total of 55 banks has been reduced to 14. Several leading lenders—Santander, BBVA, Caixa and Sabadell—have also expanded abroad.

Unlike America, the euro zone did have a second crisis to deal with, which posed a threat to its very survival; and it was only in response to the euro crisis that a common banking supervisor was created within the European Central Bank. The Single Supervisory Mechanism (SSM) has been up and running for just two-and-a-half years. It directly supervises the euro area's 126 most important banks (the biggest in the zone, plus those critical to national economies, big or small), a group that accounts for 80% of the area's banking assets. Oversight of the remaining 3,200 lenders is delegated to national authorities.

A union of sorts

Europe's "banking union", of which the SSM is a central element, remains incomplete, partly because German politicians balk at a plan to insure deposits across the euro zone. Rules on banking supervision, moreover, are still inconsistently applied. "We need regulations, not directives," says Danièle Nouy, the head of the SSM. (Her point is that European Union regulations are adopted automatically by member states, whereas directives require implementation by national parliaments.) The directive translating Basel 3 into EU law contained more than 160 national ▸▸

Some European countries, notably Italy and Germany, have too many banks and branches for all of them to flourish

options. A single capital market is also still far off.

These days European supervisors' most pressing problem is Italy. Bad debts that seemed manageable back in 2007 grew into a mountain, reaching €360bn (at gross value) by 2015 as Italy's economy failed to grow, borrowers ran into trouble and banks and supervisors procrastinated. Jean-Pierre Mustier, the newish French boss of UniCredit, is knocking the biggest bank into shape, writing down bad debt by €8.1bn, selling assets and raising €13bn in equity. Intesa Sanpaolo, the next-biggest, has been in decent shape for some time. But the fourth-largest, Banca Monte dei Paschi di Siena, is pinned down by its bad debts and awaiting state aid for the third time within a few years. Banca Populare di Vicenza and Veneto Banca, two smaller banks that plan to merge, are also seeking a bail-out.

The SSM wants to be sure that the banks will at last be well capitalised. In December it told Monte dei Paschi that it would need €8.8bn, but has since deemed it solvent. However, bail-outs must be approved by the European Commission, which oversees recently tightened state-aid rules to discourage continuing calls on taxpayers.

The state-aid rules say that junior bondholders as well as shareholders should be "bailed in"—ie, wiped out—if a bank has to be rescued. But in Italy many retail customers bought bank bonds believing them to be as safe as deposits. The Italian authorities are desperate to find a way of compensating them that satisfies the commission. A bail-in at smaller banks in late 2015 caused political uproar and resulted in at least one suicide. Precedent suggests that a solution should be possible; holders of similar Spanish bank bonds were compensated for falling victim to "mis-selling".

But European banks' plight stems from more than just being slow to recapitalise and sort out bad loans. Some countries, notably Italy and Germany, have too many banks and branches for all of them to flourish. A long period of ultra-low interest rates has flattened margins. German banks, which rely on interest for three-quarters of their income, the highest proportion in any OECD country, have been squealing almost as loudly as savers. A paper recently published by the Bundesbank forecasts that, if rates remain constant, a mere 20% of lenders will earn their cost of capital (estimated at 8%) by 2020; last year 60% did.

Thomas Olsen of Bain, a firm of consultants, argues that before the crisis, and even for several years afterwards, banks everywhere "didn't really have different strategies". Tight regulation had traditionally limited their scope for experimentation, but in the helter-skelter years leading up to 2007-08 banks grew indiscriminately, spreading into as many countries and areas of business as they could. After the fall, "they didn't have a strategy then, either: they were just firefighting." As the dust settled, they had to decide what strategy to adopt and how to put it into effect—often by retreating from unprofitable markets and activities.

Too many European banks have been slow to dust themselves off. Some at least went into the crisis with robust business models—and therefore did not need a thorough shake-up. Santander, which had built retail and commercial banking businesses in a number of countries, from Chile to Britain, was well placed to withstand the storm, even though its homeland took a battering. It is the euro zone's biggest bank by market value and has made money in every quarter since at least the late 1950s. Like many banks, it has had to turn to shareholders to boost capital, raising €7.5bn in January 2015. Its share price is just a shade below net book value. By European standards it is doing fine.

Contrast that with Deutsche Bank. This used to be a slightly staid institution, serving Germany's biggest companies at home and abroad and looking after well-off retail customers; but long before the crisis it had ventured far from that model, choosing the buccaneering life of international investment banking and trading. By 2007 it was leveraged to the hilt, with equity amounting to only 2% of total liabilities, one-third of the ratio at Santander. The crisis dealt it a heavy blow.

Not quite über alles

Deutsche is the biggest bank in Europe's biggest economy and has not needed state aid, but it has had to turn to shareholders three times in seven years, tapping them for a total of more than €20bn. Despite a rally since last September, its shares have been trading at only two-fifths of book value. This January it concluded a $7.2bn settlement with America's Department of Justice (DOJ), which had accused it of mis-selling residential mortgage-backed securities in the wild pre-crisis days of 2005-07. (Some other European banks have yet to settle; American offenders have already paid hefty penalties.) The bill was less than feared: initially the DOJ had demanded $14bn, and only $3.1bn of the settlement has to be paid in cash.

Now this is out of the way, Deutsche may at last have arrived at an enduring strategy. In March John Cryan, its chief executive since 2015, decided to keep Postbank, a retail operation he had previously intended to sell, shoring up Deutsche's deposit base in Germany. To boost its ratio of equity to risk-weighted assets, a key regulatory measure of resilience, Deutsche has instead raised another slug of equity, €8bn-worth, and is selling part of its asset-management division. It is also reorganising its investment bank and has said that in future it intends to concentrate on serving multinationals.

Credit Suisse also took its time, changing tack dramatically in 2015. Its then-new chief executive, Tidjane Thiam, an ex-insurer, tilted the business towards Asia, seeing newly rich Chinese as ideal clients for a Swiss bank. He also cut investment-banking jobs and proposed a partial sale of the Swiss domestic business. Investors were unconvinced. In April he ditched that sale and announced a share issue.

Others caught out by the crisis were quicker to narrow their ambitions. One was UBS, which was bailed out by the Swiss government in 2008. Mr Cryan, then the bank's chief financial officer, helped turn it around. In 2011 it decided to concentrate more on wealth management worldwide and on its Swiss universal bank, and to cut back on investment banking. That meant missing out on a good year for fixed-income businesses in 2016, but over time it should involve fewer downs as well as ups.

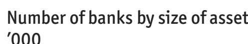
All in all, European banks have fallen behind their American counterparts. In investment banking, where they compete head-to-head, the gap is worryingly wide. Part of the reason is that the Americans' domestic market recovered sooner and more strongly from the crisis. According to Dealogic, a research firm, America yielded 48% of global investment-banking revenue in 2016, up from 41% in 2007 (and only 34% in 2009, its weakest year). Asia's share also grew, but Europe's shrank to 22% in 2016 from 36% in 2007.

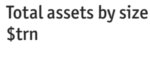
American banks were naturally best placed to take advantage of growth at home, where they rule the roost. Asian (mainly Japanese and Chinese) investment banks, plus Morgan Stanley, thanks to MUFG's stake in the American firm, lead the way in their home region. But European firms have also lost ground to the Americans on their own continent. The Americans fill four of the first five slots in Dealogic's European regional league table. Only Deutsche prevented a clean sweep, coming third.

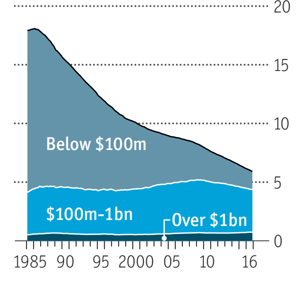
Leading the field both at home and abroad, you might suppose that America's big banks had little to complain about. Even so they are restive, insisting that they got over the crisis years ago but are still being held back by a thicket of regulation. Donald Trump said he would cut through it all. But how? ■

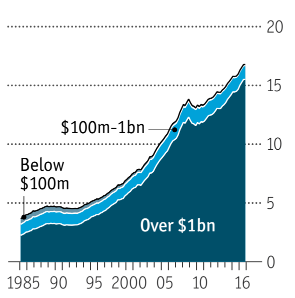
Mirror images

United States









Source: Federal Deposit Insurance Corporation

American banks

After Dodd-Frank

Time to loosen the reins, say America's banks. Not so fast, say regulators

"LEFT TO OUR own devices," said Lloyd Blankfein, boss of Goldman Sachs, in February, "we wouldn't hold as much capital as we are holding." He is not alone. "It is clear that the banks have too much capital," wrote Jamie Dimon of JPMorgan Chase, America's biggest bank by assets, in a letter to shareholders last month.

American banks, both big and small, are chafing. Since 2009 the 33 banks deemed to be "systemically important", which are subject to stress tests by the Federal Reserve, have added $700bn in common equity. The eight banks considered to be of global systemic importance (G-SIBs, in banking parlance) must meet not only the capital and leverage requirements agreed on by international supervisors after the crisis (see next article) but also additional surcharges levied by the Fed. Among other changes, Mr Dimon wants this "gold-plating" to go.

Perhaps most irritating to the banks are the Fed's annual stress tests, estimating how much equity would be burned up in a hypothetical crisis. The Fed may also limit banks' dividends and share repurchases if it finds they do not have enough capital in the worst scenario. Banks are given plenty of information about the imaginary catastrophe—but not about the models the Fed uses in the tests. It is hard, they mutter, to hit a moving target in the dark. The Fed, however, does not want banks to arrange their balance-sheets merely to meet the test. Daniel Tarullo, the designer of the Fed's stress-test apparatus, who stepped down as a governor last month, said in a farewell speech that the tests needed refining but that they had to adapt to new risks, and that publishing models would "result in less protection for the financial system".

Bankers freely admit that they had too little equity before the crisis. Now they say they have too much. Mr Dimon points out that under the worst scenario in the Fed's stress test last year, the 33 banks' hypothetical losses amounted to $195bn. That is bound to be an overstatement: the test assumes that each and every bank will be the worst affected. But it still amounts to less than 10% of their combined loss-absorbing resources. They are now required to hold so much capital, Mr Dimon writes, that lending and the American economy are being held back.

The banks grumble about a surfeit of rules as well as of capital. The Fed's first stress tests predated, by a year, the Dodd-Frank act of 2010, which recast American financial regulation. The law runs to 848 pages. It abolished one watchdog but created two more, the Consumer Financial Protection Bureau (CFPB) and the Financial Stability Oversight Council, which is made up of the heads of regulatory agencies and is chaired by the treasury secretary. It laid out procedures for dealing with bankruptcy of systemically important banks, using public money if need be. In all it imposed 390 requirements for which regulators had to come up with new rules. According to Gabriel Rosenberg of Davis Polk, a law firm, only 279 have been finalised. Banks moan that the regulation of mortgages—more than half of which are now originated by non-banks—is especially fiendish.

Complaints about red tape extend far beyond Wall Street. America has a total of around 5,900 banks, all but 100-odd of which hold assets of less than $10bn, a category dubbed "community" banks; indeed, more than 5,000 of them hold less than $1bn. Community banks, like their bigger peers, say regulation is costing them too much and restricting lending.

Community banks have plenty of other problems as well. They lack scale; their risks are locally concentrated; and they face competition not only from bigger banks but also from online lenders. Already one-fifth of small businesses—the community

banks' staple—look to online lenders when seeking a loan. Small banks have been in decline for decades (see chart, previous page). Stephen Cecchetti, of Brandeis University, and Kim Schoenholtz, of New York University's Stern School of Business, point out that this downward trend did not accelerate after Dodd-Frank.

Still, extra regulation has not helped. Karen Mills of Harvard Business School, a former head of the federal government's Small Business Administration, says that Dodd-Frank has thickened the "spaghetti soup". In particular, community banks' ability to make loans of under $150,000 has been weakened. Although they are exempt from many of the regulations governing large institutions, such as supervisory stress tests, the fixed costs of regulation weigh more heavily on smaller lenders. "Bank presidents are really thinking about regulation more than serving customers," says Hester Peirce, of the Mercatus Centre at George Mason University in Washington, DC.

Do a big number

If Hillary Clinton had been elected president last November, bankers' best hope for regulation might have been more of the same. Mr Trump, by contrast, has promised to "do a big number" (meaning a radical cutback) on the Dodd-Frank act. No one knows how big. All Mr Trump has done so far is to issue an executive order listing seven unobjectionable principles for financial regulation (sample: "foster economic growth and vibrant financial markets through more rigorous regulatory impact analysis") and to instruct the treasury secretary to assess by early June whether existing laws can deliver these objectives. A separate proclamation has paved the way for easing rules on financial advisers' duties to their clients.

Nothing much is likely to happen soon, although ideas are in the air. Gary Cohn, Mr Trump's chief economic adviser, has mused about a "21st-century version" of the Glass-Steagall act, a Depression-era law, repealed in 1999, that forced the separation of commercial and investment banking. Separately, Republicans in the House of Representatives have said that they want to pass a bill to replace Dodd-Frank by the summer. But the new administration wanted to concentrate on replacing Barack Obama's health-care law (over which it came a cropper) and on reforming taxes. And although Mr Trump has a treasury secretary in place, Steven Mnuchin, other jobs in the department that require approval by the Senate, plus many that do not, have not yet been filled.

Passing new legislation may anyway be tricky. Although the Republicans have majorities in both the House and the Senate, they lack the 60 votes needed to break a filibuster (debating a bill for so long that it runs out of time) in the upper house. Persuading eight Democrats to join them appears a tall order for anything that looks like a sop to Wall Street, but some sound keen on Mr Cohn's Glass-Steagall idea. Budgetary measures can be passed with a simple majority. That may allow Republicans to restrict funding for (and perhaps restructure) the CFPB, which is financed through the Fed rather than directly by Congress, or perhaps to gut Dodd-Frank's bankruptcy procedure.

There may be broad agreement on some areas. One is that small banks' burden should be eased, for instance via complete exemption from the Volcker rule, which bans banks from trading most securities for their own profit, and from owning private-equity and hedge funds, and which was aimed at big institutions. It helps that community banks have plenty of congressional clout. Another is that the threshold of $50bn in assets for designating a bank as systemically important, and so subject to detailed stress-testing, is too low. The smallest are no systemic threat, and the limit discourages otherwise sensible mergers that would push banks above it. The Fed has already eased some requirements for smaller systemic banks.

It should also be possible to loosen the reins without new laws. Dodd-Frank gives regulators a fair amount of discretion, and Mr Trump will be able to choose a number of new ones. Most important (and possibly imminent) is a replacement for Mr Tarullo, long a thorn in the banks' sides, to oversee financial stability at the Fed. Two other slots at the central bank are vacant. Thomas Curry's term as the Comptroller of the Currency, who oversees national banks, ended on April 9th. And in November Martin Gruenberg's term as chairman of the Federal Deposit Insurance Corporation (FDIC) is due to run out.

Jeb Hensarling, chairman of the House Financial Services Committee, intends to revive legislation that he proposed last year. At the core of his Financial CHOICE (Creating Hope and Opportunity for Investors, Consumers and Entrepreneurs) act is indeed a choice: banks can opt to maintain a leverage ratio, of equity to total liabilities, of 10%, in return for exemption from such burdens as minimum ratios of equity to risk-weighted assets laid down in international banking standards, "living wills" setting out how they could be wound up if they went bust, and those pesky stress tests. With enough equity, the theory goes, a failing bank would be no risk to the taxpayer and so could be left in peace. If it overreached, only its shareholders would suffer.

A book published in March by academics at the Stern

The Dodd-Frank act has thickened the "spaghetti soup"

School and NYU's law school, "Regulating Wall Street: CHOICE Act vs Dodd-Frank", compares the two acts, section by section. It argues that Dodd-Frank has made the American financial system safer, both since the crisis and relative to those of other large countries; but its many pages and associated rules have not got to the heart of systemic risk, and are more burdensome than necessary. So does CHOICE represent an improvement?

Start with a tick in its favour. The Volcker rule, the NYU team concludes, could go. It is supposed to stop banks using deposits insured by taxpayers to fund risky proprietary trading. But it was not such trading that caused the crisis, and the rule does not reduce risk enough to justify the burden of compliance. Banks complain that they must send reams of data to regulators daily to show that they are complying. They say that if the rule were scrapped they would not reopen proprietary trading desks anyway. A separate study, by consultants at Oliver Wyman, finds that the Volcker rule and similar regulations in Europe may have harmed liquidity in some important markets, including repos, which provide short-term funding, corporate bonds and commercial mortgage-backed securities, because banks now hold much less of such stuff on their balance-sheets.

Neither Dodd-Frank nor CHOICE, says the NYU team, tackles important flaws in American regulation. The country has lots of different watchdogs, and who oversees what depends on a company's legal form rather than its economic function. Its property and mortgage markets are distorted by Fannie Mae and Freddie Mac, which guarantee almost all housing loans. Both laws leave these problems untouched.

CHOICE's central bargain—10% leverage in return for less regulation—may make sense for smaller, non-systemic banks. For the bigger ones, it looks like a bad deal both for the banks themselves and for the wider economy. Eliminating stress tests for systemically important banks, argue the NYU authors, "could be catastrophic". One of them, Philipp Schnabl, says the point is not how much capital banks have in normal times but how much they have in hand when trouble arrives. And because leverage ratios treat all assets as equally risky, banks may have an incentive to increase risk—and hence, they hope, returns—while keeping the ratio constant. You need risk-weighting too.

Moreover, measuring leverage is not as simple as it looks. American accounting principles, known as GAAP, allow banks to offset derivative exposures on the asset and liability sides of their balance-sheets. International standards, or IFRS, restrict this possibility, because the liabilities will still exist in bankruptcy. Balance-sheets are therefore smaller, and leverage ratios larger, under GAAP than under IFRS.

This matters. Thomas Hoenig, vice-chairman of the FDIC, is no fan of regulatory risk-weighting. He thinks it is fine for banks to use it internally, but not for supervisors to decide priorities for them, pointing out that "I cannot predict the future." So he also favours leverage ratios of at least 10%—but for all banks, and on the IFRS measure. In December, America's eight G-SIBs had a combined leverage ratio of 8.2% under GAAP but only 6.3% under IFRS. In the 2008 crisis, Mr Hoenig notes, their losses amounted to 6% of tangible assets.

Disentangling risk

He recently put more flesh on his proposals. Dodd-Frank was "well-intended", he says, but its "many and complicated" regulations are too burdensome for all banks, especially small ones. For the largest ones, he thinks, the law has "served to enshrine too big to fail". He suggests that big banks should split commercial and investment banking into separately capitalised and managed subsidiaries, each capable of entering bankruptcy without public support. The FDIC would insure deposits in the commercial subsidiary (as before), which would be subject to a leverage ratio of at least 10%; the investment-banking arm's requirement would be based on risk, but should be no less than that of stand-alone broker-dealers today (8.4%). In return, big banks could be freed from a whole array of regulations, including stress tests and living wills. The idea, Mr Hoenig notes, is similar to the "ring-fencing" of retail banks in Britain, due in 2019. (Mr Cohn could also be thinking along these lines.)

Others say that 10%, however you measure it, is not enough. In "The Bankers' New Clothes", published in 2013, Anat Admati of Stanford and Martin Hellwig of the Max Planck Institute for Research on Collective Goods proposed a minimum of 20%. The Federal Reserve Bank of Minneapolis estimated last year that Dodd-Frank had cut the chance that big American banks would need another public bail-out at least once in the next 100 years only from 84% to 67%. To reduce the probability to 9%, it proposed the equivalent of a leverage ratio of 15%. Banks that fell short after five years would see the bar raised, eventually to 24%.

Underlying all this is a divergence between what suits a big bank and what suits the economy as a whole. Unsupervised, banks are likely to issue too little capital, because they do not take into account the effect of a systemic crisis on other banks or on the economy as a whole. That is why the biggest face more demanding capital rules and stress tests. The alternative is to force them to have so much equity on their balance-sheets that they can fail without bringing down the lot. Mr Dimon argues that the banks have already passed that point: "Essentially, too big to fail has been solved—taxpayers will not pay if a bank fails." The question now is whether Mr Trump appoints supervisors who agree with Mr Dimon. ■

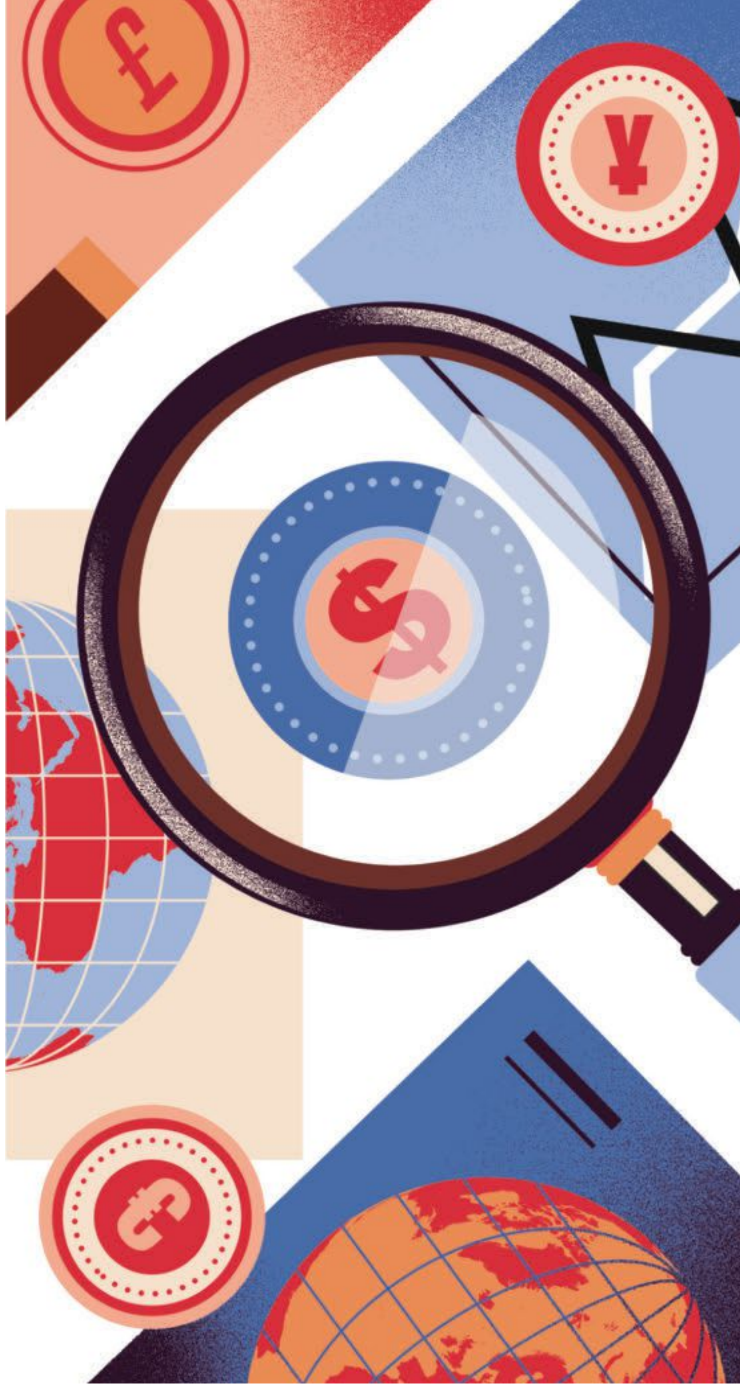
International regulation

Bother over Basel

International bank regulation is grinding towards completion—or possibly to a halt

BY THE END of last year bank supervisors were supposed to have agreed on revisions to Basel 3, the international capital and liquidity standards devised after the financial crisis, which would then be all but complete. That did not happen, chiefly because some European authorities balked at the prospect of yet higher capital demands for the banks in their charge. Officials close to discussions at the Basel Committee on Banking Supervision, which draws up the standards, are still confident that agreement will eventually be reached. But further delay seems inevitable, if only because Donald Trump has yet to choose the American officials needed to complete the talks. And even if a deal is done, there are signs that the trend towards international regulation that gathered pace after the financial crisis may be going into reverse. "Post-crisis, there was a consensus for a global set of rules," says Huw van Steenis of Schroders, a British fund-management firm. "That consensus has now broken."

The crisis revealed that many banks had too little capital to absorb losses, were funded with too much debt and not enough equity, and were prone to illiquidity. Basel 2, the previous set of standards, completed in 2004, had required banks to maintain a minimum ratio of "tier-1" capital (equity plus qualifying debt) to risk-weighted assets (RWAs), with the weights determined either by banks' own models or by a standardised approach. This had



proved inadequate. Moreover, though Europe had adopted Basel 2 wholesale, American supervisors had applied it to just a dozen internationally active banks, fearing (with good cause) that Basel 2 would allow lenders to maintain dangerously low levels of equity. For the rest, they preferred to watch a simple leverage ratio, of equity to unweighted assets.

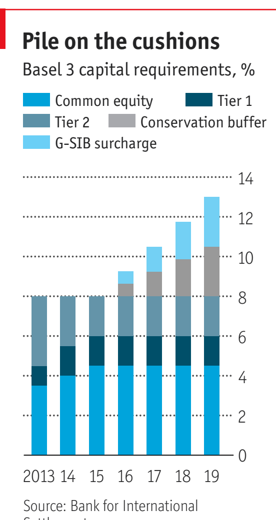
Basel 3, agreed on in 2010, was accepted on both sides of the Atlantic (and in many other countries). Its many and detailed provisions are being phased in gradually and have been reviewed and adjusted several times. The standards are far stricter than the previous ones in several ways, starting with tighter definitions of both tier-1 capital and RWAs. The equity component of tier-1 capital (common equity tier-1, or CET1) must amount to at least 4.5% of RWAs. Total tier-1 capital must be at least 6%. Stuart Graham of Autonomous, a research firm, reckons that the new rules in effect lopped around three percentage points from CET1 ratios. On top of this Basel 3 stipulated a "capital-conservation buffer" of 2.5% of RWAs and a "countercyclical buffer" of up to 2.5%, set by national regulators and intended to cool overheating. Both must be made up of equity (see chart).

Of G-SIBs and TLACs

The 30 institutions considered to be globally systemically important banks, or G-SIBs, incur an equity surcharge, ranging from 1% to 2.5% of RWAs. All these requirements will increase year by year until 2019. G-SIBs from rich countries must also have a "total loss-absorbing capacity", or TLAC, comprising equity and convertible debt, of 16% of RWAs by 2019 and 18% by 2022. The handful of G-SIBs from emerging economies will have longer. The idea is that should they fail, they can be automatically recapitalised by bailing in investors, without troubling taxpayers.

Basel 3 also introduced a minimum leverage ratio, an idea European regulators resisted at first. Tier-1 capital must be at least 3% of assets, and more for G-SIBs. To deal with worries about liquidity, Basel 3 also requires banks to have enough high-quality liquid assets to withstand a month of outflows under stress and maintain sufficient "stable" funding, such as equity, long-term debt and retail deposits.

All this has meant that banks have become much better capitalised. Both CET1 and leverage ratios have climbed (see chart, next page). Virtually all of the 100 big international banks and 110 others covered in the Basel committee's latest monitoring report are keeping up with the Basel 3 standards.



A few tasks have not yet been tackled, such as whether the risk-weights of sovereign bonds should be raised. The latest kerfuffle stems from the committee's attempts to bring more consistency to banks' internal calculations of RWAs and to narrow the gap with the standardised approach, which typically yields higher RWAs and hence lower capital ratios. In 2013 the committee asked 32 lenders to work out CET1 ratios for the same hypothetical credit portfolio. The highest figure was four percentage points above the lowest.

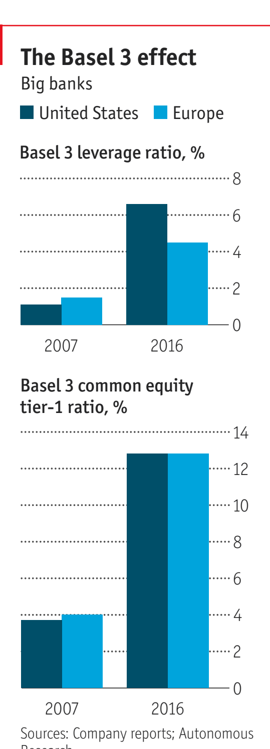
That, the committee decided, was too much, so it proposed changes to close the gap, including minimum values for important parameters in internal models (such as the probability that certain types of loan will go bad). Most controversially, it suggested an overall "output floor"—a lower limit for the sum of RWAs—of between 60% and 90% of the number reached via the standardised method. If a bank's internal model yielded a figure below the floor, the floor would be used instead.

The changes would have little if any effect on American banks, but some European (and Asian) lenders would see their RWAs and hence their minimum capital requirements go up. Unfair, said the Europeans: the changes, in effect, penalised them for keeping on their balance-sheets assets such as residential mortgages and loans to big companies, which American lenders are less likely to have. Not at all, retorted the Americans, who still mistrust risk-weighting: you should have put your houses in order sooner, as we did.

Officials say that pretty much all the disagreements have been sorted out except, crucially, for the output floor. But for now there is no one to talk to on the American side; and the isolation-

ist mood among some Republicans may work against a deal. In a letter to Janet Yellen, the Fed's chairman, in January, Patrick McHenry, vice-chairman of the House Financial Services Committee, said it was "unacceptable" that the Fed "continues negotiating international regulatory standards for financial institutions among global bureaucrats in foreign lands without transparency, accountability or the authority to do so". In other words, stay out of Basel until you get new orders.

Would it matter if there were no deal? Politically, very much so: it would be one sign among many (in trade, security and elsewhere) that global co-operation can no longer be taken for granted. In practical terms, perhaps not so much. Apart from this point, Basel 3 is largely done; most banks use the standardised approach anyway. But failure may give some European banks an excuse to put off adding extra equity or reducing risks.



Sources: Company reports; Autonomous Research

Perhaps delay may be no bad thing: given more time, European economies and banks should become stronger, making agreement easier. And once a new American team is in place, a way forward may emerge. Mr Trump's nationalist streak could even help. Given that the proposals scarcely affect American banks but may burden foreign competitors, an agreement could widen the lead the Americans already enjoy over their rivals. On the European side, some fierce critics have softened their tone. Recently Andreas Dombret, a Bundesbank official who had opposed the output floor outright, moderated his stance to "any output floor should not be too high."

Stronger non-American banks are also keen for a deal. Bankers are annoyed about the delay over completing Basel 3, because delay means uncertainty. "Do you ever want to stop?" sighs one banker, reeling off a list of changes to regulation over the past few years. Even if signed off tomorrow, the amendments would not take full effect until the mid-2020s.

Beware a new transatlantic divide

A change in American supervision along the lines proposed by Mr Hensarling or Mr Hoenig would pull America back towards a system of supervision based primarily on minimum leverage and away from the CET1 ratio and the Basel liquidity constraints, as well as dismantling much of America's domestic regulatory apparatus. If Mr Hensarling's bill became law and the big banks rejected the option of a 10% leverage ratio in exchange for regulatory relief, something resembling the old transatlantic divide in supervision could emerge: Basel standards for the big American banks and all European ones; domestic, leverage-based supervision for smaller American lenders.

Smaller banks tend not to operate outside their home countries. What worries international banks more is that domestic supervisors are tightening requirements for foreign lenders on their turf. If a parent bank abroad gets into trouble, they do not want capital to be siphoned away from a local subsidiary to prop up the parent; and if the subsidiary stumbles, they want to be sure it has enough equity of its own so it can be allowed to fail without imposing on local taxpayers. Since last July foreign banks in America have had to create separately capitalised "intermediate holding companies" for their local subsidiaries. In November Valdis Dombrovskis, the European Union's commissioner for financial services, proposed something similar for the EU. The details have not yet been worked out, but he wants G-SIBs in the EU to maintain enough loss-absorbing capacity locally to permit orderly bankruptcy.

Britain's departure from the EU, scheduled for 2019, may give the ratchet another turn. Banks in the EU have "passports" that allow them to serve the entire union from any member state, without local branches or subsidiaries. Most have chosen London as their base. After Brexit, London-based banks will lose their passports. No one yet knows which operations and how many jobs will move away, but regulators in France and Germany, say, may insist that hubs in Paris and Frankfurt are separately capitalised.

Some banks, such as HSBC and Santander, have long capitalised subsidiaries in different places separately. And it is not hard to understand why national supervisors might insist that others do the same: a little sand in the wheels of globalised financial institutions may be a good thing. Nonetheless, even cautious banks worry that supervisors may trap capital that could be better deployed elsewhere. The effect would be to raise lenders' minimum capital requirements even further.

"If you have a very fragmented approach to banking regulation," says David Strachan, a British ex-supervisor who is now working for Deloitte, a consulting firm, "the cost this imposes on banks trying to operate globally is material." If some countries lose confidence in supervisors elsewhere in the world, ring-fencing may increase. If others follow the lead of America and Europe in asking for intermediate holding companies, "then it becomes quite damaging." ■

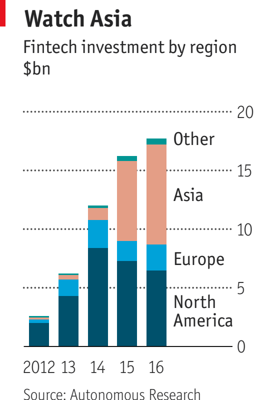
Financial technology

Friends or foes?

The relationship between banks and technology companies is becoming increasingly collaborative

IN JUNE 2007 a banker, or anyone else with $499 to spare, could try a novel distraction from work: Apple's first iPhone had just gone on sale. In October 2008, after Lehman's fall, another technological innovation was more quietly unveiled. A paper published online under the name of Satoshi Nakamoto described and advocated a form of electronic cash which people could send to one another without going through discredited banks. It was called bitcoin.

As banks have adapted to the crisis and its aftermath with varying degrees of success, the rest of the world has not stood still. Smartphones and, less visibly, cloud computing have transformed people's daily lives—and hence their use of money. Consumers expect to be able to use the powerful computers in their palms to pay for goods or move cash around as easily as they can tweet, stream videos or share photos with friends. Corporate customers are equally demanding. Yet banks' information-technology systems are a curious mixture of the old and rickety and



the sleek and modern. Malevolent hackers continually probe for weaknesses as banks are striving to stay ahead.

And if they don't? Bitcoin embodied an anti-establishment, libertarian threat to banks: that upstart technologists might disrupt them as Amazon has disrupted bricks-and-mortar retailers and Uber cabbies. So far that has not happened, to the chagrin of ambitious financial-technology (fintech) startups and the relief of many bankers. New competitors have made some inroads, but—in Western countries, at least—they are finding that collaboration is a likelier path to success than a full-on fight. Moreover, far from being usurped by bitcoin, banks are eager to turn blockchain, the technology on which it is based, to their own ends. Again, co-operation with technology companies, and sometimes with other banks, is the order of the day.

To be sure, a gang of newcomers have muscled their way into their domains. Peer-to-peer or marketplace lenders, such as Lending Club and SoFi in America, or Funding Circle and RateSetter in Britain, connect people and companies that want to borrow with those that have money to lend, promising both sides keener rates. Britain's MarketInvoice allows small companies to borrow against receivables immediately, rather than turn to a bank or wait for bills to be paid. Digital banks such as N26 in Germany, Tinkoff Bank in Russia and an array of British hopefuls are challenging incumbents.

But banks are not easily displaced. Peer-to-peer lending, for instance, has grown rapidly, but still amounted to just $19bn on America's biggest platforms and £3.8bn in Britain last year, according to AltFi Data, an analytics company. And some marketplaces now involve banks. Lex Sokolin, director of fintech strategy at Autonomous, a research firm, argues that music—one of the first industries to be attacked by digital revolutionaries—was fairly easily disrupted. Retailing was a little harder, but customers got used to not handling books, cameras and clothes before buying. Finance and health care, he says, are much more difficult. People are rarely inspired by financial products, says Mr Sokolin, which makes it costly to build a brand. It is easier to team up with those who already have the customers.

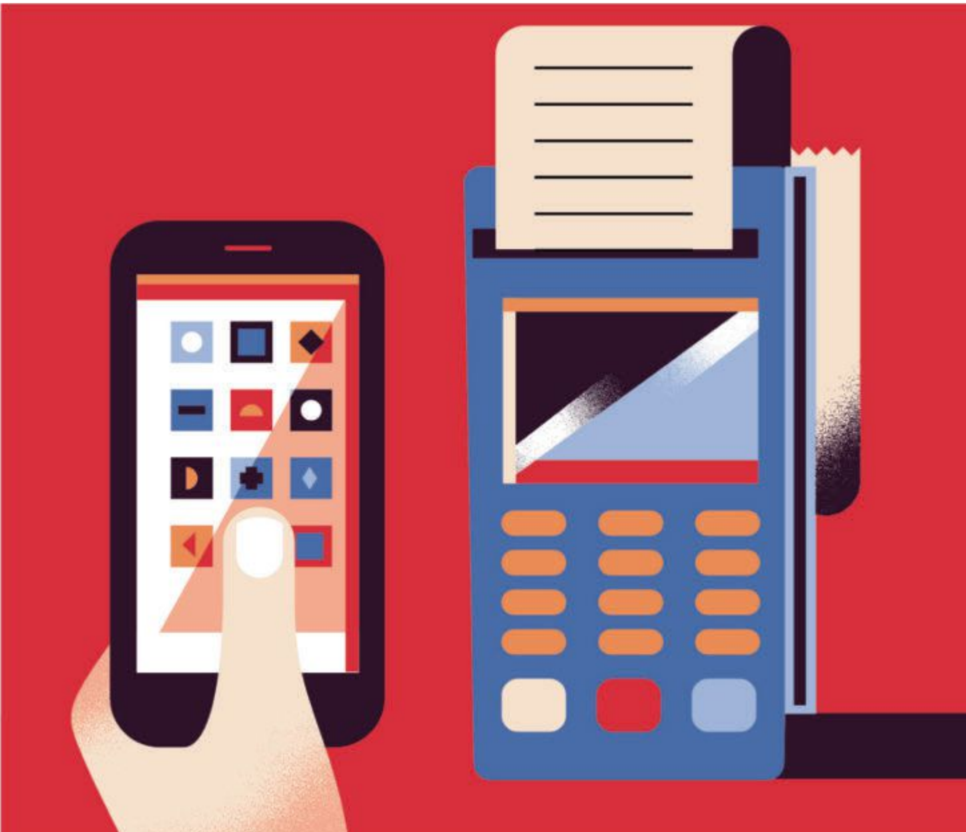
Banks command resources that small startups can only dream of: last year JPMorgan Chase spent over $9.5bn on technology, including $3bn on new initiatives. As well as economies of scale, they enjoy the advantage of incumbency in a heavily regulated industry. Entrants have to apply for banking licences, hire compliance staff and so forth, the costs of which weigh more heavily on smaller firms. Even tech giants, which are moving into finance and may enjoy more trust from younger customers than banks do, could be deterred. Apple, Google and Samsung all have apps allowing people to pay shopkeepers from smartphones, and Amazon offers loans to businesses selling on its platform, but may not want to be supervised as closely as banks are now.

In the West, regulation is opening up more of the field to fintechs, both large and small. A revised European Union directive on payment services, known as PSD2, allows third parties to offer more convenient ways of paying online or to consolidate information from different accounts (with the holder's permission) so that people can keep track of their finances. America has no equivalent, but the Office of the Comptroller of the Currency, which oversees national banks, has proposed giving special licences to fintechs.

How China does it

China's digital behemoths worry less about such things. Companies like Ant Financial, the financial arm of Alibaba, an e-commerce giant, and JD.com, another online marketplace, have masses of data about those who buy and sell on their platforms. They know their spending habits and how much cash they can spare, so an easy next step is to offer them small loans. Big Chinese banks in any case neglect consumers and small businesses, so customers feel no loyalty towards incumbent lenders. Regulators have also been willing to let online companies shift into finance. No wonder that Asia accounts for the bulk of investment in fintech (see chart).

Wherever they are, even small fintechs have at least two advantages over bigger rivals. First, they are nimble, writing and rewriting code, testing and retesting products, discarding what ▸▸



The millennial problem

Young bankers are getting harder to please

"FIST BUMP, MAN." That was how a young employee at Bank of America Merrill Lynch expressed his approval after a presentation to staff, recalls Diego De Giorgi, head of investment banking there. The boss obliged. After a recent "town hall" meeting he got an e-mail from a second-year analyst who wanted to discuss some ideas. Mr De Giorgi duly invited him and a few of his peers for a chat.

Today's recruits to big banks have different priorities from the newcomers of a decade or two ago. These days a presentation to university students might be followed by half an hour of questions about the bank's corporate social responsibility programme, as well as the more obvious ones about pay and promotion prospects.

Those presentations attract significantly fewer people than they did at the height of the banking boom. An event at a top American business school before the bust, says a bank boss, would need an overflow room. Now, he jokes, bank staff outnumber potential recruits.

In fact, finance, along with consulting, remains the top destination for graduates of America's leading business schools (see chart). But it is a lot less popular than it was; at MIT's Sloan School, for example, it shrank from 31% of the total in 2006 to 15% last year, and at Columbia from 55% to 37%. Conversely, technology has leapt from 12% to 33% at Stanford and doubled its share at other schools. Within finance, investment banks are still the biggest recruiters, but hedge funds, venture capital and private equity have gained ground.

Banks also need fewer people in absolute terms. Trading operations have been cut back, and a difficult decade has increased pressure to cut costs. Some bankers say that recruiting ambitious youngsters is not that hard; banks still pay well, and plenty still want to join. Keeping them is a different matter. After two or three years some itch to try their hand at tech, private-equity firms or hedge funds. "Millennials are much more likely to come and go than to pursue a one-firm career," notes the chief executive of an international bank.

"There was a view that this was cyclical," says Ray McGuire, global head of corporate and investment banking at Citigroup. "I think it's more secular." So his bank and others are trying to make themselves more attractive to 20-somethings. At Citi, for instance, new investment-banking analysts can defer starting their jobs for a year to work at a non-profit organisation at 60% of their proposed pay. Back in the office, too, banks promise less spreadsheet drudgery, as well as faster promotion for outstanding performers. The Wall Street convention, says Mr McGuire, was to advance people "almost in lockstep"; now they are more likely to move up "when they are ready".

Fashions in the job market are fickle; tech also attracted lots of graduates during the dotcom bubble before falling back, and could lose its shine once more. But for now banks will have to scramble to get and keep the brightest and best.

Greener grass

United States, MBA graduates entering*
% of total

Finance
Technology
40, 30, 20, 10, 0
2007, 09, 11, 13, 16

*Average of Berkeley, Chicago, Columbia, Harvard, MIT, Northwestern, Pennsylvania, Stanford, and Virginia
Source: Business schools

doesn't work and improving what does. Better, an online mortgage-broker in New York, updates its products "20 or 30 times a day", says Erik Bernhardsson, the company's chief technology officer. Banks might do so "every six months". Second, fintechs attract bright, mainly young people whom banks might have hoped to get to work for them (see box). Plenty of them used to. Joseph Lubin, the founder of ConsenSys, a blockchain company in Brooklyn, came from Goldman Sachs; Andrew Keys, the head of business development, was previously an analyst at UBS; and other colleagues used to work at Bank of America, Deutsche Bank and HSBC.

A profitable symbiosis

All this fosters co-operation between banks and fintech companies. Fintechs gain access to banks' scale and customers. Banks can exploit fintechs' expertise in programming and in analysing mountains of data. Co-operation may also lessen (but not eliminate) the danger that banks are reduced to dumb utilities, maintaining basic systems on which others make money from fancy new products. Application programming interfaces, or APIs—routines that connect two lots of software—are taking symbiosis a stage further. Small businesses, say, might use accounting software, created by a fintech, through a bank's online platform.

Banks (and central banks) have invited startups to develop products in controlled environments such as in-house labs and accelerator programmes. That can lead to more formal arrangements. Bipin Sahni, head of research and development in Wells Fargo's innovation group, says 11 young firms have gone through his bank's six-month programme since 2014. Being based in San Francisco, Mr Sahni adds, "we see more interesting companies than a bank sitting in other parts of the United States."

For fintechs, symbiosis need not mean minnowhood. Stripe, a San Francisco firm, processes mobile and online payments on companies' behalf, linking them to card networks (and through them, banks) in much the same way as bricks-and-mortar retailers and offering them additional software tools. It was

valued at $9.2bn in November, when it last raised money. Patrick Collison, who founded Stripe with his brother John in 2010, explains that from the beginning the plan had been to work with credit- and debit-card networks. "It was always clear there was no viable independent strategy," he says.

Some fintechs allow lenders to reach customers they might otherwise miss—for instance, by improving underwriting. Better funds mortgage applicants with capital from more than 20 investors, including Fannie Mae and most of America's big banks, letting its software decide which of the investors' underwriting criteria suit the borrower best.

Chinese internet giants, too, are using smaller fintechs. Douglas Merrill of ZestFinance in Los Angeles says that Baidu, a search-engine titan that has a stake in his firm, increased approval rates for its small-loans programme by 150% without a rise in losses; ZestFinance's software crunches reams of messy data, allowing less obviously creditworthy people to borrow. A big American credit-card issuer, Mr Merrill adds, has cut annual losses by "a nine-figure number"; a carmaker has reduced credit losses by more than 20%.

Adam Ludwin of Chain, another blockchain company, calls examples like these, in which new and better products are connected to banks' own infrastructure, "top-down fintech". "They do what financial institutions should have done, but do it more quickly." Blockchain, by contrast, he calls "bottom-up": new infrastructure, either within banks or shared among them.

Blockchain enthusiasts stress that its potential stretches far beyond finance. In essence, a blockchain is an immutable shared record known as a distributed ledger. It might list transactions, payments or simply owners of money, land, shares or other assets. All parties have their own copies, which are updated instantly once changes are agreed on. That makes it lightning-fast by comparison with traditional transactions. Transfers between American banks, for example, can take three days. International transfers, which may involve several banks, can take even longer, and senders do not always know how much recipients will get after banks have taken their cut. Settlement of securities trades can be held up because one bank's record of who sold what to whom, when and for how much may differ from another's. A blockchain permits just one version of the truth, holding out the promise of huge savings in back offices. "Blockchain reduces the cost of trust," says Mr Lubin of ConsenSys.

Chain reaction

Banks, central banks, regulators, exchanges and technology companies both large and small are working on a host of projects using blockchain. Collaborative efforts abound, including Hyperledger, run by the Linux Foundation, a non-profit group that promotes open-source software, and backed by IBM; R3, a consortium involving several banks; and the Enterprise Ethereum Alliance (EEA), the newest such group, which includes Microsoft and ConsenSys, as well as an array of banks. Among Chain's projects is a payment-settlement system for VISA, a credit-card network, which is due to go live this year. Another hopeful, Ripple, has payments partnerships with several banks, including Santander. Digital Asset is developing a clearing-and-settlement system for the Australian stock exchange.

This mix reflects different ideas about which version of blockchain will work best. The EEA is building private, secure blockchains with technology repurposed from an open, public network, based on ethereum, another blockchain platform, which its creators believe will be the next generation of the internet. Others think blockchains will be more specialised. Ryan Zagone, Ripple's head of regulatory relations, likens bitcoin to the Model T Ford: since that first appeared, carmakers have produced vehicles in many shapes and sizes for specific uses. Blockchain, he thinks, will follow the same pattern.

This technology is still in its infancy, but with plenty of applications in the pipeline, banks should soon start to learn whether, and in what form, it lives up to its promise. Until then they have little choice but to pursue it. They are under pressure from supervisors and shareholders to reduce costs, and from clients to work better and faster. The eventual gains will probably flow to customers rather than producers, because that is usually the way with leaps in technology. But the banks know that it is better to be first than to bring up the rear. ■

The next crisis

How safe are banks?

Safer than they were; but crises have a habit of recurring

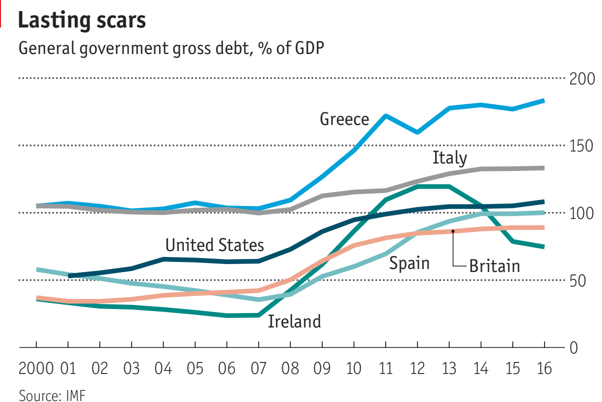
IN 1992 SWEDEN nationalised (and subsequently merged) two banks: Gota Bank and Nordbanken, which was already mostly owned by the state. As in America 15 years later, property prices had first boomed and then plunged, bringing banks down with them. In 2001 Nordbanken was combined with Danish, Norwegian and Finnish lenders to create Nordea, the region's biggest bank. It was not until September 2013 that the Swedish government sold its last shares in Nordea, finally drawing a line under a crisis by then 20 years in the past.

Banking crises leave deep and lasting scars on economies and societies. The one of 2007-08 was the biggest and worst since the 1930s, so the recovery was bound to take time. In a study published in 2014 of 100 financial crises going back to the 1890s, Carmen Reinhart and Kenneth Rogoff, two Harvard economists, found that real income per person took an average of eight years to return to pre-crisis levels. They identified 12 countries where systemic crises began in 2007-08, of which seven have so far clambered back at least to their starting-point.

Economic growth in America restarted in 2009 and has continued ever since, in one of the longest periods of expansion since the second world war. Unemployment has dropped to 4.7%. But growth has been unusually slow, averaging just 2.1% a year. The economy recovered its pre-crisis level of GDP per person only in 2013. Many Americans feel that prosperity is something that happens to other people—such as those who work on Wall Street.

Banking crises also have a habit of turning private debts into public ones: when banks are overwhelmed by foolish borrowing and lending, governments step in. America's ratio of debt to GDP rose by about half between 2007 and 2011, though it has since steadied. Greece's, Ireland's and Spain's went up even more. Although some have declined in the past couple of years, the countries' ratios are still far above pre-crisis levels (see chart, next page).

Central banks' balance-sheets and interest rates also still bear the imprint of the crisis, not least because monetary rather than fiscal policy has been the principal, even sole, means of post-crisis macroeconomic support. Even if the Fed raises its main interest rate by another three-quarters of a percentage point this year, as most forecasters expect, that will still leave it lower than it was when Lehman collapsed. The European Central Bank, which cut its benchmark rate to zero just over a year



ago, is still accumulating bonds, albeit more slowly.

The effects of the crisis are not just seen in the dry economic data; they are felt in the gut as well. Among the many and complex causes of the populism that carried Mr Trump to the White House and will take Britain out of the European Union is resentment of ill-defined "elites": well-off, educated, at ease with globalisation and doing nicely from it, while ordinary folk struggle to make ends meet. Related to that is anger at the crisis, its consequences, the bail-outs of the banks—and the knowledge that bankers still earn bucketloads.

There is nothing new in that. Economic crises always have political consequences, which loop back into economic policy for decades to come. Germany's twin fears of inflation and fiscal fecklessness, which arguably have held back recovery in the euro zone after the 2007-08 crisis, have roots in a series of 20th-century economic calamities, dating back to the hyperinflation of the 1920s. America's Fed was founded in 1913 in response to a severe crisis in 1907; the country's perennial arguments over the proper role of a central bank, and indeed the need for one at all, started when the First Bank of the United States was set up in 1791.

Crises often prompt an overhaul of regulations, in the hope of avoiding a repeat performance. Much of the complicated apparatus of American financial regulation today—the Federal Deposit Insurance Corporation, the Securities and Exchange Commission, Fannie Mae—was erected after the catastrophic banking collapse of 1933. The Office of the Comptroller of the Currency was a product of the civil war. No one knows whether the Dodd-Frank act will survive Mr Trump's promised assault or whether the latest version of the Basel capital-adequacy standards will be completed. But whatever the outcome, the arguments arising from the 2007-08 crisis are likely to carry on for years yet.

Wait for it

No one knows, either, when or where the next crisis will strike, but it seems certain that another one will come along some time, somewhere. In "This Time Is Different", a book published in 2009, Ms Reinhart and Mr Rogoff wrote that banking crises are "an equal-opportunity menace"—as common, over the long sweep of history, in rich countries as in emerging markets. Giddy build-ups of debt are a warning sign. In the past couple of years, China, scene of another credit-fuelled property boom, has looked like the most vulnerable big economy.

Are the West's banks safe for now? Bankers' recent grumbles about capital requirements and the burden of supervision have caused some to worry that bad old habits may be returning. Those grumbles have different causes on either side of the Atlantic. America's banks think they are strong enough to have their harnesses loosened, whereas some European ones moan that regulation is slowing down their recovery. But for both those groups the memory of ten years ago is still fresh enough to instil great caution.

Banks are never wholly safe, but they probably shouldn't be. Capitalism, after all, thrives on risk. The best preparation for catastrophe is a thick equity cushion, and banks are certainly better upholstered than they were a decade ago. Still, with hindsight it is hard to imagine how they could have done much worse. ■

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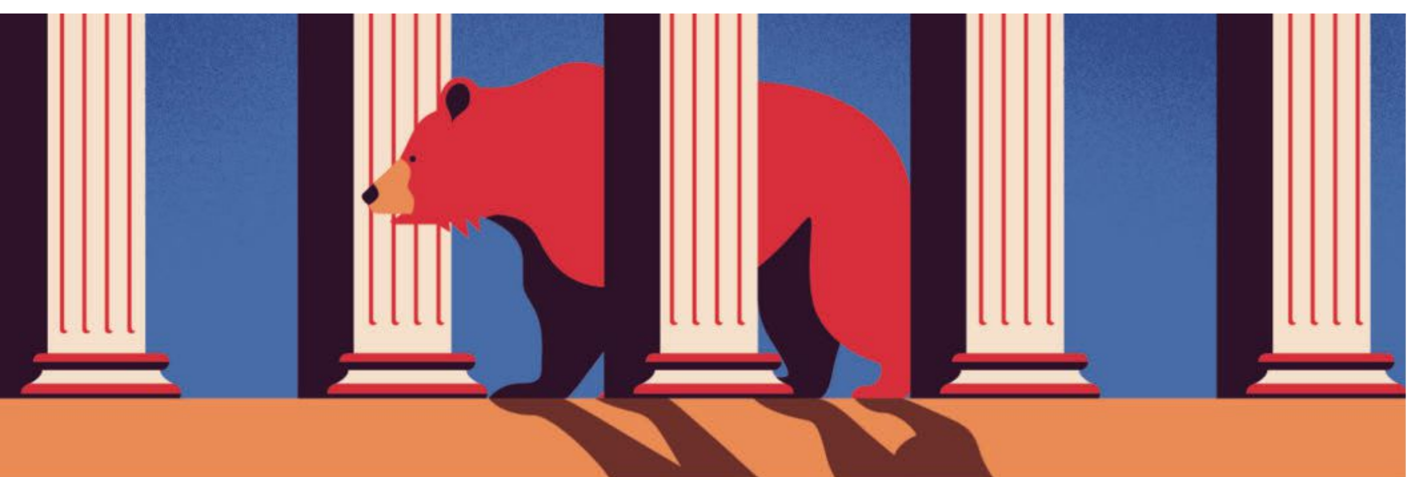

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France's presidential election

The rage against Macron

VILLEPINTE

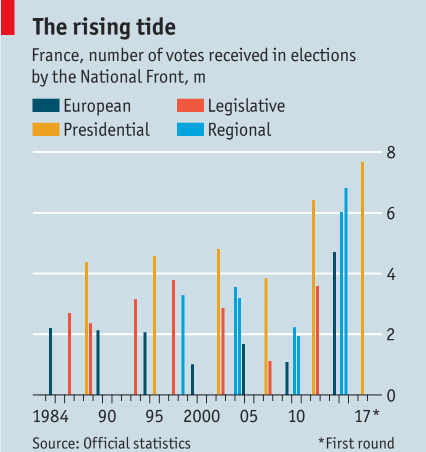
Even if Marine Le Pen is defeated, she will have left a deep mark on French politics

AS FAMILY outings go, it was unorthodox. No fewer than 20 members of all ages travelled from Normandy to a soulless exhibition hall 20km (12 miles) north of Paris, to watch the nationalist Marine Le Pen take the stage for her last big campaign rally. The youngest in the troop was seven; there were several teenaged girls with pony-tails. But the family seemed thrilled. "For 30 years, politicians have ruined this country," said Bernard, an uncle in the clan, who works in funeral insurance: "They tell us that we're racist, but that's nonsense. She's the one who's got concrete ideas to get us out of this chaos."

Ahead of the run-off vote for the French presidential election on May 7th, Ms Le Pen trails her liberal opponent, Emmanuel Macron, by a hefty 20 points. But she has not given up the fight. On May 3rd she lashed out at Mr Macron in a televised debate against the 39-year-old one-time banker, casting the election as a referendum on globalisation and finance. She accused the former economy minister of being the candidate of "the system", "Uberisation of society", and "savage globalisation".

In an echo of a campaign line used by François Hollande, the Socialist president, in 2012, Ms Le Pen told flag-waving supporters in Villepinte: "Today, the enemy of the French people is still the world of finance, but this time he has a name, he has a face, he has a party, he is presenting his candidacy and everyone dreams of him being elected: he is called Emmanuel Macron."

It is a message that chimes with a big chunk of the electorate in a fractured country. Big cities and college-educated voters favour Mr Macron and his pro-European, business-friendly politics, while struggling smaller towns and rural parts lean to the protectionist, anti-immigration Euroscepticism of Ms Le Pen. Even some of those who recoil at her xenophobia turn out to loathe the world of finance even more. "Neither banker, nor racist" read a banner at a protest rally in Paris. Jean-Luc Mélenchon, a Communist-backed candidate who came a close fourth, refused to call for a vote for Mr Macron against Ms Le Pen. Fully 65% of his supporters said that they would abstain or spoil their ballot papers.



Ms Le Pen has made some gains. She secured the first national alliance in the 45-year history of her party, the National Front (FN), hooking up with Nicolas Dupont-Aignan, a right-wing Eurosceptic who scored nearly 5% of the vote in the first round. Ms Le Pen, who won 21%, has also tried to broaden her base by reaching out to the mainstream right (with its older voters) and the far left (with its younger ones). She lifted a stirring passage on regional identity from a speech by François Fillon, the defeated centre-right candidate, which her aides insisted was a "wink" at his electorate. Her team made an appeal on social media to Mr Mélenchon's "unsubmissive" voters too, pointing to their shared positions such as distrust of NATO and desire for retirement at the age of 60.

Perhaps most striking, Ms Le Pen softened her position on the euro. Her vow to quit the single currency has long divided the FN: those around Florian Philippot, her lieutenant, consider it a centrepiece; those close to Marion Maréchal-Le Pen, her niece and an FN deputy, see it as a distraction. But it has turned into a liability for her run-off campaign. Older voters in particular worry that a currency devaluation could slash their pensions and savings. So Ms Le Pen has fudged the issue, with a muddled plan for parallel currencies instead. At a FN souvenir stand in Villepinte, offering such delights as pendants and earrings featuring Ms Le Pen's blue-rose emblem, Anne-Claire, an off-duty police official, agrees: "The euro isn't what matters; Marine is about defending the values of France."

Nonetheless, it will be extremely difficult for Ms Le Pen to make up the gap be- ▸▸

tween her and Mr Macron in the remaining days. No poll has put her remotely close to winning a majority. She gets over 50% in only one region, Provence-Alpes-Côte d'Azur, the FN's southern stronghold. In Brittany and greater Paris, her score drops to 31%. It would take a historic upset at this point for her to keep Mr Macron from the presidency. A loss for Ms Le Pen would be a symbolic defeat of the forces of nationalism and populism that have gained ground in parts of Europe. It could also put internal pressure on her leadership. "If she gets much less than 40%, the party will consider it a disappointment," says Cas Mudde, a scholar of extremism.

Yet it would be a mistake all the same to understate Ms Le Pen's achievement. With a first-round score of 7.7m votes, she has already set a historic record for the FN (see chart on previous page). In 2002, when her father, Jean-Marie Le Pen, also made it into the presidential run-off, there were demonstrations across the country and his opponent, Jacques Chirac, swept up 82% of the vote. This time, the streets have been mostly quiet, and she looks set to double his score. Mr Macron may well be safely elected on May 7th. But he will inherit a deeply divided country. ■

German politics

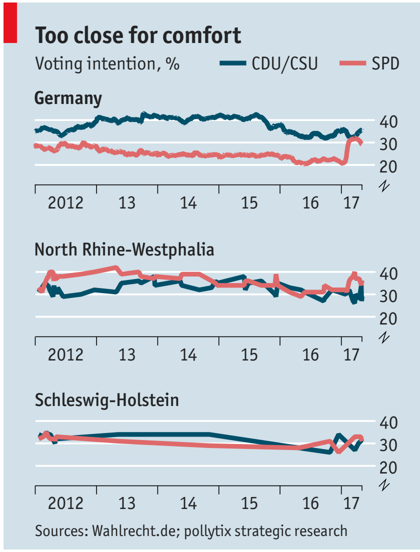
Angie's army

DÜSSELDORF

Two state elections suggest growing momentum behind the CDU

PERHAPS it was the impeccably proletarian setting: a vast former coal mine in the industrial Ruhr. Or perhaps it was the 1,500-strong crowd chanting "Martin! Martin! Martin!" Or perhaps it was the sound system blaring the upbeat 1990 hit "I've got the power". But for some reason Martin Schulz, the Social Democratic (SPD) candidate for Germany's chancellorship, got carried away and said something rash at his early-April rally in Essen. If the SPD won the state election here in North-Rhine Westphalia on May 14th, he proclaimed, it would go on to become "the strongest force in Germany" and eject Angela Merkel at the general election in September.

The Essen rally coincided with the so-called *Schulz-Effekt*, the surge in support for the SPD following Mr Schulz's coronation as party leader in March, which saw it draw almost level with Mrs Merkel's Christian Democrats (CDU) for the first time in five years. Its poll numbers in North-Rhine Westphalia, Germany's industrial heartland and most populous state, and Schleswig-Holstein, its northernmost state which votes on May 7th, had also jumped



(see chart).

The SPD has run both for over 20 of the past 30 years. Its premiers are popular and seem relatable: Hannelore Kraft in North-Rhine Westphalia is known as "Landesmutter", or mother of the state; Thorsten Albig in Schleswig-Holstein could pass for a schoolteacher. In both Düsseldorf and Kiel the party governs with the Greens, its favourite coalition partners. Back in early April it seemed elections in both states would give the SPD a morale-boosting shove into the national campaign.

But since then the *Schulz-Effekt* has cooled. The party has fallen back below 30% nationally. The most likely outcome in the North-Rhine Westphalia is an SPD-CDU grand coalition, led by whichever emerges as the largest. In Schleswig-Holstein the CDU is now ahead and might oust the SPD in favour of a coalition with the Greens and the liberal FDP.

Germany's 16 state governments run everything from schools and police forces to motorways and health systems; their leaders are big figures in their own right. So the suggestion that state elections are mere tests for federal politics "implies that voters do not know what they are voting on," argues Manfred Güllner, founder of the Forsa polling agency. He notes that the CDU's grim defeat at the last election in North-Rhine Westphalia, in 2012, came a year before voters in the state resoundingly backed Mrs Merkel in a federal election.

These voters also have reasons to give the SPD a kick. Even party insiders admit that North-Rhine Westphalia is a mess. It has the worst traffic jams and the highest level of child poverty in Germany, and the highest unemployment rate outside the former-communist east. It was here that hundreds of women were sexually assaulted in Cologne on New Year's Eve in 2015. It was here that Anis Amri, the Tunisian immigrant who drove a truck through a Berlin Christmas market in December, slipped between gaps in the asylum system. *Bild-Zeitung*, Germany's main tabloid, branded it "The Greece of Germany".

Schleswig-Holstein is less troubled. One study claims it is the happiest part of the country. Mr Albig's steady government is a relief in a state previously plagued by drama (one of his predecessors was found dead in a bathtub in Geneva). But Daniel Günther, his CDU rival, has plenty of material to work with: slow autobahn improvements, unreliable rural internet, and above-average unemployment.

Picking apart state issues and national personalities is tricky. Mr Schulz has campaigned extensively in both states. He lives in North-Rhine Westphalia, used to be mayor of a small town there and is a proud Rhinelander. Senior Christian Democrats and Social Democrats from across the country have converged on the two states; Mrs Merkel alone will have made eight visits to North-Rhine Westphalia by the election. "If we don't hold both it's really bad news," admits one senior SPD figure.

The results of the two elections will affect the morale of the two parties. A few weeks ago the *Schulz-Effekt* was energising the SPD and roiling the CDU; some of Mrs Merkel's MPs were even quietly opining that she was past it. All that has changed as the polls have turned, and will change even more if North-Rhine Westphalia and Schleswig-Holstein confirm the trend. There is almost half a year to go until Germany's election. But for now, Mrs Merkel has the momentum. ■

Turkey and Russia cosy up

Brothers in arms

Turkey defies NATO, not for the last time

THE attempt to find some common ground over Syria dominated the talks on May 3rd between Recep Tayyip Erdogan and Vladimir Putin. But the meeting between the Turkish and Russian presidents also touched on another subject of concern to Turkey's NATO allies. A deal has been agreed in principle for Russia to sell Turkey its potent S-400 long-range air-defence system. A price has yet to be agreed. But as both strongmen have shown with their steady reconciliation over the past year, enough political will can make most plans lift off.

At a time when tensions between NATO and Russia are at their highest since the cold war, the purchase, if it goes ahead, will be seen as a calculated snub to the alliance. It will also confirm the impression of recent years that Mr Erdogan is happy for ▸▸

Autocratic weapon

Turkey to become, in effect, a semi-detached member of NATO.

Turkey first began pushing NATO's buttons in this way when it announced its intention in 2013 to acquire a Chinese air- and missile-defence system instead of American or European kit. By doing so, Turkey was flouting European Union and American weapons sanctions against China. It would also have meant buying a system that could not be integrated into NATO's wider missile-defence shield without allowing the Chinese to delve into Western military technology. Turkey gave its reasons for preferring China's offer as the lower price (about $3.4bn) and better terms on the transfer of intellectual property (IP).

Building up the capabilities of its fast-growing indigenous defence industry has become a priority for Mr Erdogan. Two years ago he declared that Turkey planned to "eliminate external dependency on defence equipment supply" by 2023, and that it wanted to be involved in the design and production of any new defence equipment before then.

What caused Turkey to drop the deal with China later that year is not clear, but the decision was made around the time of the G20 summit in Antalya in southern Turkey. A combination of diplomatic carrots and sticks probably played a part. Douglas Barrie, a military aerospace expert at the International Institute for Strategic Studies in London, thinks that the Chinese may have been unable to hand over the technological know-how Turkey wanted, because much of the IP of their system, based on the S-300, is owned by Russia.

The assumption then was that Turkey would go with MEADS (medium extended air defence system), a joint venture between Lockheed Martin, an American defence company, and MBDA, a European missile consortium. But in April Fikri Isik, Turkey's defence minister, said that "NATO member countries have not come up with an offer that is financially effective" and that talks with Russia to buy the S-400 were now at a final stage.

The S-400 is one of the best air-defence systems currently made. But Mr Isik accepts that Turkey will not try to integrate it with NATO's infrastructure. That makes it "a sub-optimal system", thinks Mr Barrie. Given that the S-400 is also expensive, Turkey's eagerness to buy it must be because it believes it is getting enough knowledge about the technology it wants and because Mr Erdogan likes demonstrating that he need not bow to the West.

Russia will also benefit from the deal, as the world's second-biggest arms exporter. China and India, until recently two of its best customers, are ramping up their own production. Russia badly needs new markets for its weapons—and Mr Putin also enjoys thumbing his nose at NATO. ■

The Eurovision song contest

War music

Another year of cheesy pop, another diplomatic row

ODDLY for a pop show that is meant to be apolitical, the Eurovision song contest causes a fission of fury nearly every year. In 2014 Conchita Wurst, a bearded drag queen from Austria, won the annual festival of kitsch, leading to calls in Russia and Belarus for Ms Wurst's song not to be transmitted and accusations that the show was a "hotbed of sodomy". Last year Ukraine won the contest with "1944", a song about the deportation of Crimean Tatars under Stalin sung by Jamala, herself an ethnic Crimean Tatar. This infuriated the Russian government, which had invaded and annexed Crimea in 2014.

This year yet another squabble is brewing among the latex and glitter. Ukraine is hosting the contest, which will be held on May 13th. Channel One, Russia's main broadcaster, has put up as Russia's representative Yulia Samoilova, a 28-year-old wheelchair-bound singer (pictured). Ms Samoilova performed in Crimea in 2015; this means she falls foul of Ukraine's travel ban on prominent Russians who have either been to Crimea since the annexation or who openly support their government's policy there. Shortly after she was selected, the Ukrainian security service announced that she would not be allowed in.

Eurovision's organiser, the European Broadcasting Union, criticised Ukraine's decision as undermining "the integrity and non-political nature" of the show. It suggested that Ms Samoilova might perform remotely or that Russia might choose another contestant. Channel One refused, of course; a bully's taunt stings less if retracted. Ms Samoilova will now perform in Sevastopol, the main city in Crimea, on the day of the semi-final, and Russia will not take part in the contest.

The squabble plays well in Russia. It lets Vladimir Putin's state media portray Ukraine as a country run by horrid nationalists who are mean to people in wheelchairs. (Rather than, say, a country that dislikes being dismembered by its stronger neighbour.)

It helps Ukraine's government, too, distracting public attention from its failure to fulfil the promises of the Maidan Revolution of 2014, which triggered the war. Complaining about Russia can be an excuse not to pursue difficult reforms, such as tackling corruption, says Balázs Jarábik of the Carnegie Endowment for International Peace, a think-tank.

Problems were already afoot at the Eurovision party in Ukraine, which had hoped to host an "austerity" show (costing only $16m, compared with Denmark's $61m extravaganza in 2014 and Azerbaijan's $76m bash in 2012). But costs have spiralled. In November the head of the newly-independent public broadcaster quit, accusing the government of chipping away at his budget for the bash. As with so much in Russia and Ukraine, television drama overshadows reality.

Crimea river

Housing in Russia

A new kind of revolution

MOSCOW

Russians are rebelling against plans to tear down their homes

WITH its tree-lined boulevards Moscow's Bogorodskoye district is an island of calm in the clattering metropolis. Dmitri Pankov and Natalia Yakutova moved in a year ago, seeking fresh air for their young daughter and a place close to Mr Pankov's mother. The ample greenery and accessible transport also attracted Igor Popov, who bought a flat several years ago in one of the Soviet-era apartment blocks typical of the area. "You can hear the birds chirp," he grins. Late one evening in April they gathered with several dozen others to discuss how to save their beloved neighbourhood—not from creeping crime, but from the wrecking balls of city hall.

Earlier this year Moscow city authorities unveiled plans to demolish as many as 8,000 buildings and move up to 1.6m residents from ageing low-rise apartment blocks known as *khrushchevki*. The ambitious urban makeover could touch some 25m square metres of housing, cost at least 3.5 trillion roubles ($61bn), and run for more than 20 years. The plan is the brainchild of Moscow's mayor, Sergei Sobyanin, and comes with the blessing of President Vladimir Putin. For some residents, it means a chance to ditch dilapidated housing. Others fear being thrown out of their homes, and are furious at the prospect.

On May 2nd the mayor's office published a list of 4,566 buildings, home to some 1m people, that will be up for demolition. Owners and some tenants have been asked to vote: if two-thirds approve or abstain the building will go and its residents will be moved. Ballots must be cast by June 15th, even though a final version of the programme has yet to be presented.

For now the outlines of the plan can be found in a draft bill that passed a first reading on April 20th. Residents will receive replacement apartments of equal size, rather than equal value. Those who refuse would face eviction, with no possibility to appeal against the decision in court. And although Mr Sobyanin has promised to resettle residents within their current districts, many stretch for miles. Some people worry about being separated from family members; others that their commutes to work will lengthen. Such inconveniences may seem small. But they are the stuff of which daily routines are built; the invisible scaffolding that structures urban life.

Khrushchevki have been central to Russian cities since the 1950s, when Nikita Khrushchev, the leader of the Soviet Union, pushed the construction of prefabricated apartments to deal with a fast-growing population and a housing crisis. The new flats gave ordinary people private spaces for the first time, instead of communal apartments that housed several families at once. By Khrushchev's death in 1971, more than 125m lived in the buildings. Most were not meant to last more than 25 years (by then, presumably, the bright communist future would have dawned).

Without snooping neighbours to fear, dissidents gathered to swap *samizdat*, imbibe unsanctioned art and discuss politics. As a result these apartments helped to plant the seeds of a new middle class which, 30 years later, would come to undermine the Soviet system. Yet the *khrushchevki* would acquire a less flattering nickname: *khruschoby*, a neologism that combines the Russian word for slums. They often have thin walls, low ceilings, creaky utilities and cramped corridors.

Improving living standards should not be controversial: under a plan initiated by Mr Sobyanin's predecessor, around 1,700 *khrushchevki* came down. Many residents want to leave. But the recent plans have been introduced in a characteristically top-down fashion; for their critics, they smack of an assault on property rights and a handout for real-estate developers. Since becoming mayor in 2010, Mr Sobyanin has imposed wide-reaching changes to the city's infrastructure, often with little regard for local opinion. Some projects are popular; others, like rooting up pavements, have left many Moscovites peeved, though not quite enough to protest.

Mr Sobyanin's proposals to tear up housing have made some snap. Residents are handing out flyers and lobbying local apparatchiks. Neighbours who had never spoken before are banding together. A "Muscovites Against the Demolition" group on Facebook has nearly 20,000 members. Dozens of neighbourhood-specific groups have popped up. A protest is planned for May 14th; thousands have already said they will attend.

Rooms of their own

At one gathering between local officials and residents in Moscow in April, frustration rang out from across the political spectrum. Nikita Lazarev, a 29 year-old engineer, questioned the quality of the construction in the new buildings. Though he has not voted in more than a decade, he plans to cast a ballot in the presidential elections of 2018 against Mr Putin, and for the opposition leader Alexei Navalny, whose anti-corruption rallies drew tens of thousands across the country in March. (This week Mr Navalny lost 80% of the vision in his right eye after attackers doused his face with dye and acid, an act he blames on the Kremlin.)

Not far from Mr Lazarev stood an elderly woman railing against the officials speaking on stage. "I'm the owner, I bought the apartment, and they're telling me I have to give it up!" Svetlana, who used to work in city hall, is no liberal. She yearns for the days of Stalin, when "we were united and strong." Yet she cannot fathom losing her home, where "there are nightingales and squirrels all around." The only solution, she declares, is to take to the streets and resist. ■

They came in like a wrecking ball

Charlemagne | The parable of Amiens

What Emmanuel Macron's home town says about the French presidential favourite

WHEN history recounts the remarkable rise of Emmanuel Macron, it might start and end in the town of Amiens. On the big-skied plains of the Somme, amid the woods and the fields of yellow rape that cover former bloody battlefields, this redbrick working-class city is the French presidential candidate's hometown. With its soaring 13th-century cathedral, and charmless rebuilt central drag, Amiens is arresting both for its splendour and its banality. It is the place that shaped Mr Macron, and the town he fled. It was also the setting for a fraught encounter in the campaign's closing days, which revealed much about the man who could soon be the next, and youngest-ever, president of France.

It was as a pupil at a private Jesuit school in Amiens, aptly named Providence, that Mr Macron met the drama teacher, Brigitte Auzière, fully 24 years his senior, who later became his wife. The bond alarmed his parents, both provincial doctors, who sent him to finish his schooling in Paris instead. The bookish student was at first in awe at the brilliance of the capital's brightest. But he quickly learned the codes of the French elite, winning a place at the Ecole Nationale d'Administration—whose alumni include three of the five past presidents—and with it access to the power-brokers in Paris.

If Mr Macron outgrew Amiens, it was through a desire, as he puts it, "to choose my own life". What underlies his single-mindedness is a "quest for liberty", says Marc Ferracci, his best man and an economist on his team. Mr Macron defied convention with his marriage. He later sought financial independence by working as an investment banker at Rothschild. As economy minister under the Socialist president, François Hollande, he was an outspoken critic of the 35-hour working week. Just a year ago, Mr Macron flouted rules by launching his own political movement, En Marche! ("On the Move!"), as a rival to both the Socialist Party he once belonged to, and the president he served. The gamble was immense; so was the freedom it secured him.

When the French select their president on May 7th, Amiens is set to back its most famous son. In first-round voting he came top there, scoring four points above his national result. Yet the town's gritty industrial vulnerability also makes it an awkward home turf for the candidate whom Marine Le Pen, his nationalist opponent, pillories as the champion of "savage globalisation", "arrogant finance" and the rootless elite. Its unemployment rate, at 12%, is above the national average. In recent years Amiens has lost a mattress factory and a tyre plant. Now the Whirlpool factory, where 286 workers make tumble-dryers, is closing too, with production moving to lower-cost Poland. The town's troubles, in short, put Mr Macron's pro-European creed of open borders and corporate freedom sorely to the test.

So it was not until last week that Mr Macron at last made a campaign stop in Amiens. It began dismally. As he sat down with union leaders in a meeting room in the town centre, Ms Le Pen staged an ambush. Turning up unannounced at the Whirlpool factory gate on the outskirts, she claimed to be supporting "the workers" while Mr Macron was defending "the oligarchy". His team hastily scheduled a campaign stop at the factory that afternoon. It was a brave decision. As plumes of black smoke rose from burning tyres, unionists in fluorescent jackets awaited his arrival in a hostile, muscular block. The acrid stink of charred rubber hung in the air. "We don't expect anything of Macron, he's just the continuation of Hollande," declared Jean Santerre, a worker at the factory for 23 years. He said that he and his colleagues will vote for Ms Le Pen, because she will "shut the borders" and stop foreigners taking French jobs.

Sure enough, when the besuited Mr Macron stepped from his car, he was jeered. His security team trailed his black car all the way down the narrow lane leading to the picket line, just in case. Yet for nearly an hour the candidate waded into the edgy crowd, taking on the abuse, arguing his case, and refusing to make empty promises. *Non*, he said, he could not outlaw factory closures. *Non*, shutting the border would not help France in the long run. Retraining would be improved; buy-out options would be examined. By the time Mr Macron drove off, Mr Santerre and his friends had not changed their minds. But calm had returned, and with it a certain respect for his efforts.

No fear

The Amiens moment may not shift votes. It was Ms Le Pen's selfies with smiling workers that grabbed the headlines. Yet it offered a telling insight. Although 60% say they will vote for Mr Macron, only 37% think he has presidential stature. He has often appeared more ambiguous than decisive, more charming than tough. Even in France, which treats public intellectuals like national treasures, his erudite vocabulary and measured reasoning are mocked. At rallies, he drowns his audience with abstract nouns; when he finally told an anecdote on stage in Paris this week, it was about a philosopher. Perhaps the only thing that his detractors and admirers agree on is that Mr Macron is "*dans la séduction*". Dinner guests and factory workers alike are left with the impression that he has listened, and valued the argument.

If there are reservations about Mr Macron's ability to lead, they concern his untested political resolve. Faced with a fractured country, restless unions and a potentially unstable parliament after legislative elections in June, would he have what it takes to stave off, or withstand, revolt? "He is fearless," says a team member, pointing to the way that he, a newcomer to elections, has swept aside political veterans and is now dictating terms to them. In 2012 Mr Hollande also visited a factory, a steelworks, during his campaign. He vowed to rescue it, failed while in office, and political disillusion ensued. Mr Macron's gutsier approach in Amiens may not be what wins him the presidency. But it suggests how he might exercise it. ■

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The European Union and the election

When Brussels spouts

BRUSSELS AND LONDON

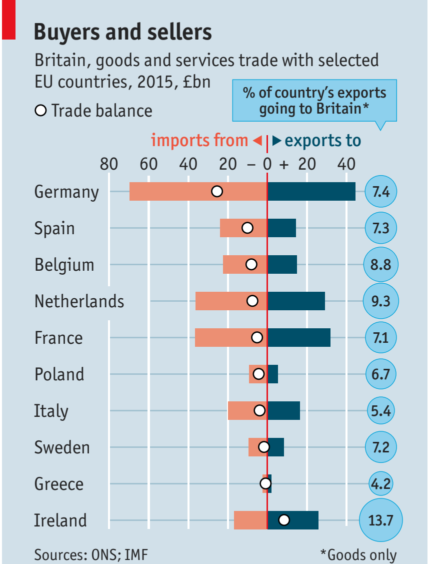
A sudden spat with the EU may boost Theresa May's election chances—but at the cost of making Brexit even tougher for her to negotiate

IT HAS become sadly common for foreign powers to be accused of intervening in elections. But usually it is Russia or China that is said to be involved. That Theresa May should this week have accused unnamed European politicians and officials of deliberately seeking to affect the result of the election on June 8th is more shocking. In fact she may benefit from a sudden outburst of bad blood between Britain and its European Union partners—but it risks souring the Brexit negotiations.

It was not meant to be like this in late March, when the prime minister invoked Article 50, the EU mechanism for withdrawal. Her letter was well received, partly because her earlier mantra that "no deal is better than a bad deal" was replaced by hopes for a new "deep and special partnership". She also hinted at the need for a transition at the end of the two-year period set by Article 50. On April 29th the EU's 27 other heads of government duly approved political guidelines for Michel Barnier, the European Commission's Brexit negotiator. His more detailed draft mandate, circulated this week, will be rubber-stamped on May 22nd and formal talks should begin soon after Britain's election.

The souring of the mood came after the *Frankfurter Allgemeine Sonntagszeitung* (FAZ), a German newspaper, published a colourful account of an apparently disastrous dinner date between Mrs May and Jean-Claude Juncker, the commission's president, in London on April 26th. Like brawling boxers at a weigh-in, the two sides have since been unable to restrain themselves from a premature scrap.

British critics complained that the commission's promises to be transparent over Brexit hardly justified a leak of a private meeting. (Many blamed Martin Selmayr, Mr Juncker's combative chief of staff.) Yet the story suggested the prime minister is struggling to master her brief. She reportedly said a deal allowing her, as home secretary in 2014, to opt into selective EU security and judicial measures could serve as a template for Brexit. To Brussels, this implies a failure to see that Britain will be negotiating as a third country, not an EU member. "Mrs May still appears to be in cherry-picking mode," says John Kerr, a former British ambassador to the EU.



The commission was irritated by Mrs May's refusal to accept a rejigging of the current EU budget, citing "purdah" rules that bar such decisions during election campaigns. "FULL PURDAH RECIPROCITY," Mr Selmayr tweeted, suspending informal talks. Mr Barnier's draft mandate includes demands from the 27 that could push the gross "Brexit bill" (obligations the EU thinks Britain has incurred) as high as €80bn-100bn ($87bn-109bn), according to the *Financial Times* (the net bill would be lower). This week the commission also started efforts to shift the clearing of euro-denominated financial instruments away from London.

Such heavy-handed tactics may just underline Mrs May's main pitch to British voters: that only she has the strength to take on the grasping Eurocrats. This week she repeated her "no deal" mantra and her quip from last July that Mr Juncker would be the next to learn that she is a "bloody difficult woman". In fact, it is not the commission but other EU governments that may be the most awkward. The guidelines agreed on April 29th were tightened during talks among the 27, and the higher bill reflects demands that Britain should shell out for EU farm subsidies until 2020, as well as being denied a share in assets like buildings. Spanish sensitivities on Gibraltar and a mention of Irish unification are also reflected in the negotiating texts.

Mrs May still seems to want parallel talks over the divorce and over a subsequent trade deal with the EU. But the guidelines say that discussions on trade, as well as on any transition, must wait until the 27 governments agree that "sufficient progress" (a phrase that will now be endlessly parsed) has been made on withdrawal talks. This is unlikely to happen until October or even later, making it still less likely that a trade deal can be done within the two years of Article 50. Yet the 27, hitherto united, may not hold together on the sequencing. Those with extensive trade links with Britain, such as the Dutch (see chart, previous page), already fret that the divorce talks may get bogged down.

They have reason to worry. The debate over the Brexit bill will be fierce, but so may talks over the rights of the 3.2m EU citizens living in Britain, and the 1.2m Britons in the EU. The EU seeks a settlement covering everything from employment, eligibility for health care and benefits, the status of non-EU spouses, university tuition fees, pension transferability and more—as well as a legal underpinning for an agreement (the EU will insist on the European Court of Justice, a red line for Brexiteers). Nothing irritates Eurocrats more than the apparent British belief that details can be settled by what one calls a "flowery declaration". The British are anyway expected to apply their own tougher rules for non-EU spouses to EU citizens in Britain.

A mix of pre-negotiation swagger and the election was bound to raise the temperature. Brexiteer buffoonery or European intransigence could kill the talks; the FAZ report claims that Mr Juncker's "entourage" puts the chances of a deal at less than 50%. There are concerns about two common views in London. One is the idea that Mrs May can get a good deal only by threatening to walk out, something her advisers fault her predecessor, David Cameron, for not doing in his renegotiation last year. The other is that she can ignore Brussels and merely talk to the German and French leaders. Both views are seen in Brussels as delusional, for they overestimate what is an inherently weak bargaining position.

Yet in the end Mrs May and her fellow leaders all want a deal. They understand that the logic of negotiation can lead governments into surprising concessions. The EU may be right in thinking that Mrs May has not grasped her own weakness, but that does not mean it will reject all compromises. Expect more huffing and puffing, at least until June 8th. Only after that will the fight truly begin. ■

Explosive appointment

Many were bemused by the announcement on May 1st that Cornelia Parker was to be the official artist of the 2017 general election. Not as a comment on her credentials—she is widely considered one of Britain's most exciting contemporary artists—but to discover that such a post exists. Its previous holders have created figurative works using oil, ink and photography to record the four general elections since 2001. Ms Parker is likely to be more inventive. She is using an Instagram account (@electionartist2017) to offer an eclectic commentary: the inaugural image, captioned "The election contenders", shows a group of waving garden gnomes. She is best known for her conceptual work with sculpture and installation, including detonated sheds, cut-up shotguns and squashed instruments. A perfect fit for the explosive modern moment.

View a gallery of past British election artwork at Economist.com/electionart

Euratom

The nuclear cliff-edge

A Brexit-related decision on atomic energy could cause chaos

THE government's stand-off with Brussels is less than a week old but already one aspect of the Brexit divorce is causing severe collywobbles in Britain: withdrawal from the European Atomic Energy Community (Euratom), which oversees the EU's nuclear industry. A cross-party committee of MPs, as well as the industry itself, said this week that an abrupt departure in two years' time could be disastrous. It is also a real possibility.

Euratom, started in 1957, provides safeguards for trade in nuclear materials, ensuring they are not diverted to rogue regimes. It encompasses the EU's single market, but also agreements with suppliers of uranium, such as Australia, Canada and Kazakhstan. Moreover it provides legal underpinning for a global supply chain of nuclear technology and services.

If Britain crashes out of Euratom in 2019 without substitute arrangements in place, within a matter of weeks it could find itself unable to replenish its uranium stockpiles. It would be unable to carry out maintenance on reactors using American and Japanese technology, and be forced to halt construction of Hinkley Point C, a new reactor being built by France's EDF that will rely on foreign firms for up to 36% of its inputs.

It could also provoke an abrupt skills shortage. The nuclear industry is renowned for its globe-trotting workers and Euratom enshrines their ability to move freely across borders. Britain's nuclear industry relies on imported welders, steel fixers and pipe fitters. It would take time to develop such skills domestically.

The MPs described Theresa May's Brexit-related decision to quit Euratom in January as an "unfortunate, and perhaps unforeseen" consequence of her choice to leave the jurisdiction of the European Court of Justice, on which it depends. They urged her to delay departure.

The government has sought to reassure the industry that it understands the risks. After all, nuclear power generates a fifth of British electricity, and there are £60bn ($78bn) of new investments planned.

But it has just two years to replace the infrastructure, equipment, skilled personnel and processes that Euratom has provided in Britain to safeguard the nuclear industry. Only when these are in place can it start negotiating its own nuclear co-operation agreements with other countries. That is not an impossible task, but there is no guarantee it will succeed either. ■

Bagehot | One nation under May

The forces that are felling other established political parties are making the Tories stronger

DISRUPTION seems to be the rule in politics as well as in business. Economic churn is promoting discontent with the status quo while technological innovation is making life easier for upstarts. The result is that long-established political parties such as France's Socialists and Greece's Pasok have crumbled, while insurgents have come from nowhere to form governments (in the case of Greece's Syriza) or shake things up (like Italy's Five Star Movement). Neither of France's main parties has a candidate in the final round of the election on May 7th. In America Donald Trump has mounted a hostile takeover of the Republican Party.

Yet in Britain the world's oldest political party is marching to an easy victory in the general election. The country has endured a decade of stagnation and austerity. Its public services are strained to breaking point. The Brexit referendum delivered the biggest shock to the political establishment since Suez and divided Britain down the middle. Yet the only question that troubles psephologists is whether the Tories will get a "small" majority of 30 or so or a blowout of more than 100.

Since Benjamin Disraeli pronounced that his Conservatives were a national party or else "nothing", the Tories have tried to appeal to every class and region. Lord Salisbury put the union with Ireland at the heart of his politics. Tory prime ministers from Stanley Baldwin to Margaret Thatcher presented themselves as champions of a "property-owning democracy" against Labour's divisive class politics. David Cameron tried to detoxify his party's brand and sell it to sexual and ethnic minorities. Now Theresa May has a good chance of rising to Disraeli's challenge by delivering Tory gains in almost every corner of the country.

The Conservatives are advancing in the Celtic fringe. They have been virtually irrelevant in Wales since the 1850s, derided as the party of coal- and steel-owners and English snobbery. Now the Welsh Political Barometer, an opinion poll, puts the Tories on 40% and on course to win 21 seats to Labour's 15. In 2015 triumphant Scottish Nationalists boasted that Scotland had more pandas (two) than Tory MPs (one). Now polls show the Tories winning up to 12 seats as they hoover up votes from Scots who want to preserve the union, while Labour is left with none.

The Tories are almost certain to expand their gains among ethnic minorities. Loyalty to Labour is in long-term decline: in 1997-2014 the percentage of Indian voters identifying with Labour fell from 77% to 45%, while among Pakistanis it fell from 79% to 54%. In 2015 the Conservatives won more than 1m ethnic minority votes and outpolled Labour among Hindus and Sikhs. The Tories still have fewer minority MPs than Labour (17 compared with 23 in the 2015 intake) but the party is changing. Mrs May's cabinet has two non-white members, Priti Patel and Sajid Javid, and the party's rising stars include Kwasi Kwarteng and Rishi Sunak.

Mrs May is determined to extend the Tory advance to the "just about managing". If David Cameron was obsessed with winning over middle-class Britons who were disillusioned with Tony Blair, Mrs May's obsession is courting struggling Britons who have been taken for granted by Labour for decades and who may at last have been shaken free from their old loyalties by the twin shocks of Brexit and Corbynism. The Conservatives will campaign hard in Labour's old industrial strongholds of the West Midlands and the north.

One of the central questions of Mayology—the science of trying to understand Britain's enigmatic new prime minister—is whether she wants to take her party to the right or to the left. The answer is that she wants to do both. She is expanding rightward by pursuing a "hard Brexit" and promising to control immigration. She looks like someone who can deliver the smack of firm government and enjoy it. But she is also expanding leftward by promising to reignite industrial policy, discipline greedy bosses and keep spending at least 0.7% of GDP on foreign aid.

How are the Conservatives strengthening their position at a time when other established parties are crumbling? Luck plays a part. Labour is in the grip of a hard-left faction that combines repugnant politics with extreme incompetence. This week saw John McDonnell, the shadow chancellor, appearing at a May Day rally framed by Syrian and Communist Party flags and Diane Abbot, the shadow home secretary, flubbing an interview about policing. The first-past-the-post system squeezes out other rivals.

The Conservative Party went through its own near-death experience during the 13 years of New Labour dominance. Even in its current parlous state the Labour Party leads the Tories among those under about 35. The biggest danger for the long-term health of the Conservatives is that they will become the party of "generational haves", ignoring young people who cannot get onto the property ladder and are weighed down with student debt.

Mother Theresa

Yet the Tories have survived as one of Britain's two big parties longer than any other. Even at their most feeble they were not as weak as the Corbynised Labour Party. They have a genius for burnishing their brand. They don't go in for trashing their predecessors to the same extent that Mr Blair did to Old Labour and Mr Corbyn's gang is now doing to Mr Blair. They also have a knack for muddling through: the Tories have been riven over Europe since the 1980s, yet seem to have survived the earthquake of the referendum. Above all they have a skill for adjusting to social change and external shocks. The party of the landed aristocracy succeeded in absorbing not just factory owners but enough factory workers to stay competitive in the age of mass production.

The biggest challenge to established parties at the moment is populism that is rooted in anger at remote elites and economic stagnation. The Conservative Party bears a good share of the responsibility for this. Yet it shows every sign of not only riding out this challenge but using it to extend and entrench its power. ■

Aid and the private sector

Doing good, doing well

A growing share of aid is spent not by charities, but by private firms

"THE gold rush is on!" That is how a cable from the American ambassador to Haiti described the descent of foreign firms upon Port-au-Prince in early 2010. An earthquake had flattened the city and killed hundreds of thousands. But a deluge of aid presented an opportunity. The message, released by WikiLeaks, noted that AshBritt, a Florida-based disaster-recovery firm, was trying to sell a scheme to restore government buildings, and that other firms were also pitching proposals in a "veritable free-for-all".

During the following two years $6bn in aid flooded into a country of 10m people, for everything from rebuilding homes to supporting pro-American political parties. Of $500m or so in aid contracts from the American agency for international development (USAID), roughly 70% passed through the hands of private companies.

Haiti is one example of a trend. Though not all countries break down aid spending according to the type of contractor used, data from those that do suggest that a growing share of aid is funnelled, not through charities or non-profit foundations, but through consultancies and other private-sector contractors that profit from the work. Nearly a quarter of USAID spending in 2016 went to for-profit firms, a share that was two-thirds higher than in 2008. Britain's Department for International Development (DfID) counts its spending slightly differently: in 2015-16, 22% of bilateral spending (as opposed to money that it paid to multilateral organisations such as the UN) went to contractors, most of them for-profit companies, up from 12% five years earlier.

Typically, firms win aid contracts at auction, rather than receiving grants, as charities do. Some have become global players. Chemonics, an American firm founded in 1975, is active in 70 countries. In 2015 it won a contract for health-care services with USAID worth up to $10.5bn over eight years. Cardno, an Australian firm, won 17% of the country's contracts last year, worth A$945m ($709m).

One reason for the shift towards the private sector is the changing nature of aid. A smaller share now is made up of traditional projects, such as building schools or handing out food parcels, and more is "technical assistance", for example to streamline a country's tax code and strengthen tax collection, or to set up an insurance scheme to help farmers when crops fail. Private firms may be best-placed to advise on, or even run, these schemes.

Another reason is that even as aid budgets have grown, governments have sought to make aid departments smaller and more nimble. Both USAID and DfID have around the same number of employees now as they did when their budgets were just half as large in real terms. As aid agencies struggle to manage contracts, they have turned to the private sector.

Surprisingly little research has been done on the impact of this shift. That is partly because the oversight of aid is often poor. Think-tanks are still trying to work out where all the Haitian disaster-relief funding ended up, for example. And private-sector involvement can further obscure the picture, because the winners of bids may use a host of subcontractors, or insist that some information is kept confidential for commercial reasons.

What is known, though, is that for-profit and non-profit groups work differently. A non-profit body typically has large bureaus in the countries where it works, or forms long-standing partnerships with local charities that do. It will consider whether a proposed project fits with its charitable purpose, and whether it has suitable in-house expertise; only then will it decide whether to bid. Firms, by contrast, tend to have fewer staff, and to rely on subcontractors and freelance experts who can be flown in for as long as a project lasts. Tim Midgley of Saferworld, a charity, argues that this model means that firms may be less likely to understand local cultures, build relationships with governments and monitor long-term results. But it can also be more flexible, with firms matching expertise and staffing to each contract.

Cool aid

To shed light on the shift towards private-sector aid delivery, *The Economist* has analysed 4,500 subcontracts from USAID worth more than $25,000 each. (All were granted since 2010. Those for which data were not available were excluded.) A third went to for-profit firms, and the rest to charities, NGOs or other governments. For contracts where a firm was the primary contractor, on average 41% of subcontracts went to other firms; when the primary contractor was a non-profit organisation, just 27% did. Around two-fifths of all subcontractors were based in America, although most aid work is done abroad. And ▸▸

four-fifths of them worked with just one primary contractor, suggesting that aid work is carried out largely by stable consortia, rather than shifting alliances.

Not just aid budgets but contracts are growing bigger, says Raj Kumar of Devex, an aid-focused news organisation. One consequence is that only large bidders can stomach the risks. Together with the high cost of preparing bids—as much as $100,000—this has led to market concentration. In Britain ten firms snap up half of all contracts (or lead consortia that do). The top ten account for around the same share of USAID contracts, a much higher share than for other government departments. In Australia they account for 70%.

The sector is consolidating further, as firms seek to expand the number of countries where they have the expertise to bid for contracts, and to run them. Between 2007 and 2015 Tetra Tech, an American firm, bought ARD and DPK, two aid consultancies; Coffey International, an Australian engineering firm; and a handful of smaller Canadian consultancies. Australia's GRM International merged with America's Futures Group and later became part of Palladium International, a permanent consortium of six aid firms.

A smaller firm's best chance to pick up some of this work is to join a consortium led by a larger firm. But it risks becoming mere "bid candy", as a recent investigation by a British parliamentary committee into DfID's use of contractors put it, with its expertise used to win a contract, after which the lead contractor keeps the work in-house. The committee also concluded that DfID focused too much on evaluating bids rather than results.

Other people's money

Some worry that firms motivated by profit rather than altruism may be careless in their spending, or even steal. Though wrongdoing by charities is hardly unknown, some high-profile scandals have fuelled such fears. In recent years Louis Berger Group, one of USAID's largest contractors, has been found guilty of several cases of bribery and fraud. Its former boss, Derish Wolff, was found guilty of conspiracy to defraud USAID by faking timesheets, fined $4.5m and sentenced to a year's home confinement. The firm agreed to repay $69m.

Last year the *Mail on Sunday*, a British tabloid, published e-mails suggesting that the beneficiaries of aid projects run by Adam Smith International, one of DfID's biggest contractors, had been threatened with the loss of funding if they refused to write it glowing testimonials. Parliamentarians inquired further, and in February said that the firm had indeed sought inappropriately to influence their probe of DfID's contractors. The firm has since been restructured and four senior executives have stepped down.

Terms and conditions apply

A specific concern is that, like many firms that rely on government contracts, private aid contractors may be prone to revolving-door hiring. Our analysis of data from LinkedIn, a social network, shows that, at six of America's ten biggest aid contractors, about 5% of listed staff name USAID as their previous employer, a higher share than for any other former workplace. The agency was one of the most common ex-employers at the other four. No wrongdoing may have resulted. But the risks are evident at Adam Smith International, which turned out to have sought to win bids by using proprietary information shared by a former DfID employee who went on to work for the firm.

Another claim is that private firms may skim too much cream from their contracts. Without access to commercial information this is hard to evaluate; however, private firms do seem to pay higher salaries than charities to their top executives. We compared firms that won USAID contracts in the past eight years with data from USAspending, a state website that lists expenditures and the pay of senior staff at some government contractors. Information about wages was available for 135 for-profit firms. For comparison we looked at figures for 346 similar-sized American charities from CauseIQ, a data company. The bosses of the private firms earn on average more than $500,000 a year—more than twice as much as their non-profit peers.

A separate study published in 2014 by Marieke Huysentruyt, then at the London School of Economics, examined 457 DfID contracts from 1999 to 2003. She found that, when controlling for the type of contract, the total personnel costs proposed by non-profit firms were on average just two-fifths those proposed by private firms. What is more, the contracts won by for-profit outfits were more likely to bust their budgets and miss deadlines.

All this suggests that donor governments should improve their bidding procedures and contract management. In the meantime, aid contractors have responded to bad publicity by lobbying harder. In 2016 a group of British aid contractors set up the Centre for Development Results to represent their views and counter unfavourable headlines. In 2011 American contractors started the Council of International Development Companies, which joined forces with an older group dubbed the "Bombay Club" after the Indian restaurant where it first met. It lobbies federal politicians, arguing against aid dollars being given directly to foreign organisations and governments, which would risk cutting its members out.

A more immediate threat to the sector is that aid budgets might fall. President Donald Trump wants to reduce American aid by 28%. Australia's government started cutting in 2011. Britain's government has reaffirmed its commitment to spending 0.7% of gross national income on aid—a target long suggested by the UN which Britain is the first big country to meet. Nonetheless, calls to abandon it are growing ever louder.

How to be the change

One way to keep going during leaner times is to bid not only for contracts, but for grants—that is, to do some aid work at cost, without making a profit from it. When USAID funding reached a plateau in 2008, following years of fast growth, a few firms started bidding for more such grants. Take Abt Associates, a firm set up in 1965 that does research and implements aid programmes in nearly 50 countries. In 2008 17% of its revenue from USAID came in the form of grants; by 2016 that share was 31%.

Another opportunity, says Mr Kumar, is to work directly for the governments of countries that have long been aid recipients. Some have started to fund programmes similar to those paid for by donors, such as improving the way their health-care systems are administered. A third option is to expand into the fledgling "corporate-aid" sector. This strand of development work involves multinationals building capacity in poor countries, not principally for philanthropic reasons, but to benefit their businesses. Starbucks, for instance, is training coffee farmers in Rwanda and Ethiopia. Private aid contractors may be well placed to act as consultants to firms keen on such projects, or as brokers between them and local partners.

One estimate puts the total value to firms of such "aid-like" work in developing countries at around $20bn a year, a figure that is expected to rise. Having built their businesses on contracts with Western governments, private aid firms may need to diversify if they are to continue to thrive. ■

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Sports on TV

Still the champion?

BRISTOL, CONNECTICUT

ESPN is losing subscribers and viewers. But it is still Disney's cash machine

FOR a sports addict, a visit to ESPN's 123-acre campus is like mainlining the product. In an industrial workspace connected by an array of cables and satellite dishes to live feeds from all over the world, employees of the channel crowd around monitors at 80 desks and watch games.

This is the world's nerve-centre for highlights. The feeds show almost every sporting event that might be of interest, from cricket tests in India to football matches in Brazil to baseball games in Florida. ESPN's staff watch everything so that viewers don't have to, digitally tagging more than 1,000 of the day's best plays to turn them into consumable clips on TVs, browsers and smartphones.

The campus embodies Disney's hopes for the brand—the technology inside it has been expensively upgraded in recent years. The channel offers live sporting events, continuous sports news, game highlights and conversations about sport. By dominating televised sport, ESPN generates some $4bn in cash for its parent each year, over two-fifths of Disney's profits.

The problem, however, is that ever-fewer people are tuning in. The number of American homes paying to get ESPN has declined by more than 12m from a peak of 100m in 2011 (see chart on next page). ESPN is not alone: consumers are broadly abandoning costly cable packages for online services from Netflix, Amazon and Hulu.

In the households that are still connected to ESPN, residents are watching less. Figures from Nielsen, which tracks TV viewership, show big declines in American audiences over this decade both for big sporting events and, especially, for news-and-highlight shows. The early-evening edition of SportsCenter, ESPN's flagship show since 1979 and a touchstone of American sports culture in the 1990s, has lost almost half of its audience in the demographic segment of men aged 18 to 49, which is coveted by advertisers. These viewers make up 46% of the show's audience (itself 77% male).

One reason is that viewers are sharing highlights using phones. ESPN makes many of these clips, but sports leagues and other networks also produce them. Fans film plenty of their own, capturing snippets from games they watch on their devices and posting them on social media. Some post clips of their TV sets at home; it is not uncommon to see Lionel Messi's latest wonder-goal in such bootleg fashion.

In a cruel twist, however, the cost of rights to live games has shot up even though sport is attracting fewer viewers. That is because the decline in ratings for scripted dramas and comedies on cable has been still more calamitous. Viewers at home are watching their favourite shows on catch-up instead of when they air originally, or they are watching such entertainment on Netflix-like services. Networks and advertisers see live sports as one of the few examples of "appointment viewing" that still draws substantial audiences.

Some former employees at ESPN reckon that the network has taken this reasoning to the extreme and paid way over the odds for sports rights, including $1.9bn a year for 17 regular-season National Football League (NFL) games plus highlight rights, and over $600m a year for eight post-season college football games. The next time sports contracts are up—the NFL is due in 2021—they are expected to get even more expensive. Cash-rich tech firms want sport to enhance their internet services: Amazon recently agreed to pay $50m for the right to offer ten NFL games on its Prime video service.

As a result, an empire that has been expanding almost continuously since 1979, when ESPN was just a few men and a transponder, looks shaky. In 2017 its operating profit will probably be lower than last year's. Some experts believe that profits will fall by a lot more over time. In April ESPN laid off about 100 people, including well-known journalists and on-air talent. Bob Iger, Disney's boss, admits that the pay-TV system is "definitely challenged".

That is why John Skipper, ESPN's president, is improving the company's digital services. Yet an ESPN-branded subscription streaming service, due to start later this year, has not allayed fears much; some worry it will speed the decline of cable TV without improving ESPN's bottom line. The pace of "cord-cutting" caught the firm by surprise, critics say. "The question for me is, how much of this should they have seen coming?" says James Andrew Miller, author of a book on the network. ▶▶

One argument is that ESPN misjudged the readiness of competitors to overpay for sports rights and, because of that, overpaid for them itself. If it had not splurged, it could have demanded smaller increases in its hefty subscriber fees in exchange for cable providers guaranteeing to sell more cable packages that include ESPN.

In the short term there is little cause for worry. Thanks largely to the high "affiliate" fees ESPN collects from pay-TV operators, its profits should start growing again from 2018. For the next five years at least, it should continue to be Disney's cash cow. But after that, the rights' costs will ratchet up again after deals expire. And the high affiliate fees look ever more precarious.

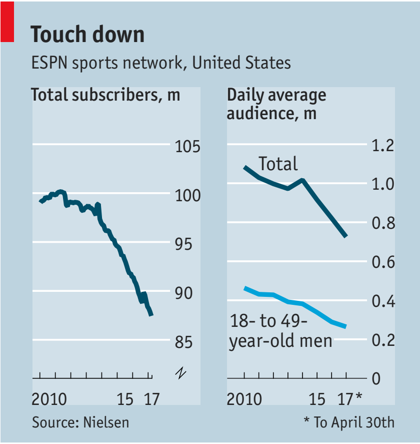
In 2011 ESPN was paid less than $5 per subscriber per month. This year it is being paid $7.86, according to Kagan, a research firm—meaning it collects $2.3bn more despite having 12m fewer subscribers. No other basic-cable channel commands even $2 a month from pay-TV operators, and most charge far less than a dollar. ESPN has been able to charge so much because it is crucially important to distributors as a "must-have" cable channel. But the high cost could be driving some pay-TV customers away. And if the fees were ever to go down, investors would run screaming.

That will be a growing concern as consumers turn to new, skinny bundles of TV channels being offered over the internet at low prices. YouTube recently announced it will be selling a live TV service, joining several other services offering TV packages for as little as $20-40 a month (a typical monthly cable bill in America is about $80-100). ESPN is being offered in almost all of these packages so far, which Mr Iger sees as a sign of the network's resilience. ESPN gets paid at least the same fee, of $7.86 per subscriber, on the internet services. Mr Iger believes that as consumers continue to opt for cheaper packages of channels, it will be non-sports channels that will be left out.

Yet this is not a forgone conclusion. Recently some cable networks, including AMC, are said to have begun discussing an ultra-cheap non-sports bundle. Disney will fight that—it has commitments from pay-TV operators that ESPN must be included in a certain percentage of cable packages—but it portends a struggle over ESPN's place in the future TV landscape.

At its headquarters, it is clear that the network is taking these challenges seriously. In an effort to retain viewers, ESPN is turning to shows driven more by personalities than by sports highlights. Examples include a revamp of its early-evening edition of SportsCenter, called SC6, with two bantering presenters.

Eventually Disney may have to be bolder still. ESPN could be marketed one day as a standalone internet service. Mr Iger says he thinks it can, if need be, become a "Netflix for sports". Such an offering would have far fewer subscribers than it has now via cable, and thus would have to be much more expensive than Netflix—probably $20 or $30 a month.



Underestimating ESPN has been a mistake in the past. Its inception was a struggle; investors, lenders and commentators doubted the prospects of an all-sports network. In 1996, when Disney bought its 80% of ESPN as part of its purchase of ABC, a broadcast network, the sports network was an afterthought. Now, however awkwardly it sits with film studios, franchises and theme parks, its place in the Disney firmament is secure. ESPN may have muscled its way into many homes that no longer wish to pay for it, but a sizeable, hard core of fans is unlikely to kick the habit. ■

Alphabet v Uber

No brakes

SAN FRANCISCO

A lawsuit about self-driving cars shows Silicon Valley's complicated ties

PURLOINED documents, duplicitous employees and conflicted loyalties. The race to dominate the field of self-driving cars is in its early stages, but is already full of intrigue. On May 3rd a packed courtroom watched lawyers tussle during a hearing on a lawsuit that could affect the future of autonomous-vehicle technology.

On one side is Waymo, the self-driving car unit owned by Google's parent company, Alphabet. It has accused Uber, a ride-hailing firm, of using stolen technology to develop its autonomous-driving capabilities. The origin of the dispute was a deal last summer when Uber spent $680m to buy Otto, a self-driving lorry firm. Anthony Levandowski, who had worked at Alphabet for ten years and played a big role in its self-driving efforts, had co-founded the startup, which was just seven months old when Uber bought it.

Before leaving Alphabet to start Otto, Waymo claims, Mr Levandowski illegally downloaded around 14,000 computer files that contained proprietary information about its lidar technology. Lidar uses lasers to scan a vehicle's surroundings and is essential for many self-driving systems. Mr Levandowski has not directly addressed many of Waymo's allegations. He has invoked the Fifth Amendment to avoid making statements that could be self-incriminating. The government could choose to bring criminal charges in the months ahead, and Mr Levandowski has hired his own civil and criminal defence lawyers.

Uber, for its part, has firmly rejected the allegations, and says that its lidar is different from Waymo's. It had been working on autonomous cars well before it bought Otto, it points out. But the very fact of the lawsuit comes at a bad time for Uber, which is under fire for having a rough-and-tumble culture that values winning at all costs. The lawsuit may also have hurt Uber's ability to recruit employees to help develop its autonomous efforts. Because of it, no one knows which technologies the firm will be able to use.

As a result, the outcome could affect the landscape for autonomous-vehicle technology. Alphabet has been working on self-driving cars since 2009 but now faces lots of competition. It has watched established carmakers and younger rivals accelerate their efforts. Uber has been scrambling to develop autonomous capabilities lest another company come up with a cheaper ride-hailing service using self-driving cars. A federal judge was expected to decide whether to grant Waymo's request for an injunction as *The Economist* went to press. Such an outcome could bar Uber from using its lidar technology until the case goes to trial in October.

As well as revealing cut-throat competition over self-driving car technology, the case draws attention to how intertwined rivals often are in Silicon Valley. Alphabet is one of Uber's largest shareholders. Its venture-capital arm, Google Ventures, made a $250m investment in Uber in 2013. Until last year David Drummond, Alphabet's chief legal officer, sat on Uber's board.

Firms allow star employees to develop complex loyalties, too. It has emerged in legal documents that at Alphabet, Mr Levandowski had two self-driving startups on the side. Alphabet dealt with this by quietly buying the firms for a reported total of $50m, presumably wanting to keep him and to stop rivals acquiring his startups.

Uber last month demoted Mr Levandowski so that he no longer leads the company's autonomous initiatives. The future of ferrying things and people about will rely on self-driving technology. Uber's acquisition of Otto seemed a far-sighted bet not long ago. But now it looks like Uber's riskiest decision yet. ■

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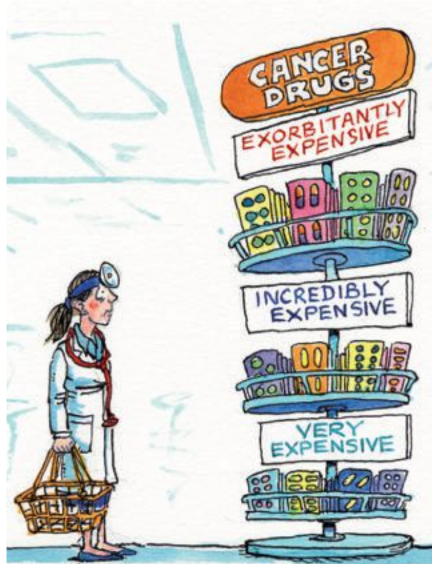


The pharma industry

Hard to swallow

Cancer drugs are getting better and dearer

THE debate in rich countries about the high price of drugs is a furious and frustrating one. The controversy is already having an impact on spending on drugs, suggest new figures from the QuintilesIMS Institute, a research firm. The rate of growth in spending on prescription medicines in America fell to 4.8% in 2016, less than half the average rate of the previous two years (after adjusting for discounts and rebates). Michael Levesque of Moody's, a rating agency, reckons that pressure over pricing is contributing to a deceleration in earnings growth at pharma firms. Public scrutiny constrains their flexibility over what they can charge and allows payers to get tougher.

In one area, however, earnings are expected to keep rising: cancer. Oncology is the industry's bright spot, says Mr Levesque. The grim fact is that two-fifths of people can now expect to get cancer in their lifetime because of rising longevity. This is one of the reasons why the number of new cancer drugs has expanded by more than 60% over the past decade. The late-phase pipeline of new medicines contains more than 600 cancer treatments. New cancer drugs are being approved more quickly.

More are arriving all the time. On May 1st, America's Food and Drug Administration approved durvalumab (trademarked Imfinzi), a drug from AstraZeneca, a British firm, which treats cancer of the bladder. Imfinzi, which has a wholesale price of $180,000 for treatment lasting a year, joins a growing crowd of medicines known as "checkpoint inhibitors", designed to work on a key molecular target that helps the body's own immune system to fight cancer. Merck of America has pembrolizumab (Keytruda); Bristol-Myers Squibb has nivolumab (Opdivo); and Switzerland's Roche has atezolizumab (Tecentriq).

These checkpoint inhibitors are expected to account for much of the growth in spending on cancer medicines. Merck, in particular, has done well with Keytruda. A sense of the value of the new drugs came when Opdivo failed a key clinical trial in August last year. The market value of Bristol-Myers Squibb fell by 16%, and its shares have been in the doldrums since.

Handsome prices for cancer drugs are far less pleasing for governments, insurers and patients. Even five years ago, most newly-approved treatments had gross annual prices of more than $100,000. But the pressure on budgets has worsened with the new generation of more expensive im- ▸▸

Ride-hailing in Saudi Arabia

Taken for a ride

Saudi women are a captive market for Uber and Careem

NASHMIAH Alenzy, a doctor in Saudi Arabia's conservative Qassim region, uses ride-hailing apps at least two or three times a week, and sometimes every day, to get to work or to run errands. Before she started using these apps last year, every journey needed to be planned well in advance as she negotiated getting a lift with her husband, her brother, or a private driver.

Barred from driving in a country with non-existent public transport, Saudi women are a profitable prospect for ride-hailing companies. Careem, a firm valued at $1bn that is based in Dubai and operates across the Middle East, north Africa and South Asia, set up shop in 2013. Uber followed in 2014. Both see the Saudi market as one of the most lucrative in the region. Around four-fifths of their respective customers are women.

Both firms are directly backed by the Saudi state. In response to falling oil revenues, the government's "Vision 2030" programme seeks to diversify its sources of income. In June last year its sovereign-wealth fund ploughed $3.5bn into Uber; and in December Saudi Telecom, which is controlled by the same fund, took a 10% stake in Careem.

If the motives for these investments are chiefly financial, the two firms also fit the government's social goals. Both help (male) participation in the gig economy, in line with an aim to push more Saudis into the private sector, which is currently dominated by expatriates. Unemployment is high, particularly for the young. Around two-thirds of those in work are employed in the cushy public sector. Last year the Ministry of Transport decided that only Saudi drivers could be licensed to use their own cars for ride-hailing. Foreigners must be employed directly by taxi firms.

Ride-hailing services also help with the government's stated aim of boosting women's labour-market activity. Only 1.9m out of 13.1m Saudi women participate in the workforce. One barrier to work is a lack of mobility; ride-hailing apps mean that more women—at least, those with credit cards and smartphones—can take up work or run their own businesses. Uber, under fire in its home market for its macho culture, has a better story to tell in the Gulf.

Saudi Arabia's embrace of ride-hailing also exposes a contradiction. Because of pressure from Wahhabi clerics, women are not allowed to drive or to mix with men outside their family. Yet the state is actively encouraging them to spend time alone with total strangers, something that makes conservatives uncomfortable.

Some women are annoyed for different reasons. The state ensures that women are dependent on men to get around, says Hatoon al Fassi, an academic, and is now profiting from that dependence. Despite her qualms, Dr al Fassi often has little choice but to use the Uber app herself. So long as women cannot take the wheel themselves, ride-hailing companies will be firmly in the driver's seat.

Appwardly mobile

There will be more than nine billion people to feed by 2050.

muno-oncology drugs, and could become more severe still if they are found to work best in combination with each other.

Making a mistake over which cancer drugs to use can be extremely costly for a payer, as illustrated by a disastrous recent attempt by Britain's government to increase access to new cancer drugs by creating a special fund in 2010. By the time it closed in 2016, £1.27bn ($1.83bn) had been spent, mostly on drugs that were later shown to be ineffective for the conditions they were tried on.

Some think a better approach would be to try drugs out on patients and for payers to pay a price based on how well they work, an approach known as "value-based pricing". That would mean collecting a great deal of data from patients, which would be far from straightforward.

Some companies, such as Genentech, a biotech company owned by Roche, are trying to do just this, as are some payers including American health insurers. But however reassuring it is to know that money is going on drugs that are proven to work, it does not solve the broader problem of affordability. ■

Animal waste

Burning the fat

PORVOO

A Finnish refiner turns slaughterhouses into oil wells

IN ALDOUS HUXLEY'S "Brave New World", the human corpses in Slough Crematorium are turned into a phosphorous-based fertiliser. "Fine to think we can go on being socially useful even after we're dead," a character enthuses.

An engineer at Neste, a Finnish oil company, wryly echoes that observation while showing visitors around a novel diesel refinery in Porvoo, an industrial town 50km (31 miles) east of Helsinki. But the sickly-smelling brown gloop fed into the town's pre-treatment plant has nothing to do with humans. It is made from the rendered fat of slaughtered cattle and pigs, transported by tankers in heated vats to stop it congealing. No reindeer, either. "Too lean," he says.

Protected species

In a triumph of the "circular economy", Neste has found a way to make transport fuel more sustainable. After heating and filtering the gunk, what is left of it is mixed with hydrogen in a refinery, producing diesel-like hydrocarbons that are then tailored so that they can be poured straight into the tanks of everything from cars to passenger jets. "You could put this in your VW diesel and drive off," says Joshua Stone of Barclays, a bank.

Since BP, a British firm, made its attempt to go "Beyond Petroleum" in the 2000s, many oil companies have sought to become greener. But few have taken a more idiosyncratic route than Neste, which is part-owned by the Finnish state. In the past decade it has invested €1.42bn ($1.55bn) in "biorefineries" in Porvoo, Singapore and Rotterdam. These process animal waste and recycled cooking fat into renewable diesel, a cleaner form of the fuel than that which, since the scandal at Volkswagen, has tainted the car industry. It is also a more sustainable alternative than the biofuels made from food crops. Neste has become the world's biggest producer.

For years, Neste's diversification away from fossil fuels terrified investors. "They really didn't believe us," says Matti Lievonen, its chief executive. But since 2013, when its operating profit from renewable diesel turned positive for the first time, to last year, when it reached €469m, its shares have outperformed other refiners. A few competitors, such as Valero, an American refiner, Total of France and Eni of Italy, also produce renewable diesel, but Neste's 2.6m-tonne capacity dwarfs theirs.

The preference for renewable diesel over other biofuels is because it can be "dropped" straight into a tank with no blending. Neste says its products generate less carbon dioxide, nitrogen oxides and particulates than fossil diesel, which is why California, a clean-energy pioneer, is its biggest market. Renewable diesel is more expensive than its traditional counterpart, however, so it relies on clean-energy mandates, fuel standards and tax credits for growth. Demand is thus subject to the whims of regulators, which can fluctuate.

Most intriguing is Neste's impact on slaughterhouses globally. Ryan Standard of *The Jacobsen*, an American journal that tracks the trade in animal fats, says that anticipated global demand from Neste and its smaller American rival, Diamond Green Diesel, is likely to account for the equivalent of almost half the tallow, lard, white grease, poultry fat, used cooking oil and other Dickensian-sounding waste products produced in America. That may put an upper limit on the supply of raw materials, meaning renewable diesel will always remain a niche product.

Yet Neste still sees ample room for growth, as restrictions on cars using fossil diesel increase, and fuel-guzzling heavy vehicles and jet aircraft strive for lower emissions. Petri Lehmus, its head of research and development, says the firm is exploring new potential feedstocks such as forest residues and algae. However successful it is, Neste will never become the next Saudi Aramco. But what it lacks in natural resources, it will strive to make up for in human ingenuity. ■

The newspaper business

Metamorphosis

BERLIN

Axel Springer is in the throes of a radical digital transformation

VISITING the top floor of Axel Springer's tower in Berlin is like travelling back to a lost age. The German publisher's *Journalisten Club* is a suite of wood-panelled rooms filled with antique books, leather armchairs and classical paintings. "It is a symbol," says Mattias Döpfner, the publisher's chief executive.

Whether it still makes sense as a symbol is unclear, for Axel Springer's business has shifted rapidly away from print media (though it still owns *Bild* and *Die Welt*, two leading German dailies) towards an array of digital businesses. In 2000 it had almost no digital revenue; by the end of last year over 72% of its operating profit came from digital activities. Profits have increased by 37% over the past decade, from €434m ($473m) in 2006 to €596m last year.

Four years ago Axel Springer sold off

several newspapers and magazines, including the *Hamburger Abendblatt* and the *Berliner Morgenpost*, for $1.2bn. In 2015 it nearly bought the *Financial Times*, a British paper with a strong online presence but lost out to Japan's Nikkei, which paid a whopping £844m ($1.1bn). Shareholders were said to be relieved.

The list of Axel Springer's digital acquisitions, meanwhile, stretches to over 150 in the past decade. StepStone, Germany's most-visited site for jobseekers, for example, is one of several popular classified-ad platforms it owns, for everything from second-hand cars and holiday rentals to jobs and real estate. It has the world's most lucrative collection of such ads. Another big business is Idealo, a popular price-comparison site with tips for thrifty housewives.

Its recent foreign acquisitions include Business Insider, a digital-only news site known for clickbaity headlines and for features like "Coolest people under 40 in Silicon Valley", and eMarketer, a New York-based publisher of digital-market data. Last year Axel Springer joined forces with South Korea's Samsung to start Upday, a mobile-news service that combines algorithms with human editors to provide users with personalised news streams.

The company's tower in Berlin overlooks its startup accelerator, a joint venture with Plug and Play, a Silicon Valley-based firm that helped companies such as Google and PayPal early on. It is meant to give the firm an early look at up-and-coming disrupters, which it then either buys or keeps a close eye on. Of late Axel Springer has also started making direct, early-stage investments in small American startups such as Thrillist.com, a lifestyle site for young men. It has taken tiny stakes in giants too: in Airbnb, a home-sharing site, and in April, in Uber, a ride-hailing firm.

This web of investments causes some awkwardness. Neil Thurman, a media professor at Ludwig-Maximilians-Universität in Munich, says that Axel Springer needs to be highly transparent in how it reports on companies. The group's newspapers often include disclaimers in articles disclosing its financial interests but some articles neglect to do this, he notes.

Axel Springer's bid for the *Financial Times* underlined an enduring appetite for conventional journalism, and in January the group launched *Fussball Bild*, a new, print-only sports newspaper, Germany's very first sports daily. But at the majority of its print publications, circulations are still in steady decline. *Bild's* average daily circulation halved between 2006 and 2016, from 3.8m to 1.9m. By investing in digital classifieds and advertising Axel Springer has bought itself time to try and save its traditional news business, argues Katja Riefler, a media analyst. If they help with that hard task, the startups might even get invited to the *Journalisten Club*. ■

Street food

Rules of the road

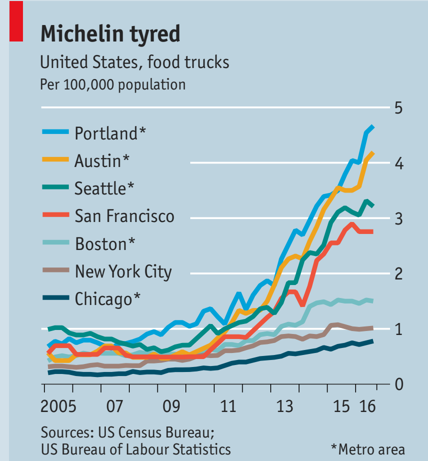
America's food-truck revolution stalls in some cities, accelerates in others

IT WAS in 2008 that an out-of-work chef named Roy Choi began selling $2 Korean barbecue tacos from a roaming kitchen on wheels, tweeting to customers as he drove the streets of Los Angeles. Mr Choi's gourmet food truck has since inspired a reality-TV programme and a hit Hollywood film, and helped jump-start a $1.2bn industry.

Within the food industry, the food-truck business, built on unique dishes, low prices and clever use of social media, is the fastest-growing segment. Restaurants fret about an army of trucks stealing customers but such concerns are unwarranted. According to the Bureau of Labour Statistics, counties that have experienced higher growth in mobile-food services have also had quicker growth in their restaurant and catering businesses.

Although many cities have treated food trucks as a fad, a nuisance, or a threat to existing businesses, others have actively promoted them. Portland, Oregon, known for its vibrant culinary scene, has had small food carts on its streets for decades. After a study in 2008 by researchers at Portland State University concluded that the carts benefited residents, the city began encouraging the use of vacant land for food-truck clusters or "pods". Today, Food Carts Portland, a website, reckons the city has over 500 carts and trucks.

Yet government figures suggest the revolution has stalled in several of the country's biggest cities (see chart). The sector is subject to a patchwork of state and local regulations. In few places are these stricter than in Chicago. Influenced by a powerful restaurant industry, the city prohibits food trucks from setting up shop within 200 feet of a bricks-and-mortar eatery or from parking in any one location for more than two hours. Vendors are required to carry GPS devices that record their whereabouts every five minutes, on pain of heavy fines. Such restrictions have stifled the industry's growth. Despite being home to more than 7,000 restaurants and 144 craft breweries, Chicago has just 70 licensed food trucks.



The burghers rise up

The Windy City may be the least food-truck-friendly place in America but New York and Boston are little better. In Boston vendors must compete for space on public roads at specified places and times through an annual lottery. In New York a vendor must obtain a two-year government permit, which requires sitting through a 15-year waiting list or shelling out as much as $25,000 to rent one on the black market. Adam Sobel, owner of Cinnamon Snail, a popular vegan food truck, shut down his operations in 2015 because of rising costs. "You kind of have to be crazy to have a food truck in New York," he says.

Fortunately, truck operators can drive to more welcoming cities, such as Minneapolis and Philadelphia. Once there, and no matter how cosy they get with policymakers, truck owners still want to cultivate their underdog image. "It used to be the restaurants and their chefs that had all the power," says Han Hwang, the chef and owner of Portland's Kim Jong Grillin'. "Now it's the people. That's the revolution that's happening right now."

Schumpeter | From great to good

A confidential memorandum to the senior faculty of Harvard Business School

YOU will all be aware that a book has just been published about our institution, Harvard Business School (HBS). Entitled "The Golden Passport", by Duff McDonald, it makes a number of unflattering claims about the school's ethics and its purpose. While often unbalanced, it is likely to galvanise hostility to HBS both inside Harvard University, of which we are a part, and among the public. This memorandum, circulated only to the most senior faculty members, assesses HBS's strategic position.

Our school has been among the country's most influential institutions since its foundation in 1908. Our forebears helped build America's economy in the early 20th century and helped win the second world war. HBS educates less than 1% of American MBA students but case studies written by our faculty are used at business schools around the world. Our alumni fill the corridors of elite firms such as McKinsey. Many bosses of big American companies studied here. Even in Silicon Valley, where we are relatively weak, about a tenth of "unicorns"—private startups worth over $1bn—have one of our tribe as a founder.

We have a business model that monetises the Harvard brand through four revenue streams. About $127m, or 17%, of sales come from MBA tuition fees. Our case-study method, in which students learn from real business situations, is popular. But it is only one reason why they are willing to pay headline fees of $71,635 a year. Like parents of pupils at Britain's elite private schools, they are buying social standing as well as access to an alumni network that will dramatically raise their odds of getting high-paying jobs.

A further 23% of sales comes from our executive-education operation, which sells short courses to mid-career executives. They get a modest amount of mental stimulation and the right to call themselves Harvard alumni. We get $176m a year in return. Our publishing arm sells case studies to other universities and publishes books and a magazine; that brings in 29% of our revenues. The remaining 31% comes chiefly from wealthy businessmen in the form of donations. Some of them may well be under the impression that they gain influence over what we teach.

We have had a fantastic run of it, with sales growing at a compound annual rate of 8% in the past decade, above the university's rate of 5% and outperforming the median firm in the S&P 500 index. Our balance-sheet is strong, with $3.2bn of endowment funds (run by the university's management company) and $1.6bn of other assets, including our campus. You have all benefited handsomely; we pay out a higher share of our income in compensation than Goldman Sachs does. It may look like poor cost control, with expenses rising at a 7% annual rate, but it also means we live up to our legal status as a non-profit organisation. After deducting capital expenditure, the school makes a modest loss.

However, we face three strategic problems. First, conflicts of interest—let's be honest here—that have become glaring. We grant companies a veto over case studies written about them. We permit our faculty to be paid, for example, through consulting gigs, by firms they teach about. We do case studies on some of our big donors. It is likely that this compromises our objectivity.

Second, we face ever more competition to our claim to intellectual leadership. Important business thinkers such as Michael Porter and Clayton Christensen are still on staff, but a new generation of superstars has not yet caught fire. The authors of the most influential recent business book, "The Second Machine Age", work across the Charles river at the Massachusetts Institute of Technology. As the tech industry expands, its chief alma mater, Stanford University, is growing ever more powerful.

Last, we may perpetuate inequality, a relevant subject at the moment. We have worked to make our intake of students more diverse. But even after the financial aid that we give to some, we have ramped up our effective MBA fees by 31% over the past five years. Relative to the median salary our graduates earn in their first year at work, our fees are twice as costly as they were in 1986. It doesn't take much to see our network as a form of cronyism.

Left unaddressed these weaknesses could compromise our business model. If HBS is more about cash and contacts than ideas, bright people may eventually go elsewhere. Other schools may stop buying our case studies if they doubt their objectivity. We are part of Harvard University, but our already uneasy relationship with it could deteriorate. We benefit from an implicit subsidy because we can use the Harvard brand while operating at arm's length. In return they benefit from our alumni, who often donate to the university as well as to HBS. But the university has, at least notionally, the power to overhaul our management.

The Boston Business School Inc

Our school, led by Nitin Nohria, dean since 2010, has made important reforms. We have tightened disclosure rules on conflicts of interest. Students must spend time in emerging markets. We have tried to signal that our interests go beyond shareholder value by publishing essays criticising it. Yet deeper changes are needed if we are to maintain our competitive position. One course is to reduce the influence of big money and fully eliminate conflicts. Our dependence on big donors' generosity would have to fall and, by implication, we would have to be less extravagant.

If you have a good thing going, though, why stop? An alternative is to follow the advice of Alfred Chandler, a theorist at HBS between 1970-89, who taught that structure must reflect strategy. HBS would cut loose from Harvard and acknowledge its tacit commercial status. If we trimmed costs to their level five years ago and were valued on the S&P 500's price-earnings multiple, HBS would be worth $5bn. The university would get a huge special dividend with which to pay for more scholarships for underprivileged applicants. We would be subject to the forces of accountability and transparency that we have always argued maximise performance. We look forward to your feedback. ■

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Chinese investors

The Buffetts of China

SHANGHAI

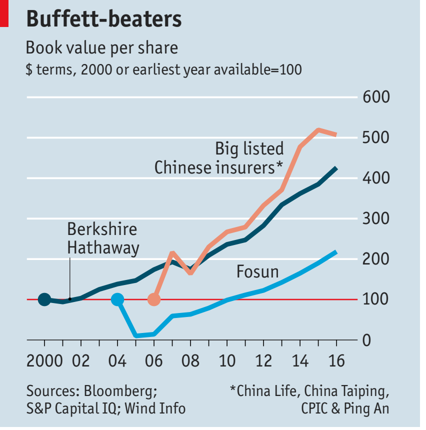
The Oracle of Omaha has legions of fans but few true followers in China

AS THE second-richest person in the world, and with a half-century record of investing success, Warren Buffett is a household name worldwide. But in China, he is something more: a celebrity. In March a special edition of Cherry Coke, featuring a cartoon image of the 86-year-old investor, hit Chinese shop shelves (Mr Buffett not only loves the sugary beverage; he is Coke's largest shareholder). On May 6th thousands of Chinese investors will descend on Omaha for the annual meeting of Berkshire Hathaway, his holding company, and many more will tune into a live-stream of the event. Mandarin is the only foreign language into which the proceedings will be simultaneously translated. Those who miss the broadcast can pick up one of the hundreds of Chinese books about his approach to minting money.

Mr Buffett's stature in China stems partly from good timing. China's modern stockmarket was launched in 1990. Just as neophyte investors grappled with earnings reports and trend lines, the Oracle of Omaha's reputation as the world's best stock-picker was blossoming. Compared with the regular booms and busts of the Chinese stockmarket, the steady returns of Berkshire Hathaway are beguiling. For Chinese investors who do make it big, there are few greater accolades than to be dubbed the "Warren Buffett of China". This title has been conferred on or claimed by no fewer than ten tycoons.

But they might want to think twice. In the Chinese context, declarations of Buffett-like investment abilities have, over the past couple of years, proved less a badge of honour than a warning sign. In rapid succession his putative disciples have run into trouble. One was jailed for manipulating the stockmarket. A second has been held incommunicado in custody for months. A third was hauled in as part of a government investigation.

This chasm between the veneration for Mr Buffett and the travails of those who supposedly model themselves on him points to the messy reality of Chinese finance. Investors are becoming more sophisticated, with professional fund managers, once marginalised, playing a bigger role in the country's markets. Mr Buffett is held up as the gold standard of value investing, respected for his long-term view in selecting stocks. But when they get down to business, many Chinese investors still opt for hard-driving, debt-laden, risky approaches; they are products of a stockmarket that is not yet three decades old and an economy that during that time has seen few serious downturns.



Consider the two investors most often likened to him. One is Guo Guangchang, chairman of Fosun, a conglomerate with interests from mining to tourism. There is a superficial similarity between Fosun and Berkshire Hathaway in that both partly pay for their investments by selling insurance. But the contrasts are just as striking. Over the past decade Berkshire Hathaway has been able to finance more than four-fifths of its investments with cashflow from its operations; Fosun's cashflow has covered less than a quarter of its investments. The result has been a much higher reliance on debt for the Chinese firm.

Another Chinese investor described as applying the "Warren Buffett model" is Wu Xiaohui of Anbang. Anbang's insurance business has surged over the past five years, with its assets reaching 1.9trn yuan ($286bn) in 2016, more than triple their 2012 level. Anbang, like Berkshire Hathaway, has financed most of its investments with revenues from selling insurance. But unlike Mr Buffett's stable business, Mr Wu has relied on the sales of short-term, high-yielding insurance policies, tantamount to a hidden form of debt.

These Chinese Buffetts now face a stiff test. The government appears at last to be serious about cleaning up financial markets after a decade of runaway debt growth. Regulators have repeatedly promised to rein in credit issuance, only to back ▸▸

down when the economy has slowed. In recent months, though, they seem to be mounting a more sustained onslaught. Xi Jinping, China's powerful president, has declared that the focus of financial policy should be on limiting risks. The securities regulator has vowed to catch the "giant crocodiles" feasting on the savings of ordinary investors. And the banking regulator has unleashed what the local press has called a "tightening storm", choking off cashflows to shadow banks.

The risk to Chinese investors is twofold. The first is political. The state is closing in on those it suspects of illegality. Xu Xiang and Xiao Jianhua, managers of secretive investment companies, won accolades as Chinese Buffetts for no reason other than their good returns. Both are now in detention: Mr Xu was jailed for manipulating the stockmarket; Mr Xiao is being held as part of a corruption investigation.

The second risk is financial. In clamping down on debt, regulators' targets are the debt-laden investments favoured by China's insurance upstarts. Both Fosun and Anbang have had to call off foreign deals in the past year. On May 3rd Anbang said it would sue *Caixin*, a business magazine, over allegations of financial irregularities.

Lost in all the hype about these supposed Buffetts of China is that there are in fact companies which have been more Buffett-like: big, boring, mainly state-owned insurers. Hewing to official rules, they have been more cautious about using debt. Benefiting from China's growth, their performance (measured by book values per share, Mr Buffett's preferred gauge) has topped Berkshire Hathaway's over the past decade, albeit with more ups and downs (see chart on previous page). They also share one other trait with Mr Buffett, who is famed for his humility. They have not boasted about their success. ■

Buttonwood | Cape Fear

Investors are simultaneously bullish and skittish about valuations

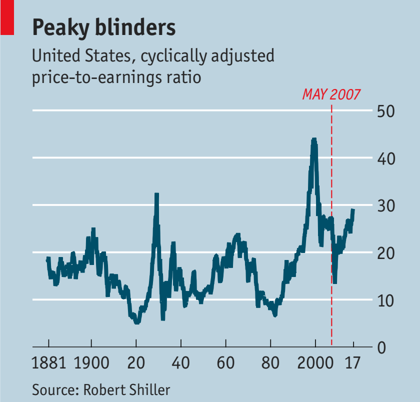
TEN years ago this month investors were pretty confident. True, there were signs that problems in the American housing market would mean trouble for mortgage lenders. But most people agreed with Ben Bernanke, the Federal Reserve chairman, that "the impact on the broader economy…seems likely to be contained." The IMF had just reported that "overall risks to the outlook seem less threatening than six months ago."

That was reflected in market valuations. In May 2007 the cyclically-adjusted price-earnings ratio (CAPE), a measure that averages profits over ten years, was 27.6 for American equities (see chart). That ratio turned out to be the peak for the cycle. As the problems at Bear Stearns, Lehman Brothers and others emerged, and as the world was gripped by recession, share prices plunged. By March 2009 the CAPE had fallen by more than half.

Central banks then kicked into action, slashing interest rates and buying assets via quantitative easing (QE). The stockmarkets recovered rapidly and the S&P 500 is now more than 50% higher than it was ten years ago. And the American stockmarket's CAPE, at 29.2, is also higher than it was back then.

Investors might worry about equity valuations but what are their alternatives? A decade ago, the ten-year Treasury-bond yield was around 4.8%; now it is 2.3%. The Fed may have started to raise rates but the return on cash is still pitiful in nominal terms and negative in real (ie, after inflation) terms.

But at least the return on cash and bonds (held to maturity) is fixed in nominal terms. Investors have already suffered two big bear markets in equities this millennium. On each occasion, their losses in percentage terms were in the double digits. What might trigger another collapse?



There is no law that says the CAPE has to return to its long-run average of 16.7; indeed, the ratio's mean over the past 30 years has been 24.5. Even in the depths of the 2008-09 crisis, the ratio only fell below the long-run average for ten months.

When investors accept a high CAPE for shares, they are confident about the ability of companies to maintain, and increase, their profits. One reason why the American market has powered ahead since the election of Donald Trump is that investors expect cuts to the tax rate on corporate profits, allowing more of those profits to be passed on to shareholders.

As Jeremy Grantham of GMO, a fund-management group, points out, there does seem to have been a step change in the level of American profits, as a proportion of both sales and GDP, since 1996. The corollary has been a lower share of GDP for labour, one factor behind voter discontent.

Mr Grantham suggests two forces behind the higher profits: enhanced monopoly power for American companies; and low real interest rates, which have allowed firms to operate with more debt. Both suggest there is something wrong about the way capitalism is currently working. If profit margins are high, then more capital ought to be ploughed into businesses until investment-led competition drives margins back down; that has not happened. And low real interest rates reflect, in part, the extraordinary measures taken by central banks to revive developed economies after the financial crisis.

The conventional threats to the equity market are twofold: a sharp rise in interest rates, which would hit indebted individuals and companies; or a decline into recession, which would dent profits. Neither looks imminent at the moment, which helps explain why Wall Street keeps hitting record highs.

But there are other ways that profit margins could be hit. Protectionist policies could disrupt the free flow of goods, services and people across borders. A credit crisis could emerge elsewhere in the world—in China, for example, where debt has been growing rapidly. Flash-points in the Middle East or on the Korean peninsula could spark war.

Investors are not as complacent as they seemed a decade ago. In a poll conducted by Bank of America Merrill Lynch, a net 32% of global fund managers think shares are overvalued. Despite that, however, a net 40% have higher-than-normal holdings in shares.

In other words, investors are managing to be simultaneously bullish and skittish. By a large majority, fund managers expect global growth and corporate profits to be strong over the next 12 months; but they also know such expectations are already fully reflected in share prices. All will be well provided there are no shocks. But history suggests shocks have a nasty habit of occurring.

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Government debt

Taking the ultra-long view

NEW YORK

The Methuselah trade

HOW can governments borrow most cheaply? The answer matters hugely for taxpayers. Take America: it has $14trn in outstanding national debt, fully three-quarters of GDP. Interest payments alone are expected to reach $280bn this fiscal year—ie, more than three times the combined budgets of the Departments of Education, Labour and Commerce.

The problem largely comes down to deciding how much long, medium and short-dated debt to sell. Almost every country issues a combination of these maturities. In the current low interest-rate environment, however, many argue that governments should sell proportionately more long-dated bonds to make sure they are able to pay historically low rates for many decades to come, thereby saving taxpayers money in the long run.

Some countries have already ploughed ahead. In recent years Britain, Canada and Italy have sold 50-year bonds; Mexico, Belgium and Ireland have issued 100-year debt. The latest country to flirt with the idea is America: last month the Treasury sent out a survey to bond-dealers to gauge market appetite for 40-, 50- and 100-year bonds. On May 3rd officials said that Steve Mnuchin, the treasury secretary, had set up an internal working group to take a look at ultra-long bonds. Mr Mnuchin has expressed the view that they could “absolutely” make sense.

Not everyone agrees, including, it seems, the private-sector financiers who make up the Treasury’s own borrowing advisory committee, which met this week. Long-term rates are at historic lows but short-term rates are even lower. The weighted average maturity (WAM) of outstanding Treasury debt is 5.7 years, and the effective interest rate paid on the total pile of debt is 2.03%. The yield on 30-year Treasuries is 3%, so selling even longer-dated debt will raise the overall cost. Even a 0.1 percentage-point rise would add roughly $14bn to the taxpayer’s burden.

Moreover, ultra-long bonds would be cost-effective in the long run only if short- and medium-term interest rates eventually exceed the levels of long-term rates today. Otherwise governments could simply roll over short-term debt. Issuing very long-term debt is, in effect, like paying for insurance against future interest-rate rises.

So whether ultra-long bonds would save taxpayers money depends on future inflation and growth. Higher levels of each would probably push up short- and medium-term interest rates. But this is not inevitable. Alex Gurevich of HonTe Investments, a California-based fund-management firm, says interest rates in America are more likely to remain at current levels than to revert to the mean seen in the late 20th century. If Mr Gurevich is right, ultra-long bonds sold today may, ironically, lock in higher rates for longer.

Finally, the demand for ultra-long government bonds is unpredictable. Institutional investors with long-term liabilities, such as pension funds and insurance companies, may be happy with 30-year bonds, which most countries already sell, or may opt for higher-yielding long-dated corporate bonds, such as those issued by Caterpillar, an American construction-equipment company. Sales of ultra-long government bonds, despite fanfare, have so far been one-off events and do not provide much of a guide. Low demand would in turn send yields higher, raising government debt-servicing costs.

In some countries, such as Britain, interest rates on long-term debt are not much higher—or are even lower—than on shorter-term borrowing. For them, borrowing at ultra-long maturities is likely to be cheaper than medium-term debt, so it makes sense to replace some mid-length bonds with ultra-long ones, says Niso Abuaf of Samuel A. Ramirez & Company, a New York brokerage. This helps to explain why the WAM of British sovereign debt is unusually long, at 14.9 years (see chart).

Ultra-long debt is also very attractive to governments such as Mexico’s, which have a recent history of fiscal profligacy and high inflation, yet are able, while investors still trust them, to borrow for the long term very cheaply. In America, however, where Treasury bonds serve not just to raise funds but to set global benchmarks, the calculation is a trickier one. ■

Correction: Our article on corporate-bond markets in the issue of April 22nd, “Click to trade”, incorrectly reported that Bloomberg did not yet offer “all-to-all” trading. In fact since 2015 it has launched all-to-all corporate-bond trading in Europe, Asia and America in partnership with external counterparties. Sorry.

Puerto Rico’s finances

To be resolved

WASHINGTON, DC

Puerto Rico declares bankruptcy at last

THE government of Puerto Rico said in 2015 that the island could not pay its debts. Yet it was only on May 3rd that it kicked off the biggest bankruptcy case in America’s history. Public-sector debts total almost $74bn (around 100% of GNP). The drawn-out fiscal crisis has both imperilled Puerto Rico’s economy and upended the island’s politics.

Something akin to bankruptcy is possible only because of a federal law passed in 2016. Until then, the island’s legal status as a territory afforded it no escape from its debts (were Puerto Rico a state, its public utilities could have declared bankruptcy). The law established a “financial oversight board”, appointed in Washington, with the task of reaching a deal with bondholders. But it also allowed for bankruptcy-like proceedings should negotiations fail.

A two-thirds majority of bondholders would have forced all of them to accept a reduction in the value of their debt. Yet agreement was always unlikely. Puerto Rica’s constitution says payments to holders of so-called “general obligation” bonds have priority over all other expenditure. But another group of creditors have first dibs on revenue from the sales tax. Clearing up this ambiguity seems to require a court battle. Both sets of creditors recently rejected an offer of 50 cents on the dollar.

In the meantime, Puerto Rico is in dire straits. The government’s latest fiscal plan, approved by the oversight board in March, seeks to balance the budget over three years. Doing so requires austerity cuts ▶▶

worth about 10% of GNP by 2020. The latest federal-budget deal bought a little time with more money for the island's Medicaid programme, which provides health insurance for the poor (in Puerto Rico, about half the population). The cash was not enough to dissuade striking anti-austerity protesters from filling the streets on May 1st, disrupting public transport and forcing many firms to close for the day.

Because Puerto Ricans are American citizens, the island's taxpayers can escape austerity by fleeing to the mainland, leaving fewer people to pay off the debt. The population is more than 8% smaller than in 2010. The economy has been in recession almost continuously since 2006. Unsurprisingly, the island's politics are in flux. Ricardo Rosselló, the governor since January, promises a referendum on statehood for the island in June. A poll in March showed 57% support for the proposition; some of its opponents want a boycott of the vote.

However the island votes, and although the 2016 Republican election platform backed statehood, the proposal is unlikely to pass muster in Washington. It would almost certainly put two more Democrats in the Senate. But, at least from Puerto Rico's perspective, the arguments against statehood are getting weaker. Traditionally, its opponents have said that Puerto Ricans have the best of both worlds: they use the dollar, get American passports, but keep Washington at arm's length. With the oversight board in place, that claim looks a lot less convincing. ■

Illegal-wildlife trade

On the horns

Saving the rhino means understanding supply and demand for its horn

A DEAD rhino, with a bloody stump in place of its horn, means different things. For the species it is the danger of imminent extinction; for wildlife-lovers it is barbarism; for law-enforcers it is failure. For its poachers it means income; the horn will be exported illegally to fetch tens of thousands of dollars. For economists, it means market forces are at work.

South Africa is in the throes of a poaching epidemic. Official figures show poachers killed 1,054 rhinos in 2016, up from just 13 in 2007. In Kruger National Park, home to the world's largest rhino population, numbers are dropping despite a fall in recorded poaching incidents. Tom Milliken of TRAFFIC, a wildlife-trade monitoring network, worries that poachers have become better at hiding the carcasses.

The problem is international. The rhino-horn supply-chain sprawls from South Africa, home to nearly three-quarters of the world's rhinos, to Asia, and in particular to Vietnam, where rhino horn is coveted as medicine, prescribed for fevers, alcohol dependency and even cancer.

Pricier than snake-oil, and deadlier

Prohibitionists call for better law-enforcement. Demand for rhino horn in China, they point out, fell sharply after the government banned its use in 1993. In the rhino's homelands, they say, extra patrols, fences and harsher penalties have helped curb poaching in the past couple of years.

But some argue the trade ban might actually be making the problem worse. Restricted supply pushes up prices and pulls in poachers. Private rhino-ranchers argue that if they could sell their stocks of horn, they could undercut the illegal trade. Some already chop off their rhinos' horns to make them worthless to poachers. Unlike elephant ivory, rhino horn grows back after a few years. Michael Knight, who chairs a specialist group on rhinos at the International Union for Conservation of Nature, an NGO, worries that, if rhino-horn sales remain illegal, ranchers will switch to cattle. They bear the cost of security. Poachers make the money.

But by seeming to normalise rhino-horn use, legalisation might boost demand along with supply. Prohibitionists worry that any attempt to lower prices would both bring in more customers, leaving incentives to poach unchanged, and make it far easier to launder illegal, poached horn.

For them, the best form of conservation is to cut demand. A new study, requested by the Vietnamese and South African governments and overseen by the International Trade Centre, an independent arm of the WTO and the UN, provides information on where that demand comes from. Thanks to contacts in the traditional-medicine business, the academic researchers who conducted the study interviewed rhino-horn users. Disproportionately, these were well-off older men. None used it as an aphrodisiac. And nothing suggested any stigma in using it: if anything, illegality enhanced the product's exclusivity and hence their willingness to pay. Asked how their demand would respond to price, users confirmed that cheaper horn would increase usage.

But if legalisation is risky, so is maintaining the ban. The study finds a hard-core user base of around 30% of rhino-horn users, who want the stuff regardless of the penalties. So long as doctors prescribe it demand will be difficult to eradicate. Douglas MacMillan, an author of the study, is sceptical that information campaigns persuade many people to shun it. Vietnam has already seen vigorous initiatives pointing out that rhino horn is the chemical equivalent of human hair and toenails.

Changes in the law may yield more evidence. On March 30th South Africa's constitutional court overturned the ban on domestic trade. Now, if they have the right permit, people can trade rhino horn, but not export it. TRAFFIC's Mr Milliken worries that this will lead to the worst of all worlds. Allowing some legal trade while the authorities are not properly enforcing the ban on illegal trade will muddy already murky waters. Once out of the country, legal and illegal horn will be all but indistinguishable. So users in Vietnam will have cheaper supplies; the illegal dealers still in control of the export trade will pocket the profits; and rhinos will keep falling to the poachers' bullets. ■

Car finance in America and Britain

Subprime, anyone?

LONDON AND NEW YORK

Worries mount that it is too easy to borrow to buy a car

THOUSANDS of second-hand cars, ranging from dented clunkers to Bentleys, glisten under the evening floodlights at Major World, a car dealership in Queens, a borough of New York. "Business has been good," says a crisply-dressed salesman, scurrying between prospective customers. Almost everyone who wants to buy a car at Major World can get approved for a loan, he explains, regardless of their credit score, or lack of one: when banks turn buyers down, the dealership offers them its own in-house financing.

In both America and Britain new-car sales reached record levels last year (2.7m cars in Britain and 17.5m in America), as did second-hand-car sales in Britain. So too did car loans: £31.6bn ($42.8bn) in Britain and $565bn in America. Even folk with poor credit records ("subprime" borrowers)

have been able to find financing. So some are asking whether this latest credit boom might have sown the seeds of a new crisis.

In America worries have centred on rising delinquencies in subprime asset-backed securities (ABSS) based on car loans. Bundling car-loan repayments into ABSS to sell on to investors represents an important source of financing, particularly for non-bank lenders. Cumulative net losses on subprime car-loan ABSS issued in 2015 are at levels not seen since 2008—over 6% after only 15 months.

Some hear echoes of the financial crisis. Yet any comparison with the subprime mortgage-backed securities that brought down the world's financial system a decade ago is a stretch. True, subprime lending makes up an even bigger share of car loans (21.1%) than it did of mortgages in 2006 (13.6%, compared with just 3.6% in 2016). But the car-loan market is tiny compared with the $2.8trn in mortgages issued in America in 2006. And whereas three-quarters of subprime mortgages were securitised, spreading the risks far and wide, only a fifth of subprime car loans are turned into ABSS. So far, subprime car-loan ABSS have avoided downgrades.

In Britain the comparison with 2006 is even harder to sustain. Data are fuzzier than in America because standardised credit scores are not used for car loans, but the Finance and Leasing Association (FLA), an industry body, reckons that subprime loans make up only about 3% of outstanding British car debt. Rondeep Barua of Bank of America Merrill Lynch says that the British market shows no immediate signs of stress; delinquencies have not increased, for instance.

Some have expressed worries about the potential mis-selling of personal contract plans (PCP), a hybrid form of lending, between a loan and a lease, that makes up four-fifths of all British car loans. But, as Adrian Dally of the FLA points out, PCPS have accounted for a majority of new car loans in Britain for a decade without leading to serious problems.

Even without a crisis, however, the boom in car lending is bound to create some worries. PCP borrowers in Britain have a lease-like option allowing them to return their cars after three years, so a glut of second-hand cars could depress prices. In America second-hand-car prices have already hit a six-year low, contributing to the low recovery rates on subprime loans. American lenders have also had to moderate their treatment of defaulters after alleged violations of debt-collection practices. To smooth repossessions, Major World insists that recipients of its in-house loans have a GPS tracker always on in their cars, so they can easily be traced.

Certain lenders which have heavy exposures to subprime borrowers are showing some signs of stress. For example, Santander Consumer USA, the American car-lending arm of a Spanish bank, has cut back sharply on making new loans and bolstered its reserves.

In Britain the surge in car-dealership finance has prompted the Financial Conduct Authority, a regulator, to raise concerns about irresponsible lending. Any problems with car lending would be cause for concern if they signalled broader troubles with consumer credit. The Bank of England has expressed worry about the breakneck pace of expansion in British consumer borrowing, which was growing at an annual rate of 10.9% last November, the smartest clip since 2005, fuelled by car finance, credit cards and personal loans.

In America analysts at UBS, a bank, have seen delinquency rates on subprime unsecured loans and credit-card balances start to rise (albeit from a low base), and poor performance start to spread from subprime car loans to more creditworthy borrowers. Subprime car loans may not bring down the system on their own, but regulators are all too well aware of the dangers if too many households find they have borrowed too much. ■

The euro-area economy

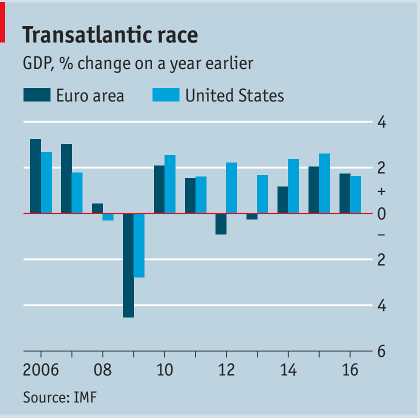
Speeding up

GDP in the euro zone rose at a faster rate than America's in the first quarter

THE appeal of GDP is that it offers, or seems to, a summary statistic of how well an economy is doing. On that basis, the euro-area economy is in fine fettle; indeed, it is improving at a faster rate than America's. Figures released on May 3rd show that GDP in the currency zone rose by 0.5% in the first quarter of 2017, an annualised rate of around 2%. That is quite a bit faster than the annualised 0.7% rate reported for America's GDP.

These figures probably overstate the gap between the two economies. In recent years, first-quarter estimates of GDP growth in America have later been revised upwards substantially. Still, the euro-zone economy is clearly picking up speed, even as America's goes through a soft spot. A jump in car sales in March saw Europe as a whole overtake America as the world's second-largest market (behind China). Euro-zone manufacturing grew at its fastest pace for six years in April, according to the purchasing managers' index, a closely watched gauge of economic activity. The corresponding index for America fell.

The good news is not confined to manufacturers. The European Commission's economic-sentiment index, based on surveys of service industries, manufacturers, builders and consumers in the euro zone, rose to its highest level for a decade in April. The bloc's extra pep is in large part because its recovery from recession is at a much earlier stage than America's. There is more pent-up consumer demand to accommodate and more spare capacity in businesses to meet it. There is a lot of catching up to do. The unemployment rate is 9.5% compared with 4.5% in America.

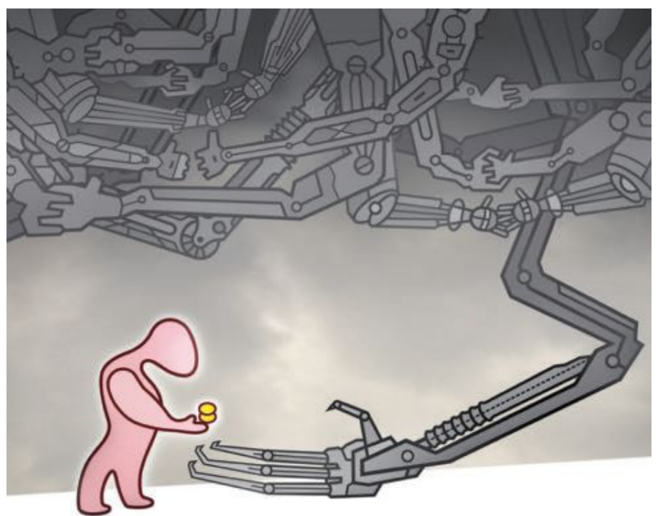


Differences in monetary policy in Europe and America reflect the different stages of recovery. The Federal Reserve has started (slowly) to raise interest rates. In contrast, the European Central Bank (ECB) has kept its foot to the floor. At the conclusion of its monthly monetary-policy meeting on April 27th, the ECB kept its main interest rate at zero and the rate it pays on bank reserves at -0.4%. It also left unaltered the pace at which the ECB is purchasing bonds, €60bn ($66bn) a month until at least the end of the year. Mario Draghi, the ECB's boss, did not give any hint that policy might be tightened soon. Although he acknowledged that risks of economic faltering had "further diminished", Mr Draghi insisted that underlying inflation in the euro zone was still unduly low.

He still has much to fret about, including China's management of its debt mountain and Donald Trump's protectionist threats. Elections in Europe may throw up an obstacle to growth, if not in France than perhaps in Mr Draghi's native Italy. And despite an agreement reached this week between the Greek government and its creditors on reforms it must undertake, that saga will continue to haunt the euro zone. But, at the very least, amid these anxieties, the economy is gaining strength.

Free exchange | Algorithms and antitrust

How price-bots can conspire against consumers—and how trustbusters might thwart them



MARTHA'S VINEYARD, an island off the coast of Massachusetts, is a favourite summer retreat for well-to-do Americans. A few years ago, visitors noticed that petrol prices were considerably higher than in nearby Cape Cod. Even those with deep pockets hate to be ripped off. A price-fixing suit was brought against four of the island's petrol stations. The judges found no evidence of a conspiracy to raise prices, but they did note that the market was conducive to "tacit collusion" between retailers. In such circumstances, rival firms tend to come to an implicit understanding that boosts profits at the expense of consumers.

No one went to jail. Whereas explicit collusion over prices is illegal, tacit collusion is not—though trustbusters attempt to forestall it by, for instance, blocking mergers that leave markets at the mercy of a handful of suppliers. But what if the conditions that foster such tacit collusion were to become widespread? A recent book* by Ariel Ezrachi and Maurice Stucke, two experts on competition policy, argues this is all too likely. As more and more purchases are made online, sellers rely increasingly on sophisticated algorithms to set prices. And algorithmic pricing, they argue, is a recipe for tacit collusion of the kind found on Martha's Vineyard.

Consider the conditions that allow for tacit collusion. First, the market is concentrated and hard for others to enter. The petrol stations on the Vineyard were cut off from the mainland. Second, prices are transparent in a way that renders any attempt to steal business by lowering prices self-defeating. A price cut posted outside one petrol station will soon be matched by the others. And if one station raises prices, it can always cut them again if the others do not follow. Third, the product is a small-ticket and frequent purchase, such as petrol. Markets for such items are especially prone to tacit collusion, because the potential profits from "cheating" on an unspoken deal, before others can respond, are small.

Now imagine what happens when prices are set by computer software. In principle, the launch of, say, a smartphone app that compares prices at petrol stations ought to be a boon to consumers. It saves them the bother of driving around for the best price. But such an app also makes it easy for retailers to monitor and match each others' prices. Any one retailer would have little incentive to cut prices, since robo-sellers would respond at once to ensure that any advantage is fleeting. The rapid reaction afforded by algorithmic pricing means sellers can co-ordinate price rises more quickly. Price-bots can test the market, going over many rounds of price changes, without any one supplier being at risk of losing customers. Companies might need only seconds, and not days, to settle on a higher price, note Messrs Ezrachi and Stucke.

Their concerns have empirical backing. In a new paper**, the authors outline three case studies where well-intentioned efforts to help consumers compare prices backfired. In one such instance, the profit margins of petrol stations in Chile rose by 10% following the introduction of a regulation that required pump prices to be displayed promptly on a government website. This case underlines how mindful trustbusters must be about unintended consequences. The legal headache for them in such cases is establishing sinister intent. An algorithm set up to mimic the prices of rival price-bots is carrying out a strategy that any firm might reasonably follow if it wants to survive in a fast-moving market. Online sellers' growing use of self-teaching algorithms powered by artificial intelligence makes it even harder for trustbusters to point the finger. A cabal of AI-enhanced price-bots might plausibly hatch a method of colluding that even their handlers could not understand, let alone be held fully responsible for.

Since legal challenges are tricky, argue Messrs Ezrachi and Stucke, it might be better to direct efforts at finding ways to subvert collusion. Trustbusters could start by testing price-bots in a "collusion incubator" to see how market conditions might be tweaked to make a price-fixing deal less likely or less stable. A "maverick" firm, with different incentives to the incumbents, might have a lasting impact; an algorithm programmed to build market share, for instance, might help break an informal cartel.

Regulators might also explore whether bots that are forced to deal directly with consumers—say, through an app that sends an automatic request to retailers when a petrol tank needs filling—could be enticed to undercut rivals. Or they might test to see if imposing speed limits on responses to changes in rivals' prices hampers collusion. It may be that batching purchases into bulky orders might thwart a collusive pay-off by making it more profitable for robo-sellers to undercut rivals.

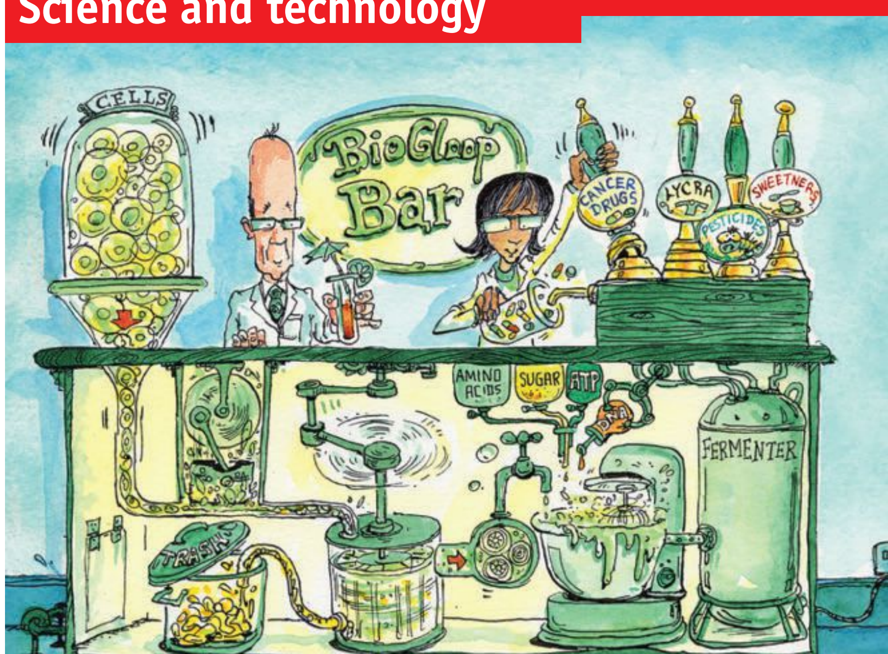
Never knowingly undersold

The way online markets work calls for new tools and unfamiliar tactics. But remedies have to be carefully tested and calibrated—a fix for one problem might give rise to new ones. For instance, the more consumers are pushed to deal directly with price-bots (to thwart the transparency that allows rival sellers to collude), the more the algorithms will learn about the characteristics of individual customers. That opens the door to prices tailored to each customer's willingness to pay, a profitable strategy for sellers.

Still, there is one old-school policy to lean on: merger control. There is growing evidence in old-economy America that trustbusters have been lax in blocking tie-ups between firms. A market with many and diverse competitors, human or algorithmic, is less likely to reach an effortless, cosy consensus about what is the "right" price for sellers, and the wrong price for consumers. ■

* "Virtual Competition: the Promise and Perils of the Algorithm-driven Economy", Harvard University Press (2016)
** "Two Artificial Neural Networks Meet in an Online Hub and Change the Future (of Competition, Market Dynamics and Society)" (April 2017)

Economist.com/blogs/freeexchange



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Biotechnology

Primordial gloop

A new type of biological engineering promises to speed up innovation and simplify the manufacture of drugs and other chemicals

THE stuff of life comes wrapped in tiny bags called cells. Inside are DNA molecules that carry the instructions for how to run the cell, to make it grow, and to cause it, ultimately, to divide into two cells, if that is to be its fate. Messages made of a slightly different molecule, RNA, carry these instructions to molecular machines called ribosomes. A ribosome's job is to read the RNA messages and translate them into proteins, the workhorse molecules of cells. Those proteins then supervise and execute the running, the growing and the dividing.

It is a system that has worked well over the 4bn years that life has existed on Earth. To some biotechnologists, though, the cell is old hat. They approve of the machinery of DNA, RNA, ribosomes and proteins, which can be engineered to make useful chemicals, ranging from drugs to the building-blocks of plastics. But they want to get rid of the bags that contain it, retaining only the part of the protoplasmic "gloop" inside a cell needed to do their bidding.

In this way they hope to control, far more precisely than is possible by conventional genetic engineering (or even by improved methods of gene modification, such as CRISPR-Cas9, that are now being developed) which genes are translated by the ribosomes—and thus what products are churned out. Equally important, cell-free biotechnology of this sort means no biochemical effort is wasted on running, growing or dividing any actual cells. The initial intention is to create a quicker way of finding the best genes for making a particular product. In the end, those working in the field aspire to the idea that cell-free production will equal mass production.

Processing power

A typical recipe for making cell-free protoplasmic gloop is this. Take four litres of culture containing *E. coli* (a gut bacterium favoured by genetic engineers). Split the bacterial cells open by forcing them through a tiny valve at pressure, thus shredding their membranes and DNA, and liberating the ribosomes. Incubate the resulting mixture at 37°C for an hour, to activate enzymes called exonucleases that will eat up the fragmented DNA. Centrifuge, to separate the scraps of cell membrane and other detritus from the gloop that contains ribosomes. Dialyse to remove unwanted ions. Then stir in amino acids (the building blocks of proteins), sugar and an energy-carrying molecule called adenosine triphosphate (ATP) to power the process. Finally, add a pinch of new DNA to taste, to instruct the gloop which proteins it is supposed to produce.

This particular recipe is the one used by Synvitrobio of Berkeley, California, a firm founded by Zachary Sun and Richard Murray of the California Institute of Technology and George Church of Harvard University. Other recipes, with different starting organisms, are possible. Yeast works, as does *Streptomyces*, another bacterium. Cells from tobacco plants or the ovaries of Chinese hamsters are also good places to begin. But all such formulae are variations on the theme of isolating a cell's protein-making machinery in a free-floating suspension.

Synvitrobio's engineers have built a robotic system to mix the final stage of their recipe. This robot parcels the purified protoplasm into an array of 384 tiny test tubes, each with a volume of a few millionths of a litre. It then drops some DNA molecules into each tube and the gloop gets to work on the process of turning the information in those molecules into proteins. Currently, the system can handle eight DNA sequences per test tube, meaning 3,072 proteins can be processed in parallel. The sequences can be up to 10,000 genetic "letters" long—enough to encode almost any protein you care to mention.

At present, Synvitrobio is using its system to test DNA sequences (or, rather, the resulting proteins) to see if they might be worth investigating as antibiotic drugs. Such drugs work by binding to a biologically important molecule and changing that molecule's characteristics in some way that is detrimental to the organism of which it is part. To look for this binding, each mini test tube is also supplied with some of the target molecules, each attached to a "reporter" molecule that emits a flash of light if binding takes place.

Tubes which flash brightly indicate that one or more of the DNA sequences therein are worth a second glance. Synvitrobio's technique is thus able to screen potential drugs at a rate limited only by the availability of new DNA sequences. Since synthesising new sequences on demand is now a ▸▸

routine technology, that means the world's gene libraries can be plundered for likely candidates, and the best of these then tweaked mercilessly until something good enough for the job turns up. Inserting such sequences into the genomes of organisms is far more time-consuming than simply dropping them in some gloop.

At the moment, that is the point when Synvitrobio passes the newly discovered molecule on, for a suitable cut of the proceeds, to someone who can turn it out in bulk by the conventional technique of pasting the relevant gene into appropriate cells, and breeding these cells in fermentation tanks similar to those used for brewing beer. This is because it is expensive to produce cell-free protoplasm in the volumes required to manufacture antibiotics for sale. A few firms are, however, doing so for drugs that can command high prices.

One such is Sutro Biopharma, based near San Francisco. It uses a cell-free system to create antibodies for the treatment of cancer. In April, Sutro announced it had employed its system to make STRO-001, an antibody that inhibits tumour growth. The firm plans to start trials of STRO-001 in 2018. Cell-free production of the antibodies for that trial is about to begin.

Antibodies are specialised proteins, so once Sutro's system has identified the best candidate for the job, all that is required is to seed the gloop with the DNA which encodes that candidate. Other firms, though, hope to go further than this, by devising manufacturing systems that put together entire metabolic pathways for the production of chemicals other than proteins. These, as in a natural metabolic pathway, consist of a series of enzymes (another type of specialised protein) that catalyse a sequence of chemical changes, gradually converting one molecule into another.

Genomatica, an established biotechnology firm based in San Diego, is experimenting with a cell-free system which produces 1,4-butanediol in this way from simple sugars. 1,4-butanediol is a small molecule that is used to make polymers such as Lycra. Generally, it is cheaper to manufacture molecules of this size using chemistry, rather than biology, but 1,4-butanediol is an exception. It is already made for industry with the aid of genetically modified *E. coli*. Genomatica's system churns out the enzymes involved in this synthesis, creating an entire cell-free metabolic pathway—and one in which all the sugar is devoted to making the target chemical, rather than a percentage of it being creamed off to run a cell's other biochemical processes. The firm has not yet put the system to commercial use, but has high hopes for it.

GreenLight Biosciences, a firm in Medford, Massachusetts, proposes to use its own cell-free system, also based on *E. coli*, to produce industrial quantities of an undigestible analogue of ribose, a naturally occurring sugar, for use in zero-calorie beverages. The company says it has already got its process to the point where it can make thousands of litres of solution of this sugar at a time. GreenLight is also working on cell-free systems that will generate industrial quantities of specially designed RNA molecules that interfere with the development of insect larvae, and can thus be used as pesticides. Currently, such RNA costs $5,000 per kilogram to produce. GreenLight thinks that by scaling the process up it can reduce this to between $50 and $100.

Whether cell-free biotechnology will be able to displace fermentation by genetically modified organisms as a routine way of making chemicals remains to be seen. Fermentation is a tried and trusted technique, used by humans since the invention of beer around 12,000 years ago. But the idea of stripping molecular biology down to its bare essentials has an efficiency about it which suggests that, for some applications at least, the utility of the biological cell may have run its course. ■

The fight against AIDS

Safer sex

A device that protects women against both HIV and pregnancy

PLENTY of progress has been made in the fight against AIDS. Deaths peaked in 2005, at around 2m people. By 2015 that number had fallen to 1.1m. One big reason is that, of the 36.7m people currently infected with HIV, 18.2m are taking antiretroviral drugs that can hold the virus back for decades. Their number has risen more than twentyfold since the turn of the century.

But not all the statistics are so encouraging. Around 1.9m adults contracted HIV in 2015. That number has hardly budged since 2010. The great bulk of those infections, about 1.3m in 2015, happen in sub-Saharan Africa. They happen more often to women than to men: 58% of HIV-infected people in the region are female. Women between 15 and 24 are infected at almost eight times the rate of men of the same age.

There are several reasons why women contract HIV more often than men. Some are biological: women have a higher chance of contracting HIV from a given act of unprotected sex than men do. But cultural factors matter too, especially in poor countries. As in other aspects of society, it is often men who call the shots in the bedroom. Even if a woman wants a sexual partner to use a condom, she may struggle to convince him to do so.

On May 3rd, a charity called the International Partnership for Microbicides (IPM) announced a clinical trial that it hopes could help the situation. It has developed a small silicone ring designed to be inserted into the vagina, from where, for the next three months, it releases steady doses of dapivirine and levonorgestrel. The first of those is an anti-HIV drug. The second is a contraceptive.

IPM's device builds on a previous model that contains only dapivirine. Two big clinical trials of that device concluded in 2016 and showed it could reduce the risk of catching HIV by about a third. That may not sound particularly impressive. But Zeda Rosenberg, IPM's founder, says this number almost certainly represents only a floor on the treatment's effectiveness. "We know from the trial results that not all the women used the ring consistently," she says. Those that did will, she thinks, have enjoyed substantially better protection.

Combining an anti-HIV drug with a contraceptive may give women a reason to use the product more faithfully. Dr Rosenberg points out that in societies that expect women to be demure or chaste, those who take steps to protect themselves from HIV can often face stigma, since others may assume they are engaging in risky behaviour. But no such stigma applies to contraception. In any case, the ring is small and unobtrusive enough that women can wear it without their partners' knowledge.

The first trial is designed only to demonstrate that the ring is safe, and will be conducted in America. Later tests will check how well it works, though the fact that the dapivirine-only ring has already passed similar tests should speed that process. IPM hopes to have the first batch of dual-purpose rings ready for shipping by 2020. If there is demand, it might even offer the rings for sale in the rich world, in the hope that the cash so generated could cross-subsidise production for poor countries where the need is greatest. ■

Ringing the changes

Pollutants

Fatal attraction

The missing link between air pollution and heart disease may have been found

WHY air pollution causes lung disease is obvious. Why it also causes heart disease is, though, a conundrum. One suggestion is that tiny particles of soot migrate through the lungs, into the bloodstream and thence to the walls of blood vessels, where they cause damage. Until now, this has remained hypothetical. But a study published in ACS *Nano*, by Mark Miller of Edinburgh University, suggests not only that it is correct, but also that those particles are specifically carried to parts of blood vessels where they will do maximum damage—the arterial plaques associated with cardiovascular disease.

One reason the particle-migration hypothesis has proved hard to confirm is that it is tricky to follow soot around the body. Soot is made of carbon, and that element, when finely divided and at low concentration, is difficult to isolate in biological material. Instead, Dr Miller and his colleagues used soot-sized particles of gold for their experiments. These are easy to detect, even at low concentrations, by means such as mass spectroscopy and Raman spectroscopy. Also, gold is chemically inert and therefore unlikely to be toxic. This is important, because some of Dr Miller's experimental animals were people.

The first group of these human guinea pigs were 14 healthy men. Each was asked to exercise for two hours while inhaling air containing particles of gold. Dr Miller and his colleagues then monitored the volunteers' blood and urine for 24 hours, and again three months later.

As expected, none of the volunteers showed signs of gold in their blood or urine before their exposure to the particles. All but two, however, did so 24 hours later. This proved that tiny particles can indeed migrate from the lungs into the circulation. Moreover, at the three-month recheck, the concentrations of gold in their bodily fluids remained more or less unchanged. Gold, once breathed in, is retained.

This experiment did not, however, tell Dr Miller where the particles were going and how they (or, rather, their carbon equivalents) can cause heart problems. He and his colleagues suspected that the culprits were immune-system cells called macrophages. These exist to engulf foreign bodies, such as bacteria, and would thus be quite capable of swallowing small particles of carbon or gold. They are also involved in inflammatory responses, which are helpful when short-lived (such as in reaction to a wound) but threatening when chronic (as in the inflammation associated with arterial plaques). Dr Miller and his colleagues thus wondered if their particles were being carried specifically to those plaques by macrophages.

Preliminary experiments on mice genetically engineered to be prone to vascular disease suggested they were. Dr Miller made these animals breathe in gold particles twice a week for five weeks. Then, a day after the final exposure, he killed and dissected them. He found that a given mouse's diseased arteries contained five times as much gold as its healthy ones did.

To see if something similar is true in people, the team then recruited three further volunteers. In this case, those signed up were the opposite of healthy. They were patients with plaque-clogged arteries, who were at risk of suffering a stroke. This particular trio were asked to breathe in the gold dust 24 hours before they underwent surgery intended to clear their plaques and unblock their constricted vessels. Dr Miller and his colleagues were thus able to examine the extracted plaques for the presence of gold—which they found, as by now they expected to, in abundance.

It remains to be determined whether particles of carbon behave in the same way as particles of gold. But, given carbon's high chemical reactivity compared with gold's, it is a fair bet that macrophages will be even more likely to notice and swallow it. So, though Dr Miller's work does not point towards a better treatment for pollution-induced cardiovascular disease, it does add weight to the arguments of those who worry about levels of air pollution. ■

Conservation

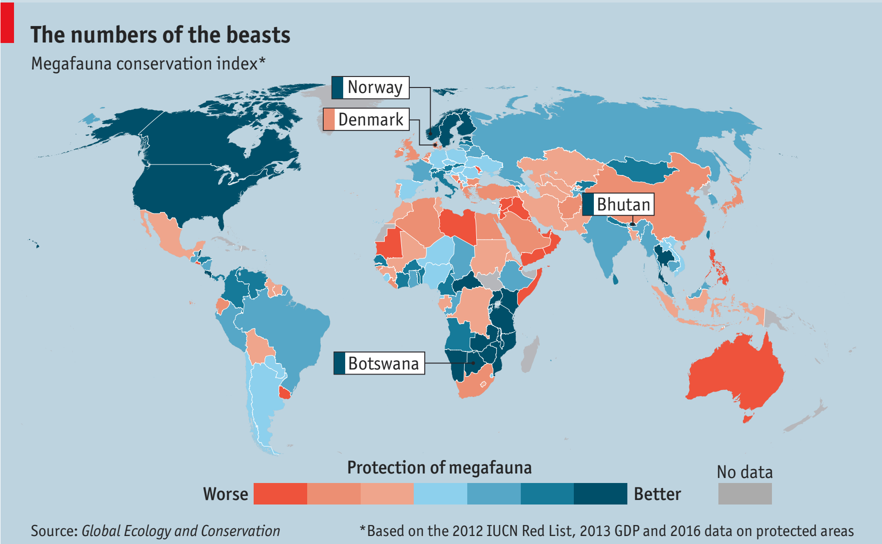
Big is beautiful

Tourists really do seem to help to preserve wild animals

WHICH countries have the best wildlife-conservation records? That was the question posed by a group of biologists led by Peter Lindsey of the University of Pretoria, in South Africa. Their conclusions, just published in *Global Ecology and Conservation* and summarised in the map below, suggest one determinant is the economic value of wildlife to a country, with nature-tourism destinations in east, central and southern Africa, led by Botswana, dominating the list of high performers.

The team looked at megafauna, defined as terrestrial mammals weighing 15kg or more as adults, if carnivores, or 100kg or more, if herbivores or omnivores. For each of 152 countries examined, they constructed a megafauna-conservation index composed of three elements. The first was, for every relevant species, the fraction of the country it inhabited. The second was the percentage of megafauna habitat which had legal protection. The third was the percentage of GDP a country devoted to conservation.

Besides the safari belt, America, Canada and Scandinavia, excluding Denmark, scored well (though, as the researchers note, "the financial contribution to predator conservation in Norway probably includes funds aimed at keeping predator population as low as possible, which hardly qualifies as conservation"). So did Bhutan, which came fourth. Low scorers included Britain and China (both densely populated, so lacking natural habitat), and, more surprisingly, Australia.



The numbers of the beasts

Megafauna conservation index*

Source: *Global Ecology and Conservation*

*Based on the 2012 IUCN Red List, 2013 GDP and 2016 data on protected areas

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Theatre

All the world's a stage

Nicholas Hytner breathed new life into the National Theatre in London, and refashioned it into a world-class institution

Balancing Acts: Behind the Scenes at the National Theatre. By Nicholas Hytner. *Jonathan Cape; 314 pages; £20. To be published in America by Knopf in November*

THEATRE directors are often judged to be gushing and self-important. Sir Nicholas Hytner is an exception. "Balancing Acts", his memoir of his tenure as artistic director of the National Theatre (NT) between 2003 and 2015, is a masterclass in creative leadership. It is as instructive about the challenges and compromises of running a large organisation as it is about the process of putting on plays that change lives.

The NT was founded in 1963 under Laurence Olivier. When Sir Nicholas took over the organisation, which comprises three auditoriums of differing sizes, it had a reputation for unadventurous repertoire, pricey tickets and an ageing and conservative audience. Public funding accounted for 40% of its annual income of £37m ($47.8m). He was determined to discern what a national theatre should be and for whom; he had no interest in keeping it for an exclusive club. Among other considerations—balancing old plays and new, serious and irreverent, plays that look out as well as in—he wanted to expand audiences and give everyone a "really good time".

By the time he left, Sir Nicholas had overseen the staging of 100 plays and established many of the features that people now take for granted, among them cheap tickets and live-cinema relays. He had also helped to produce some of modern theatre's triumphs: "War Horse", "One Man, Two Guvnors", "The History Boys", "His Dark Materials" and "The Curious Incident of the Dog in the Night-Time". Annual turnover in 2015 had climbed to £117m, of which just 15% came from the public purse.

Sir Nicholas's prose is crisp and convincing, like his direction. He is candid about his limitations. (The NT produced few turkeys on his watch, but he answers for the ones it did.) Writing with unsentimental honesty, he ascribes to his many collaborators on the South Bank a brilliance that he denies himself. If much of the success of the NT under his directorship "is the result of grand larceny", he writes, "I stole from the best." His praise for actors is precise and specific. He offers insights into the technique and working practice of many cast members. He admires Ralph Fiennes for his "speed of thought, his vocal penetration and his ability to work through the text to an underlying emotional truth". Dame Helen Mirren knows "when to allow laughter as an escape valve". The result is an evocation of backstage life that is as engrossing as it is entertaining. If you happened to see the productions in question, they are vividly resurrected by the revelations of how they were put together. If you missed them, the regret is all the keener.

As a director, Sir Nicholas likes to begin with the text, but he soon encourages his actors to get up on their feet and physically inhabit a play. "I don't like a rehearsal studio to feel like a seminar room," he insists. The fifth artistic director of the NT, he was the fourth to study English at Cambridge University (only Olivier managed without). For the most part, he wears his considerable intelligence lightly. His descriptions of developing new work with Alan Bennett, Sir David Hare, Sir Tom Stoppard and Mike Leigh are incisive. Of Mr Bennett, he says: "I sometimes think that he deliberately buries clues in his first drafts. The director has to sniff out the good stuff, like a pig hunting truffles." Only when recalling his terrific 2013 production of "Othello" does he lose his balance, indulging in a longish episode of over-satisfied literary criticism which, even if it did arise from an actor's observation in the rehearsal room, feels out of place. Elsewhere the memoir is leavened with waspish wit: Sir Nicholas's ear for comedy is as sharply attuned for the page as the stage.

Britain sits somewhere in the middle of the spectrum when it comes to public subsidies for the arts. If it does not have the generous private philanthropic culture and tax incentives that exist in America, it is not continental Europe either, where theatres are often still financed almost entirely by governments and can get away with scorn for public taste. Along with the Royal Shakespeare Company and the Royal Opera House, the NT is one of Britain's most prominent centrally funded arts organisations. Sir Nicholas, who has also been successful on Broadway and on film, never loses sight of the responsibility that comes with accepting several million pounds of public cash.

Nor does he let people forget what ▸▸

becomes possible with it. "If the enemies of arts subsidy had seen two actors walking in a circle with cardboard boxes on their heads pretending to be horses at the taxpayer's expense," he recalls of an early workshop of "War Horse", "they would have had a field day." It is inconceivable that a commercial producer would have taken a risk on "War Horse" and the puppets that were used to bring to life Michael Morpurgo's children's classic about the first world war. But after the play opened in 2007 it went on to run in the West End for seven years and then in New York, Toronto, Berlin, Amsterdam, Beijing, Cape Town and beyond, and also toured across America and Australia. It won five Tony awards and, by the time it closed in London last year, had played to more than 7m people. It also returned more than £30m to the NT's coffers.

A new British tour begins in the autumn, but Sir Nicholas will probably be too busy to catch it. His next project will be a 900-seat playhouse, along the Thames from the NT, which opens in October and will be the first big new commercial theatre to open in London since the 1930s. Its inaugural season looks irresistible. At 60, he appears to be merely getting started. "What's past", as Antonio says in Shakespeare's "The Tempest", "is prologue." ■

Islamic state

Children of jihad

Jihad and Death: The Global Appeal of Islamic State. By Olivier Roy. Translated by Cynthia Schoch. *Hurst; 130 pages; £15.99. To be published in America by OUP in July*

Al-Qaeda's Revenge: The 2004 Madrid Train Bombings. By Fernando Reinares. *Woodrow Wilson Centre Press/Columbia University Press; 231 pages; $50 and £42*

AFTER every act of Islamist violence, investigators are faced with two maddening questions. What turns some Muslims into terrorists? And do they act alone or as part of a wider network? More than 20 years after the jihadist phenomenon first appeared, the answers remain elusive.

Olivier Roy's new book, "Jihad and Death", asks why young European Muslims are drawn to Islamic State (IS) and why the West is so terrified of it. Mr Roy, a French authority on Islamism, regards IS as the monstrously inflated product of its own propaganda; it is, he says, first and foremost a death cult. Despite Islam's injunction against suicide, it persuades Muslims to fight and die under the banner of a chimerical Islamic caliphate. Why, then, should such a nihilistic message be so appealing? Mr Roy's answer is that IS has successfully marketed itself to the children of modern youth culture. Its recruits know little about Islam; they like alcohol, rap music, martial arts and violent American films. Many have spent time in prison. In their eyes, IS is heroic and glamorous.

The bombs that felled Spain's government

However, Mr Roy rejects the notion that these young people are simply brainwashed. "They do not become radicals because they have misread the texts or because they have been manipulated," he declares. "They are radicals because they choose to be." He believes IS's strongest weapon is people's fear of it; in reality it is a waning force, whose dystopian project is doomed to fail. All this is a stimulating counterblast to much conventional thinking. But is Mr Roy right to dismiss the relevance of the West's actions—its policy on Palestine and its disastrous intervention in Iraq in 2003—as a radicalising factor? The issue is manipulated and distorted in the jihadists' propaganda. But it is central to their narrative, and, if groundless, why should it have such potency?

In "Al-Qaeda's Revenge" Fernando Reinares, a Spanish specialist on terrorism, shifts the focus from ideology to organisation, examining the links between individual jihadists and wider networks. On March 11th 2004, when ten bombs went off on commuter trains in Madrid, killing 191 people, the Spanish government was quick to blame ETA, the Basque separatist group. But this idea was soon discredited, and since then experts have tended to regard the bombings as the work of local Islamists with little or no connection to outside groups.

Now Mr Reinares has dispelled this theory, too. Subjecting the attack to minute forensic scrutiny, he identifies a coalition of three distinct elements. Al-Qaeda had established a cell in Spain a full decade earlier. After the attacks on the twin towers in New York—which the Madrid cell helped co-ordinate—the Spanish authorities cracked down, arresting most of the cell's members. But a remnant evaded capture, vowing revenge. The second component comprised Moroccan and Algerian jihadists who had taken refuge in Spain. The third was a gang of young Moroccans living in and around Madrid and engaged in drugs and petty crime—just the sort of delinquents depicted by Mr Roy. Once radicalised (often in jail), they used their underworld contacts to obtain the dynamite used in the bombings. In the bizarre world of jihadism, an act of holy war was financed with drug money.

The aftermath was as important as the attacks themselves. Spain was deeply polarised. In elections three days later, voters threw out the government, accusing it of lying to them about the bombings. The incoming government withdrew Spanish troops from Iraq, giving the jihadists a propaganda coup, even though, as Mr Reinares makes clear, the attacks had been planned long before Iraq was invaded. Spain's wounds, he says, have taken more than a decade to heal.

The general reader will find "Al-Qaeda's Revenge" heavy going. But it is an impressive piece of research, the implications of which stretch well beyond a single event more than a dozen years ago. It is chilling to discover the extent to which the bombers' connections criss-crossed Europe—from London (where Abu Qatada, a radical imam, served as their godfather) to Milan (where one of their senior figures took refuge) to Molenbeek (the Brussels district which achieved infamy after the Paris attacks of November 2015). But the exact role of al-Qaeda's external leaders is harder to establish. They certainly had links to the Madrid group, as Mr Reinares amply demonstrates. Less clear is whether, as he argues, they actually ordered and supervised the operation. The vagueness of that little word, "links", is likely to perplex investigators for a long time to come. ■

The revival of cities

Back from the brink

The Age of Spectacle: Adventures in Architecture and the 21st-Century City. By Tom Dyckhoff. *Random House; 378 pages; £20*

IN 1977 the state of New York hired Milton Glaser, a graphic designer, to help improve its image. Undoubtedly, it needed a lift. Wealth had been escaping New York City for years. Manufacturing had fled to cheaper sites and crime had filled the gaps. Mr Glaser's simple I♡NY logo marked the beginning of an economic and social revival so dramatic that Ed Koch, the mayor, was able to declare: "We're not catering to the poor any more…there are four other boroughs they can live in. They don't have to live in Manhattan."

"The Age of Spectacle" by Tom Dyckhoff, a British architecture critic, is the story of the transformation of cities from the dense manufacturing hubs of the early 20th century to the consumerist meccas they are today. He begins with Jane Jacobs and Ruth Glass, two social scientists who spotted that middle-class youngsters in 1960s London were refusing to move to the suburbs as their parents had done. This was driven both by the "stifling conformism" of life on the outskirts, and, according to Raphael Samuel, a historian, by a love of "values inherent to the dense, historic city, whether its aesthetic form, its layers of history, its ability to somehow encourage neighbourliness or its sheer excitement." Mr Dyckhoff notes the casual manner in which Ms Glass defines this behaviour as "gentrification", identifying a movement which he believes became "the most significant force in Western cities in the second half of the 20th century".

Gentrification might have proved a passing fad, had it not been for favourable government policy and economic trends. The author identifies the role of restoration grants and right-to-buy schemes in cementing the movement. But he is also good at deconstructing the myths that surround gentrification: "Nothing did the job better of simultaneously rooting you, distinguishing you, emancipating you, investing your money in something safe, but risky enough to stimulate dinner-party conversation—and displaying it for all the world to see—than buying a shabby little warehouse or townhouse downtown, and getting the builders in." From this point onwards, housing was given a wider purpose than providing shelter; it had to reflect its owners' identity and make them money.

As cities began to compete more aggressively for investment and employment, they were forced to distinguish themselves. This, according to Mr Dyckhoff, was what lay behind the wave of grandiosity in public architecture, his age of spectacle. But it is also here that his argument loses focus. He marvels at the Guggenheim Museum in Bilbao designed by Frank Gehry, puzzles at Zaha Hadid's MAXXI gallery in Rome and is alienated by Rem Koolhaas's CCTV building in Beijing. It is not clear if he believes that the movement to create eye-popping buildings in public spaces is a good thing, or if it depends on the architectural merit of each construction. He is wearied by contemporary bridges that insist on the function of crossing becoming an experience. "No bridge can sit there quietly, keeping itself to itself. It has to be interesting." Mr Dyckhoff seems to be afflicted by what Mr Koolhaas calls the "Dubai icon paradox": "When everything looks so wildly different, it ends up looking all the same."

He has a sharper vision of where architecture is heading. He notes the challenge of working with heavy, permanent materials in a digital age defined by speed and agility. In response, architecture has gone on "a crash diet, losing kilograms, countless tonnes"; interiors have been stripped back in order to cater to every potential occupant; a building's skin has become more important than ever. In Munich Mr Dyckhoff visits Jacques Herzog and Pierre de Meuron's football stadium. Clad in partly translucent plastic blisters embedded with strips of light, "the entire façade glow[s] like a low-resolution TV set, bearing the team colours." Here he sees a building that transcends its weightiness to communicate to its users, and finally finds a thrill in the experience. ■

Clarification: Further to our review last week of "Option B" by Sheryl Sandberg ("To have and to hold"), we would like to make clear that her husband, Dave Goldberg, suffered from a heart arrhythmia while on an exercise machine, and died suddenly.

Collecting

Calling all art lovers

Art Collecting Today: Market Insights for Everyone Passionate about Art. By Doug Woodham. *Allworth Press; 193 pages; $24.99*

IF IT'S Tuesday, this must be Belgium. If it's the second week of May it must be Venice. At least, it is every other year. On May 13th the art world descends on the Adriatic port for the biennial global artfest that turns the city into a parallel universe of the imagination. Among the hundreds of thousands of visitors will be Venice Biennale first-timers, all of them keen to learn how to tell their Hirst from their Hodgkin, the Giardini from the Giudecca.

These neophytes could do worse than take along "Art Collecting Today" by Doug Woodham, Christie's former president of the Americas, an economist who says he likes to collect "drawings by artists associated with minimalism, conceptualism and land art". The latest in Allworth's series on the nuts and bolts of the art world, Mr Woodham's book is an elegant, amusing and perceptive guide to a market that is (often) long on hocus-pocus and short on transparency.

Divided into eight clearly written chapters, it explores how the art market really works. Mr Woodham explains why buying art is easy and selling much harder; why Christie's and Sotheby's, the main auction houses in the West, are more similar than they think; why there is such a curious relationship between auction houses and private galleries; why the markets for artists such as Amedeo Modigliani, Yayoi Kusama and René Magritte are all very different; and why art-buyers can fall foul of unintended consequences, including spats over cultural property, endangered species and taxes.

Art is more than just another asset class, which is why some of the book's finest anecdotes appear in special sections called "Avoiding the Scoundrel's Corner—parts 1, 2 and 3". Mr Woodham uses real examples to show exactly how collectors have let themselves be done over in the past. Don't be a dupe.

Fiction from Congo

Africa's Samuel Beckett

Black Moses. By Alain Mabanckou. Translated by Helen Stevenson. *Serpent's Tail; 199 pages; £12.99. To be published in America by the New Press in June*

HOW wonderfully typical of an Alain Mabanckou character to fall sick because of a syntactic error. After the few ups and many downs of life as a friendless orphan in the Republic of Congo, Little Pepper, the narrator of "Black Moses", sinks into delirium. Taken to a Paris-trained psychologist, he insists: "I'm ill because of my adverbials." Adrift from "time, place or manner", he cannot "complete the action expressed by the verb".

Language and literature bestow both blessings and curses on the picaresque heroes in Mr Mabanckou's novels of his central African homeland. The formal elegance of French opens doors of opportunity. Its weight can also tether these grandchildren of empire to feelings of inadequacy, snared "like a snail caught in the spiral of its own slime". "Black Moses" exhibits all the charm, warmth and verbal brio that have won the author of "Broken Glass" and "African Psycho" so many admirers—and the informal title of Africa's Samuel Beckett. Helen Stevenson, his translator, again shakes Mr Mabanckou's cocktail of sophistication and simplicity into richly idiomatic English.

Yet this lost boy's journey through the port of Pointe-Noire, the author's birthplace, also counts the cost of growing up in a post-colonial society that was still half-convinced that "anything white was superior, everything black was doomed". Little Pepper—nicknamed for how he used chili powder to take his revenge on bullies in the orphanage—goes in search of a family, and a voice. Papa Moupelo, the kindly priest who first called him Moses, is ousted by a careerist director ("an emperor with no clothes"), who grovels to a new Marxist regime in Brazzaville, the capital. The regime's political jargon, gleefully parodied, imposes another phoney lingo.

Life outside, as a streetwise scamp around the docks, proves even harsher. Only "Madam Fiat 500", the brothel-keeper, and her girls offer the lad a "little adoptive family". As his suffering deepens, nothing can unshackle "the chains of ill fortune". The glamour of grammar endures, though. A fellow-inmate tries to move a comma in Little Pepper's testimony, "which I wanted to keep just where it was". For the wretched of the Earth, the language of power can be the most potent sorcery of all. ■

Tribeca film festival

An offering you can't refuse

NEW YORK

The godfather of all film festivals

THE lights go down, and the familiar orchestral score begins playing at Radio City Music Hall. A crowd of more than 5,000 people cheers wildly, many furtively taking out their smartphones to snap photographs of the title sequence. The atmosphere is electric, the audience noisily saluting famous moments they have seen many times before. Outside, it may be a warm spring Saturday afternoon in New York. But inside, "The Godfather" and "The Godfather II" are playing on a giant screen, and afterwards the director, Francis Ford Coppola, and the surviving stars of the films will appear together on stage. This is too big to miss.

In the age of Netflix and the iPhone, when any form of entertainment or distraction is a notification away, it is no mean feat to hold people's attention. The Tribeca film festival managed it a few times this year, including two sell-out events at Radio City Music Hall: the Godfather event and the opening night, when Aretha Franklin led a concert to mark the premiere of "The Soundtrack of Our Lives", a documentary about Clive Davis, a legendary music producer. On April 28th, the evening before the Godfather event, more than 2,500 people filled the Beacon theatre on the Upper West Side to watch "Reservoir Dogs" on a 35mm print owned by the film's director, Quentin Tarantino, who appeared onstage with the cast after the screening.

Tribeca is by far the youngest of the leading festivals. Established in 2002, after the September 11th 2001 attacks, it lacks the venerable history of Venice, Cannes, Berlin or Edinburgh, and it cannot supplant Sundance as a mecca for indie film-makers. But Tribeca has two things going for it: its co-founder, Robert De Niro (a star of "Godfather II"), and its site, New York City (also a star of the Godfather films).

This year Andrew Essex, the chief executive of Tribeca Enterprises, was determined to make use of both those strengths to put on events that created a sense of FOMO ("fear of missing out"). Without headline-grabbing appeal, festivals risk losing their lustre, if not their relevance. This year at Sundance Al Gore, the former vice-president, took to the stage to speak after the premiere of "An Inconvenient Sequel: Truth to Power", a documentary on his environmental advocacy. Later this month the Cannes film festival will feature a special screening of the first two episodes of the new season of "Twin Peaks", a TV show made by David Lynch. (There are risks as well to overpromising; on April 28th the Fyre festival, a supposedly high-end concert event in the Bahamas, failed spectacularly, leaving angry audience members desperate to evacuate the island almost as soon as they had arrived.)

By comparison with its more venerated peers, Tribeca's slate of events was impressive (if not necessarily its films; Sundance and Cannes still get more entries that cause a buzz). In all more than 150,000 people attended the festival's offerings, an increase over last year; nearly 4m more watched along on Facebook Live.

Half of that online audience tuned in for the finale on April 29th, the Godfather panel. Mr De Niro and Mr Coppola were joined on stage by Al Pacino, Robert Duvall, James Caan, Talia Shire and Diane Keaton. For 80 minutes, they traded stories about the films. Some were familiar to fans—like Marlon Brando's "screen test" at his home, when he transformed himself into Don Corleone in front of Mr Coppola, or the decision by Mr Coppola to add a scene showing Luca Brasi, the hit man, nervously rehearsing his lines before meeting the Godfather, since the man playing the role, Lenny Montana, had trouble with his lines (he was an actual mob tough, not an actor). Others were affecting, like Mr Pacino reminiscing about walking every day from the Upper West Side down to Greenwich Village, thinking about how to play the part of Michael Corleone. Other stories felt like fun insider gossip, as when Mr Pacino and Ms Keaton got "so loaded" one night, and an anxious Mr Pacino announced: "It's over. This is the worst film ever made." The audience lapped it up, laughing approvingly. ■

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REQUEST FOR PROPOSALS FOR AUDITING SERVICES

The Office of the High Representative in Bosnia and Herzegovina is requesting proposals from qualified independent auditing firms to perform a professional audit of the Office of the High Representative's financial statements for the year ending 30 June 2017 in accordance with International Standards of Auditing.

The OHR financial year begins on July 01 and ends on June 30. The budget for the year 2016/17 amounted to EUR 5.999 million.

The full invitation and details of items required can be downloaded from the Tender page of our web site www.ohr.int.

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Economic and financial indicators

Economic data

% change on year ago

	Gross domestic product			Industrial production	Consumer prices		Unemployment	Current-account balance		Budget balance	Interest rates, %	Currency units, per $	
	latest	qtr*	2017†	latest	latest	2017†	rate, %	latest 12 months, $bn	% of GDP 2017†	% of GDP 2017†	10-year gov't bonds, latest	May 3rd	year ago
United States	+1.9 Q1	+0.7	+2.2	+1.5 Mar	+2.4 Mar	+2.3	4.5 Mar	-481.2 Q4	-2.7	-3.5	2.31	-	-
China	+6.9 Q1	+5.3	+6.6	+7.6 Mar	+0.9 Mar	+2.3	4.0 Q1[§]	+196.4 Q4	+1.7	-4.0	3.39[§§]	6.89	6.47
Japan	+1.6 Q4	+1.2	+1.3	+3.3 Mar	+0.2 Mar	+0.7	2.8 Mar	+187.8 Feb	+3.5	-5.3	0.02	112	106
Britain	+2.1 Q1	+1.2	+1.6	+2.8 Feb	+2.3 Mar	+2.7	4.7 Jan[††]	-115.7 Q4	-3.3	-4.0	1.10	0.78	0.69
Canada	+1.9 Q4	+2.6	+2.1	+3.9 Feb	+1.6 Mar	+1.9	6.7 Mar	-51.2 Q4	-2.9	-2.7	1.55	1.37	1.27
Euro area	+1.7 Q1	+1.8	+1.7	+1.2 Feb	+1.9 Apr	+1.6	9.5 Mar	+398.9 Feb	+3.1	-1.5	0.34	0.92	0.87
Austria	+1.7 Q4	+2.0	+1.6	+3.1 Feb	+2.0 Mar	+1.8	5.9 Mar	+6.6 Q4	+2.4	-1.1	0.61	0.92	0.87
Belgium	+1.5 Q1	+2.1	+1.4	+4.0 Feb	+2.3 Apr	+2.1	6.9 Mar	-2.0 Dec	+1.0	-2.7	0.73	0.92	0.87
France	+0.8 Q1	+1.0	+1.3	-0.7 Feb	+1.2 Apr	+1.3	10.1 Mar	-28.5 Feb	-1.1	-3.1	0.82	0.92	0.87
Germany	+1.8 Q4	+1.7	+1.6	+2.3 Feb	+2.0 Apr	+1.8	3.9 Mar[‡]	+287.3 Feb	+8.1	+0.5	0.34	0.92	0.87
Greece	-1.4 Q4	-4.8	+1.2	+10.7 Feb	+1.7 Mar	+1.0	23.5 Jan	-0.7 Feb	-0.8	-4.2	6.01	0.92	0.87
Italy	+1.0 Q4	+0.7	+0.8	+1.9 Feb	+1.8 Apr	+1.4	11.7 Mar	+46.8 Feb	+2.4	-2.3	2.27	0.92	0.87
Netherlands	+2.5 Q4	+2.5	+2.2	+5.1 Feb	+1.1 Mar	+1.2	6.1 Mar	+64.8 Q4	+8.7	+0.6	0.55	0.92	0.87
Spain	+3.0 Q1	+3.2	+2.6	-1.7 Feb	+2.6 Apr	+2.1	18.2 Mar	+25.9 Feb	+1.6	-3.3	1.65	0.92	0.87
Czech Republic	+2.0 Q4	+1.6	+2.5	+2.7 Feb	+2.6 Mar	+2.4	3.4 Mar[‡]	+2.3 Q4	+0.7	-0.5	0.82	24.5	23.5
Denmark	+2.3 Q4	+1.9	+1.4	+2.3 Feb	+1.0 Mar	+1.4	4.3 Mar	+24.9 Feb	+7.1	-1.2	0.61	6.82	6.46
Norway	+1.8 Q4	+4.5	+1.7	-4.0 Feb	+2.4 Mar	+2.4	4.3 Feb[‡‡]	+18.1 Q4	+4.9	+2.7	1.64	8.62	8.09
Poland	+3.3 Q4	+6.6	+3.2	+11.1 Mar	+2.0 Apr	+2.0	8.1 Mar[§]	+0.4 Feb	-1.2	-3.2	3.47	3.85	3.82
Russia	+0.3 Q4	na	+1.4	+0.8 Mar	+4.2 Mar	+4.3	5.4 Mar[§]	+34.9 Q1	+2.8	-2.8	8.13	57.3	66.7
Sweden	+2.3 Q4	+4.2	+2.6	+4.1 Feb	+1.3 Mar	+1.7	6.8 Mar[§]	+23.7 Q4	+4.8	-0.4	0.60	8.82	8.02
Switzerland	+0.6 Q4	+0.3	+1.3	-1.2 Q4	+0.6 Mar	+0.5	3.3 Mar	+70.6 Q4	+9.9	+0.2	-0.10	0.99	0.95
Turkey	+3.5 Q4	na	+2.8	-1.7 Feb	+11.9 Apr	+10.0	13.0 Jan[§]	-33.7 Feb	-4.4	-2.0	10.42	3.53	2.85
Australia	+2.4 Q4	+4.4	+2.7	+1.0 Q4	+2.1 Q1	+2.2	5.9 Mar	-33.1 Q4	-1.3	-1.8	2.59	1.34	1.33
Hong Kong	+3.1 Q4	+4.8	+2.8	-0.9 Q4	+0.5 Mar	+1.6	3.2 Mar[‡‡]	+14.5 Q4	+6.5	+1.5	1.50	7.78	7.76
India	+7.0 Q4	+5.1	+7.1	-1.2 Feb	+3.8 Mar	+4.6	5.0 2015	-11.9 Q4	-1.1	-3.2	6.96	64.1	66.5
Indonesia	+4.9 Q4	na	+5.2	+3.3 Feb	+4.2 Apr	+4.2	5.6 Q3[§]	-16.3 Q4	-1.9	-2.2	7.00	13,306	13,195
Malaysia	+4.5 Q4	na	+4.3	+4.7 Feb	+5.1 Mar	+4.0	3.5 Feb[§]	+6.0 Q4	+2.8	-3.1	3.97	4.32	3.93
Pakistan	+5.7 2016**	na	+5.4	+8.1 Feb	+4.8 Apr	+4.6	5.9 2015	-7.1 Q1	-2.6	-4.8	8.98[†††]	105	105
Philippines	+6.6 Q4	+7.0	+6.6	+10.8 Feb	+3.4 Mar	+3.3	6.6 Q1[§]	+0.6 Dec	+0.3	-2.4	5.15	50.0	46.9
Singapore	+2.9 Q4	-1.9	+2.1	+10.2 Mar	+0.7 Mar	+1.3	2.3 Q1	+56.7 Q4	+19.2	-1.0	2.12	1.40	1.35
South Korea	+2.8 Q1	+3.6	+2.6	+3.0 Mar	+1.9 Apr	+1.8	4.2 Mar[§]	+92.9 Mar	+6.3	-1.0	2.24	1,131	1,140
Taiwan	+2.6 Q1	+2.9	+1.8	+3.2 Mar	+0.2 Mar	+2.1	3.8 Mar	+70.9 Q4	+12.1	-0.7	1.13	30.0	32.2
Thailand	+3.0 Q4	+1.7	+3.5	-0.5 Mar	+0.4 Apr	+1.3	1.3 Mar[§]	+42.3 Q1	+11.7	-2.3	2.55	34.5	34.9
Argentina	-2.1 Q4	+1.9	+2.7	-2.5 Oct	— ***	—	7.6 Q4[§]	-15.0 Q4	-2.6	-4.2	na	15.3	14.2
Brazil	-2.5 Q4	-3.4	+0.7	+1.1 Mar	+4.6 Mar	+4.3	13.7 Mar[§]	-20.6 Mar	-1.4	-7.7	9.89	3.15	3.57
Chile	+0.5 Q4	-1.4	+1.8	-8.3 Mar	+2.7 Mar	+3.0	6.6 Mar[§‡‡]	-3.6 Q4	-1.3	-2.2	3.89	669	669
Colombia	+1.6 Q4	+4.0	+2.2	-3.2 Feb	+4.7 Mar	+4.1	9.7 Mar[§]	-12.5 Q4	-3.5	-3.1	6.21	2,928	2,895
Mexico	+2.7 Q1	+2.4	+1.7	-1.7 Feb	+5.4 Mar	+5.2	3.5 Mar	-27.9 Q4	-2.5	-2.5	7.19	18.8	17.6
Venezuela	-8.8 Q4~	-6.2	-5.5	na	na	+562	7.3 Apr[§]	-17.8 Q3~	-1.5	-19.6	10.43	9.99	9.99
Egypt	+3.4 Q3	na	+3.9	+23.9 Feb	+30.9 Mar	+19.2	12.4 Q4[§]	-20.1 Q4	-6.2	-10.8	na	18.1	8.88
Israel	+4.3 Q4	+6.3	+3.4	+0.3 Feb	+0.9 Mar	+1.0	4.2 Mar	+12.4 Q4	+4.4	-2.6	2.23	3.61	3.78
Saudi Arabia	+1.4 2016	na	+0.8	na	-0.4 Mar	+2.0	5.6 2015	-24.9 Q4	-2.1	-7.4	3.68	3.75	3.75
South Africa	+0.7 Q4	-0.3	+1.1	-2.4 Feb	+6.1 Mar	+5.8	26.5 Q4[§]	-9.5 Q4	-3.4	-3.1	8.67	13.3	14.6

Source: Haver Analytics. *% change on previous quarter, annual rate. †*The Economist* poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. ~2014 **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. ***Official number not yet proved to be reliable; The State Street PriceStats Inflation Index, Jan 29.53%; year ago 30.79% †††Dollar-denominated bonds.

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Markets

	Index May 3rd	% change on one week	Dec 30th 2016 in local currency	in $ terms
United States (DJIA)	20,957.9	-0.1	+6.0	+6.0
China (SSEA)	3,283.2	-0.2	+1.0	+1.9
Japan (Nikkei 225)	19,445.7	+0.8	+1.7	+5.6
Britain (FTSE 100)	7,234.5	-0.7	+1.3	+5.7
Canada (S&P TSX)	15,543.1	-0.7	+1.7	-0.5
Euro area (FTSE Euro 100)	1,217.0	+0.2	+9.4	+13.2
Euro area (EURO STOXX 50)	3,586.3	+0.2	+9.0	+12.7
Austria (ATX)	2,997.4	+0.8	+14.5	+18.4
Belgium (Bel 20)	3,932.9	+1.1	+9.1	+12.8
France (CAC 40)	5,301.0	+0.2	+9.0	+12.7
Germany (DAX)*	12,527.8	+0.4	+9.1	+12.8
Greece (Athex Comp)	748.6	+6.0	+16.3	+20.3
Italy (FTSE/MIB)	20,759.3	-0.4	+7.9	+11.6
Netherlands (AEX)	525.2	+0.1	+8.7	+12.4
Spain (Madrid SE)	1,090.8	+0.7	+15.6	+19.6
Czech Republic (PX)	996.3	-0.2	+8.1	+12.8
Denmark (OMXCB)	887.7	+2.8	+11.2	+14.9
Hungary (BUX)	32,077.7	-3.4	+0.2	+2.5
Norway (OSEAX)	771.1	+0.6	+0.8	+0.6
Poland (WIG)	62,066.7	+0.6	+19.9	+29.9
Russia (RTS, $ terms)	1,096.4	-2.0	-4.9	-4.9
Sweden (OMXS30)	1,634.0	+0.8	+7.7	+10.9
Switzerland (SMI)	8,891.9	+0.7	+8.2	+10.9
Turkey (BIST)	93,862.7	-0.7	+20.1	+19.6
Australia (All Ord.)	5,919.9	-0.3	+3.5	+6.5
Hong Kong (Hang Seng)	24,696.1	+0.5	+12.3	+11.8
India (BSE)	29,894.8	-0.8	+12.3	+18.8
Indonesia (JSX)	5,647.4	-1.4	+6.6	+8.0
Malaysia (KLSE)	1,772.5	+0.2	+8.0	+12.1
Pakistan (KSE)	48,605.1	-2.5	+1.7	+1.3
Singapore (STI)	3,237.8	+2.0	+12.4	+16.4
South Korea (KOSPI)	2,219.7	+0.5	+9.5	+17.0
Taiwan (TWI)	9,955.3	+1.0	+7.6	+15.4
Thailand (SET)	1,564.1	-0.2	+1.4	+5.3
Argentina (MERV)	21,212.0	+0.9	+25.4	+30.1
Brazil (BVSP)	66,093.8	+1.9	+9.7	+13.3
Chile (IGPA)	24,349.3	nil	+17.4	+17.6
Colombia (IGBC)	10,202.5	-0.1	+1.0	+3.5
Mexico (IPC)	49,100.0	-0.9	+7.6	+17.7
Venezuela (IBC)	58,342.8	-4.8	+84.0	na
Egypt (EGX 30)	12,603.6	-0.5	+2.1	+2.2
Israel (TA-100)	1,271.8	-0.2	-0.4	+6.1
Saudi Arabia (Tadawul)	6,967.7	+0.7	-3.7	-3.7
South Africa (JSE AS)	53,586.6	-0.2	+5.8	+8.4

The Economist poll of forecasters, May averages (previous month's, if changed)

	Real GDP, % change Low/high range 2017	2018	Real GDP average 2017	2018	Consumer prices % change 2017	2018	Current account % of GDP 2017	2018
Australia	2.2/2.9	2.5/3.2	2.7	3.0 (2.9)	2.2 (2.1)	2.3	-1.3	-2.2 (-1.7)
Brazil	0.1/1.3	1.5/4.0	0.7 (0.6)	2.5 (2.4)	4.3 (4.5)	4.5 (4.6)	-1.4 (-1.6)	-1.8 (-2.0)
Britain	1.1/2.0	0.7/1.7	1.6 (1.7)	1.2	2.7	2.8 (2.7)	-3.3 (-4.0)	-2.8 (-3.4)
Canada	1.5/2.8	1.5/2.7	2.1 (2.0)	2.0	1.9	1.9	-2.9 (-2.7)	-2.6 (-2.3)
China	6.2/6.8	4.5/7.0	6.6 (6.5)	6.2	2.3	2.4	1.7	1.7
France	1.2/1.6	1.1/1.8	1.3	1.5	1.3	1.3	-1.1 (-1.0)	-1.1 (-1.0)
Germany	1.1/2.1	1.3/2.0	1.6	1.6	1.8	1.7 (1.6)	8.1 (8.2)	7.8 (7.9)
India	6.3/7.6	6.5/8.0	7.1 (7.2)	7.5	4.6	4.8 (4.9)	-1.1 (-1.0)	-1.4
Italy	0.6/1.0	0.6/1.1	0.8 (0.9)	0.8 (0.9)	1.4	1.2	2.4 (2.5)	2.1 (2.3)
Japan	0.9/1.6	0.6/1.7	1.3 (1.2)	1.1 (1.0)	0.7	1.0	3.5	3.7 (3.6)
Russia	0.8/2.6	0.9/3.0	1.4	1.8 (1.7)	4.3 (4.5)	4.2 (4.4)	2.8	2.6 (2.5)
Spain	2.4/2.9	1.6/2.5	2.6	2.1 (2.2)	2.1 (2.2)	1.5	1.6 (1.5)	1.6 (1.5)
United States	1.9/2.4	1.8/3.6	2.2 (2.3)	2.5	2.3 (2.4)	2.3	-2.7 (-2.8)	-2.8 (-3.0)
Euro area	1.3/2.1	1.2/1.9	1.7 (1.6)	1.5	1.6	1.5 (1.4)	3.1 (3.0)	3.0 (2.9)

Sources: Bank of America, Barclays, BNP Paribas, Citigroup, Commerzbank, Credit Suisse, Decision Economics, Deutsche Bank, EIU, Goldman Sachs, HSBC Securities, ING, Itaú BBA, JPMorgan, Morgan Stanley, Nomura, RBS, Royal Bank of Canada, Schroders, Scotiabank, Société Générale, Standard Chartered, UBS. For more countries, go to: Economist.com/markets

Other markets

	Index May 3rd	% change on one week	Dec 30th 2016 in local currency	in $ terms
United States (S&P 500)	2,388.1	nil	+6.7	+6.7
United States (NAScomp)	6,072.6	+0.8	+12.8	+12.8
China (SSEB, $ terms)	333.8	-0.4	-2.3	-2.3
Japan (Topix)	1,550.3	+0.8	+2.1	+6.0
Europe (FTSEurofirst 300)	1,528.2	+0.1	+7.0	+10.6
World, dev'd (MSCI)	1,883.1	nil	+7.5	+7.5
Emerging markets (MSCI)	985.7	+0.3	+14.3	+14.3
World, all (MSCI)	456.6	+0.1	+8.2	+8.2
World bonds (Citigroup)	907.8	+0.1	+2.7	+2.7
EMBI+ (JPMorgan)	820.6	+0.7	+6.3	+6.3
Hedge funds (HFRX)	1,230.2§	+0.1	+2.2	+2.2
Volatility, US (VIX)	10.7	+10.9	+14.0	(levels)
CDSs, Eur (iTRAXX)†	65.2	-2.8	-9.6	-6.5
CDSs, N Am (CDX)†	62.7	-0.9	-7.4	-7.4
Carbon trading (EU ETS) €	4.4	-3.5	-33.1	-30.8

Sources: IHS Markit; Thomson Reuters. *Total return index.
†Credit-default-swap spreads, basis points. §May 2nd.

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The Economist commodity-price index

2005=100

	Apr 25th	May 2nd*	% change on one month	one year
Dollar Index				
All Items	140.8	142.7	+0.1	+4.5
Food	149.4	152.1	+0.9	-3.8
Industrials				
All	131.8	132.9	-0.8	+16.3
Nfa†	137.0	138.3	-0.8	+13.7
Metals	129.5	130.5	-0.8	+17.6
Sterling Index				
All items	199.6	200.8	-3.6	+17.6
Euro Index				
All items	160.2	162.7	-2.1	+10.4
Gold				
$ per oz	1,268.1	1,254.6	-0.2	-2.4
West Texas Intermediate				
$ per barrel	49.2	47.7	-6.6	+8.8

Sources: Bloomberg; CME Group; Cotlook; Darmenn & Curl; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Urner Barry; WSJ. *Provisional
†Non-food agriculturals.

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That's entertainment

Albert Freedman, producer of the most famous rigged quiz show of the 1950s, died on April 11th, aged 95

THERE was no doubt who sponsored "Twenty One", the NBC quiz show Albert Freedman took over in 1956. The word "Geritol" appeared above the stage and on the lectern of the host, Jack Barry. Barry gave "America's number-one tonic" a plug at the start, and in the intermission up popped the salesman like a conjurer from the curtains, cradling that familiar brown bottle and promising that if you felt weak and run-down, Geritol would vitaminise your tired blood in a matter of days.

So when the boss of Geritol complained that "Twenty One" too was tired, and threatened to take it off the air, Mr Freedman was recruited to save it. Briefly put, he had to get rid of Herb Stempel, an expressionless, awkward nerd from Queens who, with his extraordinary memory, just kept on winning, and find someone more sympathetic to replace him; someone exciting. That was the purpose of this shiny new medium, television, after all. It offered spectacle, showmanship, illusion, escape; it carried, like those Geritol commercials and the ever-smiling blondes who decorated the sets, a whiff of the fairground. And Mr Freedman, at 34, having said yes, was on his way to contriving the biggest American scandal of the 1950s.

Content as he was producing his own quiz show, "Tic-Tac-Dough", he did not want to switch. But with his background in variety TV, on the Pinky Lee and Groucho Marx shows, and with his "eighth sense" for good contestants, he knew what was needed. And what he needed appeared. In a fluke of history, a touch of fate or God, he met Charles Van Doren at a party in the Village. Mr Van Doren was not only charming and bright but turned out to be electrifying on screen. The show, once he joined it, piled on viewers, so that 50m were watching on the night, December 5th 1956, when Mr Stempel was at last kicked off.

The fact that Mr Van Doren had been coached was something only he and Mr Freedman knew for sure. The contestant—once the beans had been spilled, in 1958, by Mr Stempel and others—bitterly regretted his behaviour. Mr Freedman didn't. Control—the words "fixed" or "rigged" never crossed his lips—was common in quiz shows, which were hugely popular then. CBS's "The $64,000 Question" was controlled, as was "Tic-Tac-Dough". Producers and viewers both thought, "So what?" You needed drama, suspense. You had to spike the rivalry between the contestants with more ties, more dropping behind and pulling ahead. Simply to have two dummies in earphones proving they knew science was unbelieveably boring. By giving Mr Van Doren the questions in advance—not the answers, Mr Freedman insisted—he "assumed he knew how to play it" to catch Mr Stempel up and, with luck, out.

The rest was advice on performance, which any director would give. It was like Shakespeare, he told the literary Mr Van Doren: just entertainment. He instructed him to pause more, look worried, "forget" things and return to them. If he felt queasy about this, though he had no reason to, he should consider what good publicity he was giving to teachers like himself. Mr Stempel, who was also coached by a co-producer, acted the unlikeable robot, dabbing his sweaty brow in the torrid isolation booth. Mr Van Doren's role was to "make it natural" and "make it real": more real.

The result was great television. For that, Mr Freedman would not apologise. "Twenty One" made millions of viewers at home very happy. Contestants won a lot of money. The show changed their lives. It inspired middle America to buy television sets as never before. The shame in his view was that its success, and Mr Van Doren's celebrity, also ended the years of innocence. Television became a phenomenon so powerful that, in his own now-loaded words, it was out of control. The press attacked it as a hated rival, and the authorities started snooping; so though his shows had broken no laws (there being none in force), he was hauled before a grand jury, lied to it, recanted, and narrowly escaped a perjury rap. His TV career was over, after that. He moved to London to work for European *Penthouse* and assorted sex publications: another area, he said defensively, full of misplaced guilt and ignorance.

Acts of generosity

The moment he revisited most wistfully was meeting Mr Van Doren at that party. If he hadn't gone—and liked him, and suggested that he could pep up his pitiful salary by a couple of thousand by coming on the show—he would never have got into trouble. For that act of generosity, worth $129,000 by the end, Mr Van Doren should have thanked him. In fact, all humanity should have thanked him for entertaining them. Instead, to gather by the film "Quiz Show" of 1994, his control of "Twenty One" had started a moral rot that led inexorably to Vietnam, Watergate, and lies and corruption on a national scale.

He resented that, almost as much as he loathed the invasion of television by Hollywood glitz, violence and wild unreality. Looking back to the quiz shows with their simple format, basic staging and ordinary people in sober discussion of books or history, he felt that a better, more straightforward era had disappeared, and mourned it. Surely all he had done was give "Twenty One" a dose of Geritol ("You'll feel better in seven days, or your money back!") as the sponsor recommended? ■

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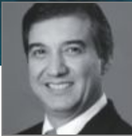

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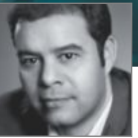

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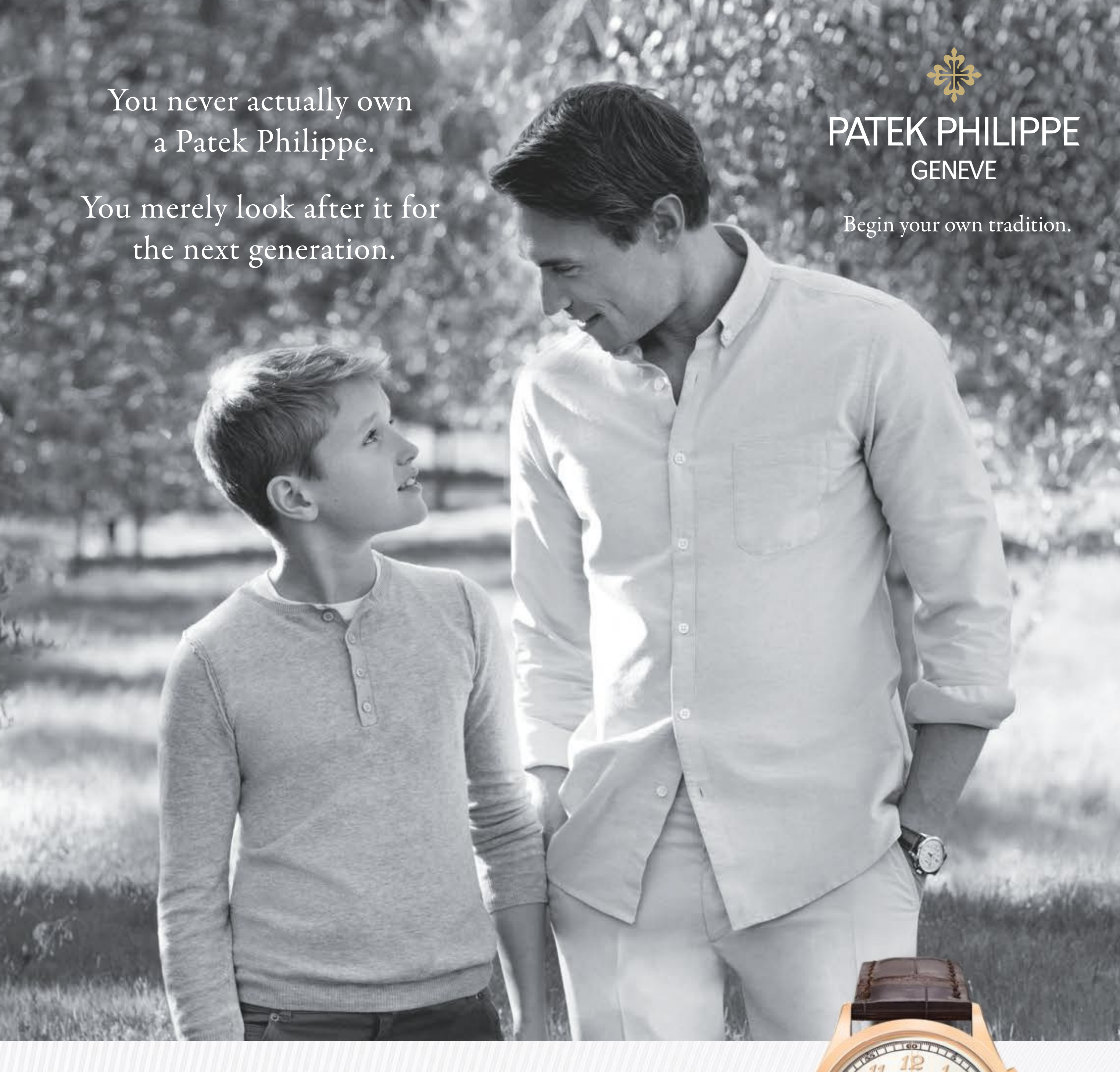

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