The Economist

Bitcoin miners of Texas

In praise of digital twins

Time to pay for blood plasma

Nvidia envy

AUGUST 31ST–SEPTEMBER 6TH 2024

SUDAN

Why its catastrophic war is the world's problem

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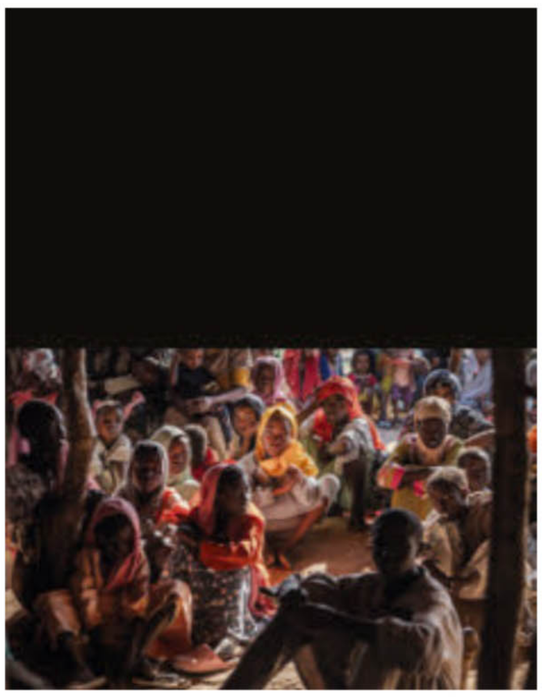

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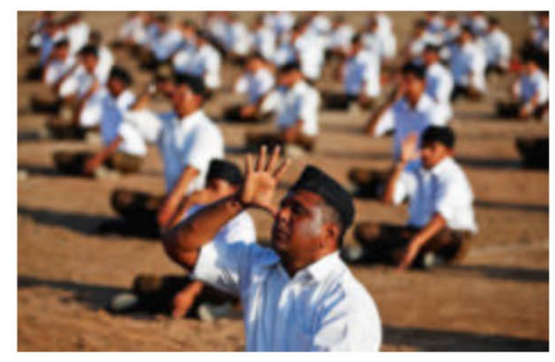

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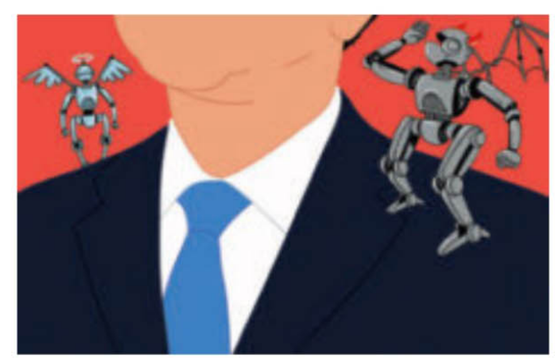

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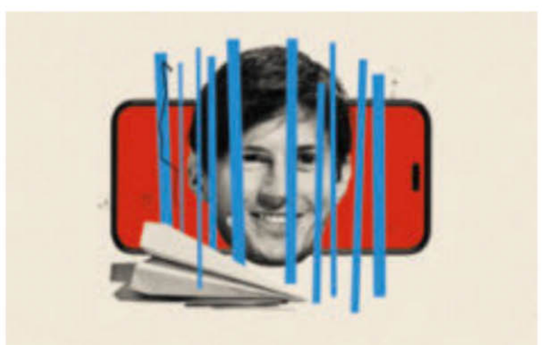

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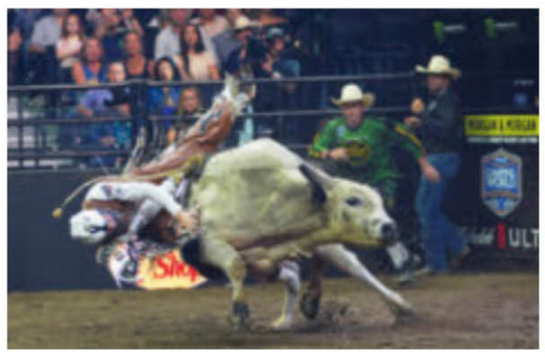

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to take part in *"a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."*

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The world this week Politics

Israeli warplanes bombed dozens of **Hizbullah's** missile-launch sites in southern Lebanon. The militia group fired at least 200 rockets towards northern Israel; most were intercepted by Israel's Iron Dome missile-defence system. Both sides then moved to de-escalate a skirmish many feared could get out of hand. Meanwhile, Israeli troops rescued an Israeli Bedouin hostage from a tunnel in **Gaza**. He had been kidnapped during the Hamas attacks in October 2023. And at least ten Palestinians were killed in Israeli counter-terrorism raids in four cities in the **West Bank**.

A neglected conflict

Sudan marked 500 days of a civil war that has directly killed perhaps 150,000 people and forced more than 10m to flee from their homes. Experts warn that if food supplies cannot get through, the country could suffer a famine worse than anything the world has seen since at least the 1980s.

Nigeria received 10,000 doses of **mpox** vaccines. The west African country has not recorded any deaths from the disease. Officials in the Democratic Republic of Congo, the country worst hit by mpox, said there were still several procedures to follow before it would receive its first vaccines.

Volodymyr Zelensky announced that he would present a plan to end **Ukraine's war with Russia** to Joe Biden when they meet in September, and would share the details with Kamala Harris and Donald Trump. The Ukrainian president said that the incursion of Ukrainian troops into Russia was part of the plan, which he thinks will improve Ukraine's negotiating position. Ukraine claims to have taken 100 Russian settlements and captured 600 troops. Meanwhile, Russia pounded cities and energy facilities across Ukraine with hypersonic missiles and drones in one of its biggest assaults of the conflict so far.

A man suspected of having links to Islamic State stabbed three people to death at a festival in Solingen, a town in **Germany's** Rhineland. The attacker, a Syrian asylum-seeker, eventually surrendered to the police.

The **Japanese** government said it would protect the sovereignty of its airspace, after a **Chinese** reconnaissance plane flew around Japan's Danjo islands, which lie in the East China Sea around 160km (100 miles) from Nagasaki. The defence ministry said it was the first time a Chinese military aircraft had entered Japanese airspace without permission.

At least 73 people were killed in the **Pakistani** province of Balochistan when separatists launched their biggest offensive in years. The militants, who want independence for Balochistan, attacked police stations and motorways. Cars and buses were held up by assailants looking for workers from the province of Punjab, whom the separatists blame for taking local jobs; they shot dead over 20 workers.

The UN high commissioner for human rights condemned the codification of "morality" rules in **Afghanistan** that, among other things, forbid women from speaking in public and force them to cover their faces and bodies. The rules had previously been set as guideline by the Taliban. The UN said the effect would be to "completely erase women's presence in public". Men must now grow a beard. Photographing living things is banned.

In **India** police fired tear gas and water cannon as protests grew in Kolkata against the rape and murder of a female doctor. The Trinamool Congress party, which controls the state government in West Bengal, blamed agitators from the Bharatiya Janata Party of Narendra Modi, the prime minister, for stirring up trouble. The BJP claims its critics are playing down the murder.

Australia's Labor government said it would cap the number of new international students at 270,000 from next year, subject to a vote in Parliament. In 2023 around 400,000 foreign students began courses in the country. The government hopes that capping the number of students will relieve pressure on housing. It noted that there has been a 50% rise in overseas students taking up vocational courses since 2019.

Stranger things

Robert F. Kennedy junior dropped his independent presidential campaign and endorsed Donald Trump for the White House. Mr Kennedy is a maverick, best known for claiming that a worm was found in his brain, and dumping a dead bear in Central Park. His daughter also claims that he sawed the head off a dead whale and stuck it on top of the family car.

The special prosecutor investigating Mr Trump's alleged attempt to overthrow the result of the 2020 election presented a slimmed-down version of the indictment that takes note of the Supreme Court's recent ruling on **presidential immunity**. A judge will soon hold a hearing on whether the case should go forward.

Joe Biden's policy of giving half a million illegal immigrants a path to **American citizenship** was put on hold by a federal judge. The policy applies to migrants who are married to American citizens. It was touted as the biggest presidential step on immigration in years when it was announced in June, but the judge thinks arguments that the executive had exceeded its powers warrant "closer consideration".

Venezuela's top court "certified unobjectionably" the result of July's presidential election, which Nicolás Maduro, the authoritarian incumbent, falsely claims to have won. The Organisation of American States dismissed the ruling, describing official vote tallies as "mathematical impossibilities". The country's attorney-general summoned Edmundo González, the opposition's candidate, over the publication of figures showing that he won by a landslide.

President Luiz Inácio Lula da Silva of **Brazil** named Gabriel Galípolo as the next head of the central bank. If the nomination is approved by the Senate Mr Galípolo, who is currently the bank's director of monetary policy, will take up the post in January. Mr da Silva has criticised the central bank for keeping interest rates high, but Mr Galípolo, an ally of the president, is no dove. He has indicated rates might go up again to tame rising inflation.

Much of Brazil was covered in smoke as **forest fires** raged across the country, with 2,700 fires in the state of São Paulo alone. Huge fires also blazed in the Amazon and the Pantanal, the world's largest wetland. Although droughts are partly to blame, police have arrested four people in São Paulo for suspected arson. The prices of raw sugar and coffee spiked as commodity-producing areas went up in flames.

The world this week Business

French prosecutors issued preliminary charges against Pavel Durov, the boss of **Telegram**, for allegedly failing to tackle criminal activity taking place over the messaging app, which has 900m users worldwide. The arrest of Mr Durov in Paris came amid worsening relations between governments and social-media companies. In America Mark Zuckerberg accused the Biden administration of pressing **Meta** to censor certain content across its platforms about covid-19 during the pandemic. And Brazil's Supreme Court threatened to shut down **X** in a row with Elon Musk, the platform's owner.

Nvidia published another impressive set of quarterly earnings. Revenue rose by 122%, year on year, to $30bn. But as that was below the 262% growth it registered in the prior quarter, its share price tumbled in early trading. Net profit of $16.6bn was up by 168%. The chipmaker's earnings are being scrutinised by markets each quarter as a bellwether for the artificial-intelligence boom.

Kioxia, a Japanese chipmaker that was spun out of Toshiba and is the world's third-largest maker of flash-memory units, filed to list shares on the Tokyo Stock Exchange. Aiming to raise at least $500m, it could be the biggest initial public offering in Japan this year.

Investors took fright when PDD Holdings said slower economic growth in China would "inevitably" lead to falling sales and profits. Its share price tumbled by 29%, wiping $55bn off its market value. PDD operates the **Pinduoduo** and **Temu** e-commerce sites, shipping cheap goods that are made in China. The retailer had so far weathered the gloom of a depressed Chinese economy.

Accelerating nicely

Despite a price war in its Chinese home market, **BYD** said revenue rose by 16% in the first half of 2024, year on year, and net profit by 24%. The maker of electric cars delivered 426,039 fully electric vehicles in the second quarter, up by 21% from a year earlier.

The Canadian government decided to slap tariffs of 100% on imports of Chinese-made **electric vehicles**, and a 25% duty on Chinese **steel and aluminium**. Following similar steps in America and the European Union, Canada said both industries were unfairly subsidised by the Chinese state. China said the measures would damage trade and co-operation between the two countries.

Goldman Sachs won its appeal to the Federal Reserve over its result in this year's **stress tests**. It is the first time that a bank has successfully challenged the findings of the annual exam. The ratio of capital to risk-weighted assets it is required to hold will now be slightly lower.

Elliott Management, an activist hedge fund, raised the stakes in its proxy fight with **Southwest Airlines** by sending an open letter to other shareholders, in which it claimed that the board had failed to hold the chief executive and chairman accountable for the company's woes, and that both men should go. Elliott plans to meet Southwest's representatives on September 9th.

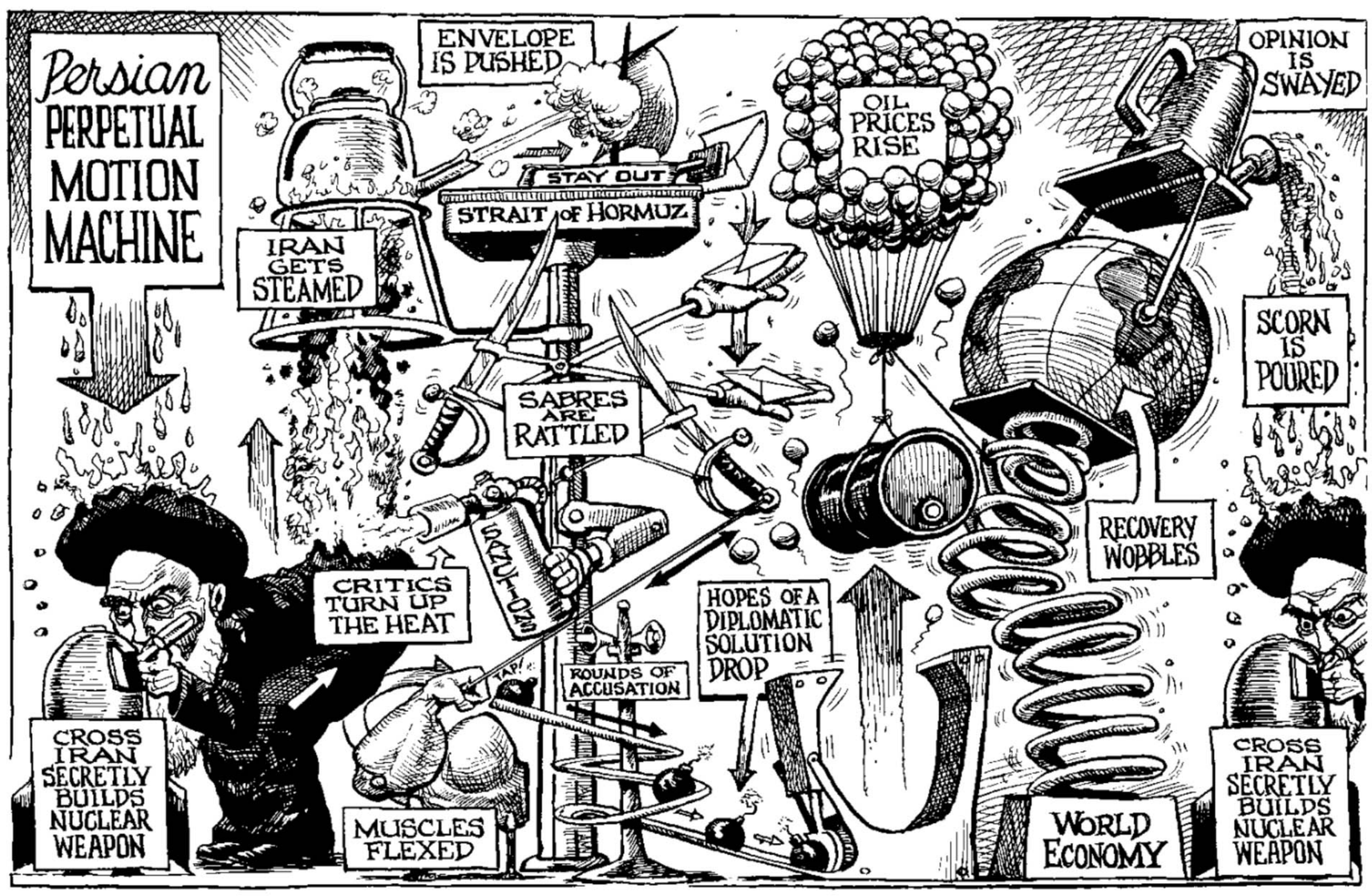
Kroger and **Albertsons** went to federal court to lay out arguments for why their long-delayed $25bn merger should be allowed to proceed. The Federal Trade Commission wants to block the deal, claiming that the combination of the supermarket giants would result in higher prices for consumers and worse conditions for workers. The trial is expected to last three weeks.

Lost in space

In a humiliating turn of events for **Boeing**, **NASA** decided not to bring back two astronauts from the International Space Station on the company's Starliner space vehicle, and will instead use a SpaceX Dragon craft to return the pair to Earth. The astronauts travelled to the ISS in the Starliner, which experienced technical problems and is considered too risky for the crewed return voyage. The astronauts won't come home until February; their eight-day mission will have lasted eight months. NASA insists they are not stranded.

Paramount Global said its takeover by Skydance Media would now go ahead and should be completed in the first half of 2025. A late rival bid from a group of investors led by Edgar Bronfman, a media magnate, was withdrawn just a week after it was submitted.

Lego reported big jumps in revenue and operating profit for the first half of the year. The Danish maker of toy bricks has become ever more innovative with its play sets. It has long offered Disney- and Harry Potter- themed products, but it recently released a "Jaws" set, containing bricks for shark, boat and characters from the film. Lego is taking a bigger bite of the toy market, as its rivals report sinking sales.



Our regular illustrator, KAL, is away this week. We have chosen to re-run this poignant cartoon from 2012

The Economist

Why Sudan's war is the world's problem

The catastrophic conflict could kill millions—and spread chaos across Africa and the Middle East

THE WAR in Sudan has received a fraction of the attention given to Gaza and Ukraine. Yet it threatens to be deadlier than either conflict. Africa's third-largest country is ablaze. Its capital city has been razed, perhaps 150,000 people have been slaughtered and bodies are piling up in makeshift cemeteries visible from space. More than 10m people, a fifth of the population, have been forced to flee from their homes. A famine looms that could be deadlier than Ethiopia's in the 1980s: some estimate that 2.5m civilians could die by the end of the year.

As our report from inside the country explains, it is the world's worst humanitarian crisis—and also a geopolitical time-bomb (see Briefing). Sudan's size and location make it an engine of chaos beyond its borders. Middle Eastern states and Russia are sponsoring the belligerents with impunity. The West is disengaged; the UN is paralysed. The violence will destabilise neighbours and trigger refugee flows to Europe. Sudan has some 800km of coastline on the Red Sea, so its implosion threatens the Suez Canal, a key artery of global trade.

The main belligerents are the conventional military, the Sudanese Armed Forces (SAF), and a militia called the Rapid Support Forces (RSF). Neither has an ideological goal or a monolithic ethnic identity. Both are commanded by unscrupulous warlords vying for control of the state and its spoils.

Sudan has endured civil war, on and off, since independence in 1956. One bloody conflict ended with South Sudan seceding in 2011. Twenty years ago, a genocidal bout of fighting in Darfur caught the world's attention. Yet even by those horrific standards, the current conflict is shocking. Khartoum, a once-bustling city, is in ruins. Both sides bombard civilians, recruit children and inflict starvation. The RSF is credibly accused of mass rape and genocide.

Outside powers are fuelling the fighting. The United Arab Emirates (UAE), a hedonists' playground, supplies bullets and drones to RSF killers. Iran and Egypt arm the SAF. Russia has played both sides and deployed Wagner mercenaries. Saudi Arabia, Turkey and Qatar are competing for influence, too. Each of these actors has narrow goals, from securing food supplies to grabbing gold. Collectively they are helping turn a huge country into a murderous bazaar.

The carnage will get worse. Our analysis of satellite data and thermal images shows a country covered in fires. Farms and crops have been burned. People are forced to eat grass and leaves. If the dearth of food continues, 6m-10m could die from starvation by 2027, according to a Dutch think-tank that is modelling the crisis.

Africa has had one other war of comparable horror in the past 25 years, in Congo. What makes Sudan different is the degree to which chaos will spill beyond its territory. It has porous borders with seven fragile states, accounting for 21% of Africa's land mass and home to 280m people, including Chad, Egypt, Ethiopia and Libya. Those countries face destabilising flows of refugees, guns and mercenaries.

Beyond Africa, expect a new refugee shock in Europe, to follow those after wars in Syria and Libya, at a time when migration is an incendiary issue in France, Germany and elsewhere (see Europe section). Already 60% of people in camps in Calais, on the south side of the English Channel, are Sudanese.

The country could become a haven for terrorists, or provide a foothold for other regimes keen to sow disorder: Russia and Iran are demanding a Red Sea naval base in return for arming the SAF. Were Sudan to fall into permanent anarchy or become a rogue state hostile to the West, it could further imperil the operation of the Suez Canal, which normally carries a seventh of world trade, mainly between Europe and Asia. It is already facing disruption from attacks by Houthi rebels in Yemen, forcing cargo ships to take long, costly detours around Africa.

Despite the huge stakes, the world has responded to Sudan's war with neglect and fatalism, showing how disorder is becoming normalised. Whereas the West sought to end the Darfur crisis in the 2000s, today American officials shrug that they are too busy dealing with China, Gaza and Ukraine. Western public opinion is quiescent: there were not many Sudanese flags flying from Ivy League encampments this year. The UN Security Council is split, its bureaucracy lumbering. China has little interest in solving far-off wars. Other African countries have lost their appetite to call out atrocities. Half-hearted ceasefire talks in Geneva have gone nowhere.

Yet it is a grave mistake for the outside world to ignore Sudan, on grounds of both morality and self-interest. And it is wrong to imagine that nothing can be done. Public outrage can put pressure on democratic governments that care about human lives to do more. And plenty of countries have an incentive to de-escalate and contain the fighting. Europe is keen to limit migrant flows; Asia needs a stable Red Sea.

A more constructive approach would have two priorities. One is to get more aid in quickly, to reduce the death toll from starvation and disease. Lorries laden with food must pour across every possible border. Public and private funding needs to flow to Sudanese NGOs running ad hoc clinics and kitchens. Cash can be sent to the hungry directly, via mobile money, so they can buy food where there are functioning markets.

Damage limitation

The other priority is to put pressure on the cynical outside actors fuelling the conflict. If Sudan's warlords had fewer weapons and less money to buy them, there would be less killing, and less war-induced starvation. America, Europe and other responsible powers should impose sanctions on any business or state official exploiting or enabling Sudan's war—including those from allies such as the UAE.

No one can easily put Sudan back together again. After more than 500 days of pitiless fighting, the damage will take decades to repair. But it is possible to save millions of lives, and reduce the chance of calamitous geopolitical aftershocks, if the world acts now. For too long Sudan has been the war almost everyone chose to ignore. It is time to pay attention. ■

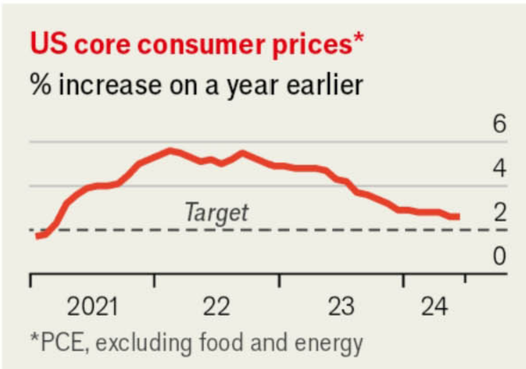
Central banks

Good policy, not good luck

Though its workings have been obscured, monetary policy deserves the credit for bringing down inflation

AT THEIR ANNUAL retreat in Jackson Hole, central bankers celebrated the fall of inflation. But do they deserve the credit? In the rich world, annual price rises in the median country are down from a peak of about 10% in early 2022 to below 3% today. Remarkably, this has been achieved without deep recessions (see Finance & economics section). The Federal Reserve will probably soon join central banks in Europe in cutting interest rates, bond yields have fallen sharply since the summer and stockmarkets have shrugged off a growth scare that struck at the beginning of August. America's economy was in fact bigger in the second quarter of 2024 than had been forecast before the covid-19 pandemic struck.

Monetary tightening is supposed to slow growth, and in the 1980s it quelled inflation only after deep downturns. The apparent lack of damage today has led to the revival of a dangerous myth: that inflation would have gone away by itself. Paul Krugman of the *New York Times* has even claimed that Jerome Powell, the Fed's chair, used his speech at Jackson Hole to attribute inflation "largely to transitory pandemic effects", resurrecting an old narrative that central bankers dumped in 2021.



That view is a misinterpretation both of the economy and the speech. Mr Powell said that high inflation "was not transitory". Papers presented at Jackson Hole showed the crushing effect that rate hikes had on mortgage credit, and how the Fed risked losing its credibility as inflation took off (see Free exchange). Even forecasters who expected inflation to persist thought the Fed would not act—meaning they had lost faith in central bankers' commitment to price stability. The expectation that rate rises would not come risked worsening inflation by pushing down the real, inflation-adjusted rate of interest.

Monetary policy does not need to cause a slump to bring down price growth: it must only force the economy to grow more slowly than it otherwise could. This has been hard to spot in America, where growth has been fast in part because of a surge in immigration, and where a budget deficit of about 7% of GDP has counteracted higher interest rates. Yet the cooling of the labour market is clear from an enormous drop in job vacancies and a small rise in the unemployment rate. Europe, meanwhile, has suffered so many blows, including the war in Ukraine, that it is hard to judge what has caused what. But rate rises will have had a similar underlying effect.

Some have argued that monetary tightening simply restored an intangible sense of credibility, and that the actual level of interest rates has not mattered. Yet rules of thumb suggested that America's rates would need to rise to about today's level, as *The Economist* noted in 2022. It is true that energy and food prices pushed up headline inflation, only to fall back. But in America, the euro zone and Britain, interest-rate rises have been fairly well-calibrated to the rise in core inflation, which excludes these volatile prices.

It is vital that policymakers draw the right lessons from the pandemic, given the danger that they will face more episodes like it. Many central banks have, over the long term, more or less hit the inflation targets that were adopted around the world in the 1990s. But that was an era in which supply shocks were rare and rich-world governments were, on the whole, fiscally prudent. Today trade wars, the green transition, further pandemics and vast public debts all threaten to create inflationary disruptions with which central banks will have to grapple. How they achieved today's victory over high inflation therefore matters. It was not just a stroke of luck. ■

Human health

There must be blood

More countries should pay people for providing plasma

THE TRADE in human blood might seem gruesome. In fact, it is essential. Plasma, the main component of blood, is a crucial ingredient for a range of medicines, from haemophilia treatments to rabies vaccines and tetanus jabs. And these days there is not enough of it to go around.

Health services around the world have faced shortages of plasma-derived medicines since at least 2018. The covid-19 pandemic made matters worse. With donors in lockdown, supply was constrained, prompting authorities in France and Italy to instruct doctors how best to ration treatments. Outside America, Australia and Canada, plasma-based medicines are underused. The situation is especially dire in poor countries, which use a fraction of the amount needed to treat even just their sickest patients. The best way to meet demand is for more countries to legalise paying for plasma.

Donation involves extracting blood, separating out the plasma and returning what remains to the donor. In many places, demand is clearly outstripping what unpaid donors provide. Fully 80% of the global supply of plasma comes from just five countries, all of which pay for it: mainly America, but also Austria, the Czech Republic, Germany and Hungary. America earned $37bn from exports of blood products last year, more than from coal or gold (see Finance & economics section). Unless other countries start paying donors, though, the global shortage will persist.

Paying could even be cost-effective. Research done for ▸▸

Canada's health service suggests that collecting plasma from paid donors costs less than half as much as collecting it from unpaid donors. This is because paid donors donate more, and more often, and also because the sorts of enticements countries come up with in lieu of handing out cash, such as paid days off or tax breaks, are often expensive to provide.

Two worries put countries off allowing paid donation. Neither is well-founded. The first is a concern for safety. In places such as Britain, scandals involving infected blood loom large in the public consciousness. Offering payment, critics say, encourages those who know they are ill to donate anyway, putting recipients at risk. Yet there is little evidence that plasma that is paid for is more likely to transmit disease than plasma from unpaid sources. And even if it was, plasma can be heavily processed to ensure it is safe. Although paid plasma dominates global supply, there has not been a single confirmed case in three decades of a patient getting sick from a medicine made from donated plasma. Even countries that do not allow paid donation are happy to import plasma from those that do.

The second worry is over equality. Critics note that paid donors tend to be those who need the money. Some feel uncomfortable that poorer people are allowed to open their veins. But plasma, which is mainly water, is quickly replaced by the body. Health checks exclude the truly unwell and frequent donation seems safe (although more research could be done in that area). Donors in America are prevented from giving more than twice a week, meaning that payments cannot replace income earned from work. Moreover, paid donation is still voluntary. Those who choose to donate judge that they will be better off for doing so. If it is safe, why not let them?

Blood, threats and fears

Home-grown collection isn't for everyone. Britain rightly stopped collecting plasma in the 1990s during an outbreak of "mad cow" disease, spread by one of the few pathogens not destroyed by standard sterilisation methods. Poor countries might reasonably worry about their ability to collect plasma from donors safely. Global trade exists precisely to solve such problems. But relying on a handful of countries has its own risks. Disease still has the potential to disrupt a country's collection, as happened in Britain. And, crucially, supply is failing to keep up with demand. Rich countries with good health systems have no good reason to ban paid plasma donations. Paying up would benefit patients both at home and abroad. ■

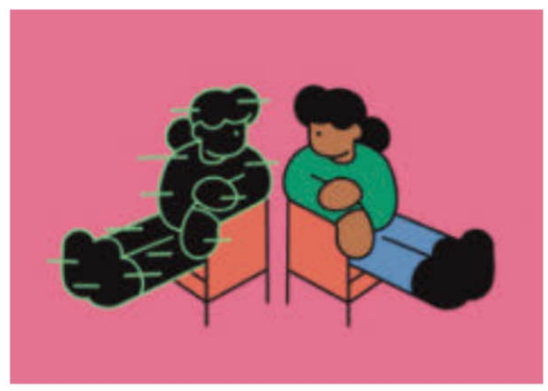
Advanced technology

Welcome to the mirror world

Digital twins are fast becoming part of everyday life

When visiting a doctor a few years from now, you can expect to be accompanied by a virtual version of yourself. This so-called digital twin will be a working model of your body that can be summoned onto a physician's computer screen. Updated with your latest vital signs, it will help the doctor make an accurate diagnosis. It also opens the door for medicines and procedures designed specifically for you, greatly increasing recovery rates.

This might seem like fantasy, but the foundations are being laid. Researchers at Queen Mary University of London already use computer simulations of the hearts of individual patients to evaluate different treatments for atrial fibrillation, a common disorder. It would be far too risky to experiment this way on someone's real heart. With other organs also being twinned by scientists, it seems likely they will eventually link up to form a virtual body.



As our Science & technology section reports, digital twins are starting to pop up everywhere. Among other things, they monitor the health of jet engines on airliners, keep track of Uber's network of vehicles and replicate Amazon's extensive supply chain well enough for the online retailer to accurately forecast sales several years ahead. They are helping local authorities respond to the effects of flooding and letting carmakers shave years off the development of new models by simulating test drives and crashes. Twins are also being developed to help manage factories, companies and entire cities. All this is being turbo-charged by recent progress in artificial intelligence (AI), which gives twins the ability to make predictions about their physical counterparts, and fine-tune themselves on new data.

Digital twins began as basic computer models of physical objects and systems. As computers have become more powerful, twins have become more sophisticated. Complex design and modelling software means many physical objects initially take shape in the virtual world. Small sensors, capable of measuring all sorts of things, feed twins with real-time data, ensuring that they mirror their physical counterparts. A Formula 1 racing car, for instance, may have more than 250 sensors updating its digital twin during a grand prix.

The use of AI takes all this much further, allowing virtual models to become more sophisticated, and to both simulate and optimise activities in the real world. You may worry that this portends a dystopian future; Morpheus, a character in a science-fiction film from 1999 in which a sentient machine subdues humanity through pervasive virtual reality, had a name for it. As he said: "The Matrix is everywhere. It is all around us."

Reality is more prosaic. The idea of creating symbolic representations of real-world things is centuries old. Many ancient civilisations built architectural models, sometimes to place into tombs but also to work out how to build things. Double-entry book-keeping, developed in the 15th century, was a paper-based representation of a merchant's finances. The Phillips Machine, a hydraulic computer from the 1940s, created a physical "twin" of national economic flows. Spreadsheets and supply-chain management systems enable companies to log transactions, track inventory, make forecasts and model future scenarios.

Today's digital twins extend this process, making it easier for humans to tackle complex problems. They can act as virtu- ▸▸

al crystal balls, allowing people to peer into the future, spot problems before they materialise and test wild ideas without real-world consequences. For businesses, this should mean better designs, more streamlined operations and fewer costly blunders. For society, the promise is equally tantalising: personalised health care, cities that flow and breathe more easily and, thanks to the threats exposed by climate modelling, clues as to how the planet might avoid environmental catastrophe. Digital twins offer the ultimate sandbox in which castles can be built and tested before being made real.

Could these virtual doppelgangers go rogue? They might if they are programmed badly, or hacked into. Avoidable medical conditions could be ignored, corporate systems sent awry and critical power plants compromised. Digital twins will gobble up mountains of data, some of it wrong, some of it prejudiced and much of it raising concerns about privacy and surveillance. There is also the danger of tunnel vision as humans rely more and more on digital twins—and miss things that sensors might not be able to capture. Yet these risks are not specific to digital twins. They apply to all emerging technologies, as they always have and always will. Such concerns need to be considered, as in the current debate over the use of AI. The emergence of the digital mirror world will doubtless raise new questions, but its potential advantages are already plain to see. ■

Mass deportation

Unwise and unworkable

Donald Trump probably could not deport millions, but he could do grave harm trying

THE PLACARDS at Donald Trump's rallies put it bluntly: "Mass deportations now!" If elected again, Mr Trump promises the largest expulsion of illegal immigrants in American history. He has praised Operation Wetback, a big deportation programme under President Dwight Eisenhower. Pressed for details, J.D. Vance, Mr Trump's running mate, suggested that their administration would start by deporting 1m people and then take it from there. Could they actually do it?

Deportation is the most emotive aspect of immigration enforcement, and not just in America. Right now Germans are focused on the issue too, after a Syrian migrant who was supposed to have been deported stabbed three people to death in Solingen. Immigration laws should be enforced, not only because the rule of law matters, but also because voters will not tolerate a reasonably welcoming immigration system if they think it involves surrendering control of their borders. So there has to be a way of removing people who arrive illegally or overstay their visas.

Yet the practicalities are fraught. People must sometimes be forced onto buses and planes bound for countries they do not want to return to. Before this, they must often be held in detention centres, which resemble prisons. And their countries of origin must be cajoled or bribed into taking them back. For many Trump supporters, the harshness is the point: it deters others from arriving. But it is worth pondering the likely consequences of a crash programme of mass deportation (see United States section).

Some 11m people live in America illegally, according to the Migration Policy Institute. (Mr Trump implausibly claims there are 15m-20m.) Deporting them all could directly cost the government $150bn, or $14,000 per deportee. And that does not include the costs of depriving American firms of millions of workers and customers. Estimates of the cumulative hit to GDP quickly run into the trillions. Nor does it include the cost to families. Most illicit immigrants have been in the country for more than a decade. Expelling them would mean that 4.5m children who are American citizens by birth would be separated from either a parent or their home.

Optimistic liberals think Mr Trump may be posturing. He never kept his promise to "build the wall", they observe, and since that slogan no longer shocks, "mass deportation" is a suitably fiery substitute for the campaign trail. But what if he is serious? The first Trump administration did try to raise the pace of deportations, only to be stymied by the courts. In a second term the political appointees running Immigration and Customs Enforcement (ICE) would be better prepared, and the courts perhaps more pliant.

Still, to deport millions Mr Trump would need the consent of foreign governments to receive them. This can sometimes be gained by quiet diplomacy, as shown by the first full flight of deportees from America to China since 2018, which took place earlier this year to little fanfare. A Trump administration might accomplish something similar with a mixture of bluster and threats, perhaps promising punitive tariffs unless foreign countries take their citizens back. But it might not work.

And to round people up in the first place, Mr Trump's administration would need the co-operation of local law-enforcement agencies, many of which are under the political control of Democrats. With Joe Biden as president, that co-operation has generally got better. Cities quietly work with ICE to deport people who may threaten public safety. With Mr Trump back in the White House it would surely cease, leaving him to rail impotently about sanctuary cities and states. In some ways this might be ideal for Mr Trump: he could sound tough on immigration without having to own the consequences of his policy.

Even if Mr Trump could not deport millions of people a year, he could probably return to the pace seen under Barack Obama, who once expelled more than 430,000 people in a single year. Over four years that would add up. There seems scant prospect of a more thoughtful immigration policy. That would combine a warm welcome for the hands and brains America's labour market craves with firm enforcement, prioritising the removal of recent unlawful arrivals and those with criminal records. It would also involve a political deal allowing the millions of hardworking illegal migrants who have been in the country for a decade or more to stay. But a candidate who calls migrants "invaders" is unlikely to forge such a compromise. ■

Letters

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Deterrence won't work

America needs to enter an arms race with other nuclear-armed states to make the world safer by preventing further proliferation, you say ("The new nuclear threat", August 17th). Nothing could be further from reality. The more nuclear weapons there are, the more likely they will be used by accident, miscalculation or mistake, not to mention deliberate use by an unhinged leader.

The doctrine of deterrence is a theory unsupported by empirical evidence. The experience of the cold war demonstrates that this doctrine led us to the precipice of nuclear destruction more than once. Deterrence requires keeping weapons ready to use at all times given the risk of surprise attack, making mistakes much more likely. America already has the most powerful nuclear forces in the world, spending more than all the other nuclear-armed states put together. One Ohio class missile-submarine has the destructive power of 1,266 Hiroshima bombs. America has 14 of them. It is also carrying out a $2trn modernisation of its nuclear arms.

Instead of building up its arsenal, Washington should engage in concerted diplomacy and immediate risk-reduction measures with the other nuclear-armed states. China may have broken off risk-reduction talks because of America's arms sales to Taiwan, but America has refused to engage with China's proposal to agree to no first use of weapons.

MELISSA PARKE
Executive director
International Campaign to Abolish Nuclear Weapons
Geneva

Carry-trade risks

"Billions or trillions?" (August 17th) sensibly suggests that the spectacular unwind of the "carry trade", when investors borrow in a currency where interest rates are low and invest where returns are high, calls for a better understanding of the foreign exchange (FX) market. However, the solution is hardly to simply collect more trading data in FX swaps.

Foreign-exchange traders can simultaneously buy and sell multiple currencies. Exposures in one currency can be quickly hedged or diversified by trading other currencies. In other words, just tallying who traded which currency will not reveal the true extent of carry trades. Not all sales of Japanese yen indicate positions in a carry trade, for example.

Regulators need to dissect the risks inherent in FX trading. By sorting FX trades into those that dealers and hedge funds can easily diversify against those that represent non-diversifiable risks, we estimate that dealers and hedge funds accumulated about $0.8trn of exposure in carry trades between 2012 and 2023. Furthermore, we found that the Japanese yen is frequently used to fund positions that go long in both the American dollar and the euro, highlighting the importance of not conflating all short positions in the yen with carry-trade exposures.

AMY HUBER
Assistant professor of finance
Wharton School
Philadelphia
YU AN
Assistant professor of finance
Johns Hopkins Carey School of Business
Baltimore

Congress must act on visas

There are additional problems with America's dysfunctional employment-based immigration system to the ones you mentioned ("Footloose and fancy degree", August 17th). There is a significant undersupply of employment-based visas across most visa categories, as evidenced by the low-odds lotteries for H1-B visas and years-long wait for qualified green-card applicants. Also, visa categories are extremely narrow. Many employers find that no visa can reasonably help them with their hiring needs. And too many visas tie employees to their companies or fail to protect against exploitative working conditions. Moreover, there is no automatic bridge to a permanent status for workers, regardless of the length or nature of their service to employers, unlike in many other countries.

All of these challenges point to the fundamental failure of Congress to pass meaningful legislation updating our immigration system. There are many marginal tweaks that an administration can make to help immigrants, their families and would-be employers. Only Congress can expand the eligibility criteria and number of visas at the scope needed to tackle these problems, yet it seems unable to look beyond questions of border security.

BETSY FISHER
United States director
Talent Beyond Boundaries
Minneapolis

Satirical wars

Your review of Richard Overy's "Why War?" mentioned that there are many books on the seemingly intrinsic necessity for mankind to engage in violent conflict ("Fight club", August 10th). Two other literary references come to mind: Jonathan Swift's Big Endians and Little Endians in "Gulliver's Travels", a pair of tribes warring over which end of a hard-boiled egg should be cracked first; and "Report from Iron Mountain", a satire from 1967 purporting to leak a government study preparing for a supposed lasting period of peace. It was a parody of a think-tank report, concluding that a constant state of war is necessary not only for scientific and medical breakthroughs, but for social stability and well-being.

KEITH CARLSON
Belmont, Massachusetts

Learning from defeat

Bartleby's column on what Olympians can teach executives (August 10th) omitted the most useful lesson that sports men and women can give to business: the ability to start again after experiencing defeat in competition. The competitive spirit is vital to any successful business, as many leaders have acknowledged in their hiring choices.

MARTIN FLASH
London

The battle of Churchill's loo

We disagree that the debate over removing Winston Churchill's urinal from a toilet in Britain's Treasury building means that Britons have a hang up with heritage ("Wee will fight them", August 17th). Crucially, 93% of people agree that local heritage raises their quality of life. We have not been involved with this case, but as a general rule we work with owners and local authorities to manage sensitive development to listed buildings. There are many examples of how heritage has a positive role to play in economic development and regeneration, from the former Bird's Custard Factory in Birmingham, now a thriving creative zone, to the converted mills of Ancoats in Manchester.

DUNCAN WILSON
Chief executive
Historic England
London

If the room where the urinal is located also includes a toilet, why would Rachel Reeves, the new chancellor of the exchequer, think of getting rid of it? Urinals are greener as they use less water. Some older men find they need to stand to fully empty their bladder. Is this a case of misandry?

ERIC THOMPSON
Poinciana, Florida

That a urinal causes such hand-wringing today would have delighted Marcel Duchamp a century ago. In 1917 the artist unveiled "Fountain", an otherwise ordinary porcelain urinal, as his masterpiece. Duchamp lauded his piece as "an ordinary object elevated to the dignity of a work of art by mere choice of an artist." Churchill and Ms Reeves, chancellors exactly 100 years apart, have together elevated another humble urinal to mythical status.

ALEX FINE
Washington, DC

Briefing Sudan

An intensifying calamity

PORT SUDAN

A spiralling civil war has spawned the world's worst famine in 40 years

IT IS OFFICIAL: for only the third time in the past 20 years, the UN has declared a full-blown famine. The declaration concerns a refugee camp called Zamzam, on the outskirts of the city of el-Fasher in Sudan. As long ago as April, Médecins Sans Frontières, a charity, estimated that every two hours a child in the camp was dying from starvation or disease—and since then the situation has got worse.

But it is not just Zamzam that is suffering a horrifying catastrophe. The camp has been singled out solely because it is one of the few places in war-torn Sudan about which the UN has reliable information. In fact, famine is consuming much of the country (see map on next page). It is almost certain to be as bad as, or worse than, the one that afflicted Ethiopia in the 1980s. If much more help does not arrive very soon, it may prove the worst anywhere in the world since millions starved to death during China's Great Leap Forward in the late 1950s and early 1960s.

In May the Clingendael Institute, a Dutch think-tank, released a report which estimated that hunger and related diseases would kill more than 2m people in Sudan by the end of the year. Timmo Gaasbeek, the report's author, has since extended his projections to cover the next two years. In an "optimistic scenario", in which fighting stops and this year's harvest, expected in October, is slightly better than the last, he predicts around 6m "excess deaths" by 2027. In the (more likely) scenario in which fighting continues until early next year, more than 10m may perish. Although some experts have lower estimates, there is an emerging consensus that without decisive action Sudan faces mass starvation on a scale not seen in decades.

Rapid collapse

The cause of the famine is Sudan's civil war, which began in April 2023, when the army and an auxiliary paramilitary, the Rapid Support Forces (RSF), fell out. The ensuing conflict has a strong claim to be the biggest and most destructive in the world today. Perhaps 150,000 people have been killed by the fighting itself. At least 245 towns or villages have been burnt. Much of Khartoum, the capital, has been flattened. More than 20% of the country's pre-war population of roughly 50m have been forced to flee their homes. Some have taken refuge in neighbouring countries such as Egypt, but the vast majority of the displaced—nearly 8m—remain inside Sudan, many of them in camps like Zamzam. Médecins Sans Frontières estimates that 80% of health facilities in war-torn areas are so ravaged by bullets and bombs that they are no longer functional. "Our country is being destroyed by the hour," says Burai Sidig Ali, the governor of the central bank, which itself has been pillaged and torched.

At first, fighting was largely confined to Khartoum and Darfur, a region the size of Spain where the RSF has resumed a campaign of ethnic cleansing against black African ethnic groups first initiated by Arab ▸▸

→ ALSO IN THIS SECTION

17 The geopolitics of the war

militias 20 years ago. But the conflict has evolved, in the words of Tom Perriello, America's special envoy to Sudan, into "five or six different wars at the same time".

Both sides encompass an increasingly complex constellation of armed factions. The regular Sudanese Armed Forces (SAF) have enlisted both Islamist militias and voluntary civilian defence units. Foreign mercenaries and Arab tribal militias work with the RSF, itself best understood as a sprawling network of business interests underwritten by plunder. Though it is the more decentralised of the two sides, neither has complete control over its forces. Both block aid and terrorise civilians.

Three times a refugee

One victim of the spiralling violence is Husna Abdul Qader, a mother of five who has been forced to relocate three times in 16 months. She fled Khartoum when the RSF and the army first came to blows, narrowly escaping a volley of bullets aimed at the bus driving her out of the city. Drone strikes in the eastern town of Gedaref, where she spent much of the past year, then pushed her south to Sennar, her family's home state. Then, in early July, RSF fighters tore through her village on motorbikes, prompting Ms Abdul Qader to move again. She arrived two weeks later in Port Sudan on the Red Sea, carrying nothing but her slippers. All her other possessions had been either abandoned or stolen.

An astonishing number of Sudanese have stories like that. Early expectations that the war would come to a quick conclusion, either on the battlefield or through negotiations, have been dashed. Other countries have become involved (see next article). Efforts to broker peace have failed. The army refused even to attend peace talks held this month in Switzerland.

In Darfur the RSF and its local allies have crushed the SAF, besieged towns and expelled non-Arabs. Their goal, says Yacob Mohammed, a traditional leader of the Masalit people, who were ethnically cleansed from the city of el-Geneina in Darfur last year, is "land, money and power". The RSF hopes to wrest control of Sudan's western frontier from Libya in the north-west to South Sudan in the south. Doing so would secure it critical supplies of arms, fuel and mercenaries from its allies and business partners in the wider Sahel region.

The only big city in Darfur still outside the RSF's control is el-Fasher. But with the RSF dug in around the city and nearby camps, including Zamzam, hundreds of thousands of civilians are being slowly "strangulated", says Nathaniel Raymond of Yale University. More than a million may have fled. Satellites reveal swelling cemeteries. (See our interactive report on the siege using satellite images and data at economist.com/el-fasher.)

In Khartoum the battle lines have been relatively static for months. Despite some gains by the SAF earlier this year, most of the city centre remains under the RSF. The army's leaders and remnants of the civil authorities have decamped to Port Sudan, where they have established a sort of government-in-exile. The generals insist the move is temporary. "We are not going to stop until we control the whole country," says General Ibrahim Jaber, a member of the "sovereign council" that administers the areas the SAF controls. But the SAF has nonetheless begun renovating a British colonial mansion in Port Sudan to serve as the council's headquarters.

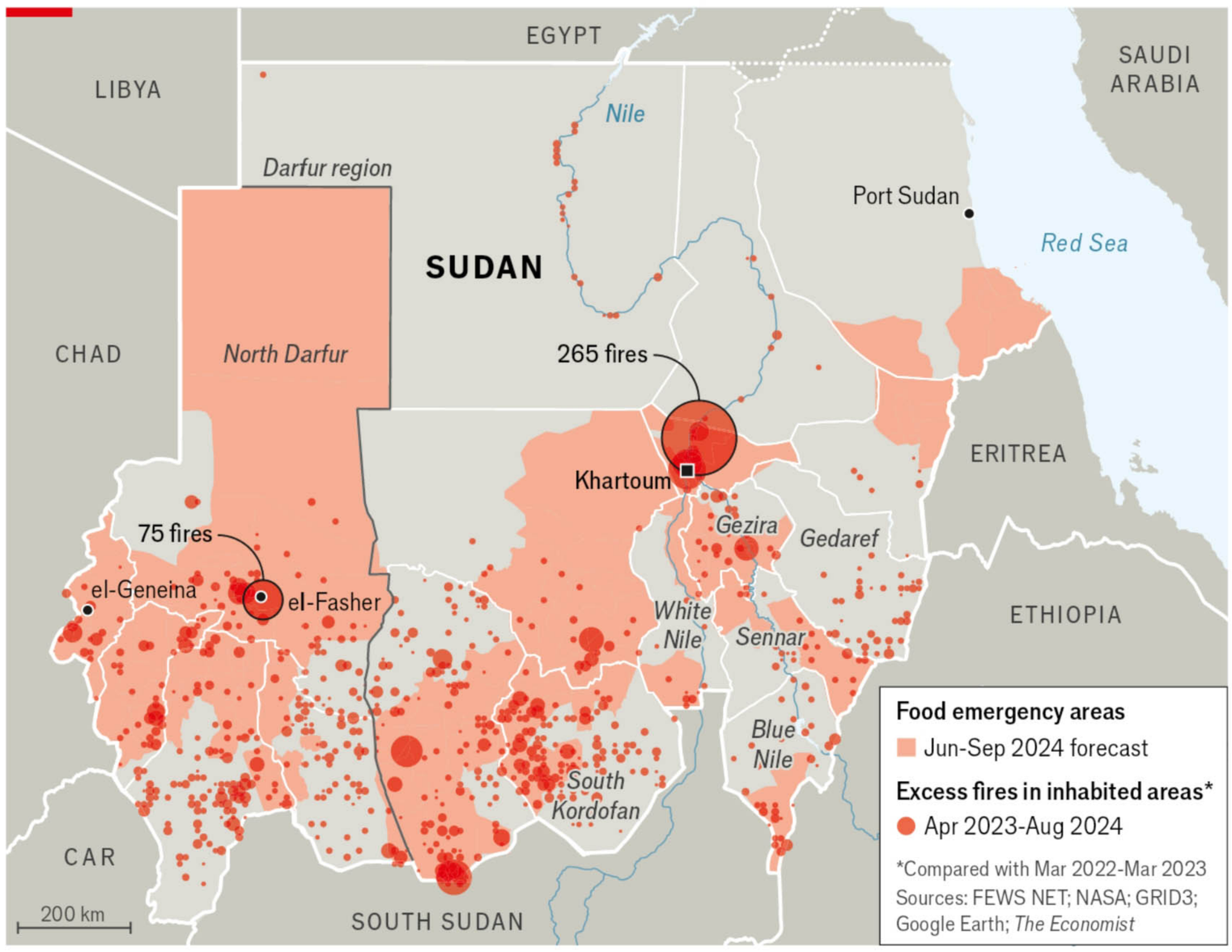
Elsewhere the front lines are growing more fluid. In South Kordofan, on the border with South Sudan, the war is a three-way fight between the RSF, the SAF and a faction of the Sudan People's Liberation Movement-North (SPLM-N), a local rebel group. In Blue Nile, near Ethiopia, a bit of the SPLM-N allied to the army is trying to beat back the RSF's southward march from Sennar, a breadbasket state, most of which it overran in July. Some places in the south and west are under the control of neither the army nor the RSF.

Most alarming is the RSF's south-eastward advance. Unpublished satellite imagery shows trucks in Sennar state dumping objects "the size of bodies" into the Nile, says Mr Raymond. More than 700,000 people have fled the region, including Ms Abdul Qader. Many, including her oldest son, have arrived in the eastern state of Gedaref, which is also home to tens of thousands of refugees from Ethiopia. Conditions in the makeshift camps they have built are "deplorable", says Abdirahman Ali of CARE, another charity. Clean water and medical care are desperately scarce. The rainy season is helping to spread cholera and other diseases, which are especially dangerous to those weakened by hunger.

Military analysts think the RSF aims to fight its way to the Ethiopian border to open up a new supply line. It may then turn northwards, either to Port Sudan or to the SAF's remaining toeholds in Sennar, White Nile and Gezira states. These are productive agricultural zones; the threat of more fighting in such places is one reason why Mr Gaasbeek thinks famine will blight an even greater area next year.

The ever-shifting battlefield is also impeding the flow of humanitarian aid. Eddie Rowes, the head in Sudan of the World Food Programme, a UN agency, says it delivered more than 200,000 tonnes of food between April 2023 and July 2024, far less than is needed. Some of the shortage is down to theft and damage by the RSF and other militias. But much blame lies also with the SAF, which is loth to allow food into areas, including most of Darfur, under the control of the RSF.

A single convoy of aid trucks can wait six weeks or more in Port Sudan to be cleared by the SAF for onward travel. Even then, almost all of it goes to SAF-controlled areas. Only a tiny fraction has reached Darfur. On August 15th the SAF agreed to allow aid agencies to resume shipments via a crucial border post controlled by the RSF between Chad and Darfur. That should help, but the army continues to drag its feet with the necessary paperwork. By spurning peace talks and impeding aid, the two sides are sentencing millions of Sudanese to death. ■



The geopolitics of the war

Chaos machine

DUBAI AND PORT SUDAN

The ripple effects of Sudan's war are being felt across three continents

IT IS HARD to see past the human tragedy of the war in Sudan. Perhaps 150,000 people have died since fighting began last year and more than 10m have fled their homes. Millions could perish in the world's worst famine for at least 40 years. These are reasons enough to care about the conflict. But the collapse of Sudan, at the intersection of Africa and the Middle East, with seven fragile neighbours and some 800km of coast on the turbulent Red Sea, has alarming geopolitical consequences, too.

Sudan is a chaos machine. The war sucks in malign forces from the surrounding region, then spews out instability—which unless the conflict is halted will only get worse. As the country disintegrates, it could up-end regimes in the Sahel and the Horn of Africa. It could become a haven for terrorists. It could send an exodus of refugees to Europe. And it could exacerbate the crisis in the Red Sea, where attacks by the Iranian-backed Houthis have already contorted global shipping. "This is a war that is impacting severely on three continents," says Endre Stiansen, Norway's ambassador to Sudan.

It is also a disorderly war for disorderly times. America, distracted by China, Gaza and Ukraine, its influence diluted by rising middle powers, is almost irrelevant. International norms, laws and arms embargoes are widely flouted. Institutions such as the UN Security Council and the African Union (AU) are failing dismally. Sudan may be a harbinger of future conflicts in an anarchic, multipolar world.

Sudan's importance stems from its location (see map on next page). Nestled in the north-east corner of Africa, it is a gateway to the Sahara, the Sahel and the Horn. It is also part of the Gulf states' sphere of influence, a zone that encompasses the Red Sea, which at its narrowest point separates Arabia from Africa by just 30km. Port Sudan, the coastal city where the Sudanese Armed Forces (SAF) are based, is closer to Abu Dhabi and Tehran than it is to N'Djamena, the capital of Chad, Sudan's western neighbour.

Of all Gulf states, the United Arab Emirates (UAE) has the most influence on the war. The UN suggests there is "credible" evidence that the UAE has armed the Rapid Support Forces (RSF), the main foe of the SAF, leading to a "massive impact on the balance of forces". (The UAE denies this.) Minni Manawi, the SAF-aligned governor of Darfur, the region where the RSF is accused of genocide, says, "The war in Sudan without the UAE would be zero."

The UAE's support for the RSF is in part a product of personal relationships developed over the past decade. The RSF's leader, Muhammad Hamdan Dagalo, better known as Hemedti, sent his forces to Yemen on behalf of Saudi Arabia and the UAE and fought in Libya with Khalifa Haftar, another warlord backed by the UAE. The RSF's vast network of businesses, in everything from gold mining to tourism, is managed by an adviser based in the UAE.

But the UAE's backing of the RSF is also part of a broader strategy. The Emiratis want to build a network of clients across Africa in order to vanquish political Islam, to extend the UAE's influence over the Red Sea and to pursue commercial ventures in everything from minerals to logistics to agriculture. Emirati firms have bought tens of thousands of hectares of Sudanese farmland, and in 2022 signed a deal to build a port that would export the produce. "If they get their man in Khartoum, they think they can secure their access to food and farmland in perpetuity," says an adviser to the Emirati government.

Eleonora Ardemagni of the Italian Institute for International Political Studies (ISPI), a think-tank, notes that the UAE has built a network of temporary military outposts in Chad, Egypt, Eritrea, Libya and parts of Somalia. Since 2010 it has trained eight African armies, including Ethiopia's. These partnerships dovetail with its strategy in Yemen, where it backs a secessionist regime in the south and is building bases on islands off the coast.

African states within the UAE's orbit have been drawn into the war. The RSF has supply lines through Libya, South Sudan and Chad, whose leader, Mahamat Idriss Déby, has received military aid from the Emiratis. It has recruited fighters from Chad, Niger and the Central African Republic. Hemedti visited several African countries in December and January, travelling on a plane registered in the UAE. Abiy Ahmed, Ethiopia's prime minister and another Emirati client, gave him an especially warm welcome.

Neighbourly interest

Egypt, meanwhile, has delivered Turkish drones to the SAF, according to the *Wall Street Journal*, although the UAE's promise in February to invest $35bn in Egypt may curtail such assistance. Turkey, which has invested hundreds of millions of dollars in Somalia, wants more influence in Sudan, too. Sarsilmaz, a Turkish arms-maker, supplies small arms to the SAF. Qatar is rumoured to have deposited $1bn in the Sudanese central bank to prop up the currency and recently signed a deal to boost trade in gold between the two countries, at Dubai's expense. Saudi Arabia, which does not want a failed state just across the Red Sea, has hosted peace talks, to no avail.

The SAF, which sees itself as the legitimate government of Sudan (despite toppling a civilian one in a coup in 2021 with the connivance of the RSF), is frustrated by what it sees as half-hearted support from notional allies like Saudi Arabia. So it is befriending Iran. In July it re-established dip-

Sudan podcast

To listen to a special edition of The Weekend Intelligence on the war in Sudan, go to economist.com/sudan-podcast.

lomatic relations, which had been broken off in 2016. "Both the UAE and Iran try to obfuscate their arms deliveries, but nobody is fooled," says Justin Lynch of the Conflict Observatory, an American NGO.

At the start of the war the Wagner Group, a firm of Russian mercenaries, provided the RSF with surface-to-air missiles. The two outfits, kindred spirits in many ways, smuggled gold together. Wagner's role reportedly led Ukrainian special forces to conduct covert operations against the RSF. Wagner seems to have been less involved in Sudan since the death of Yevgeny Prigozhin, its founder, a year ago. Russia may be shifting its approach: in May the SAF said it would be allowed an outpost in Port Sudan, though "not exactly a military base", in exchange for fuel and arms.

The longer the war endures, the greater the risk that the Sudanese state fails entirely or that the country is split into two regions, each backed by a different international coalition, as Libya has been in recent years. "To get a sense of what state collapse looks like in Sudan, look at Libya—now multiply that by ten," says Cameron Hudson, a former American official. Libya's implosion led to a proliferation of weapons, jihadists, traffickers and gangsters, destabilising regimes in the Sahel. That upheaval, in turn, spurred military coups, spawning juntas that have embraced Russia.

Similar forces could spill out of Sudan. In Chad Mr Déby is under pressure from political elites who oppose his links to the genocidal RSF. The war is jeopardising the flow of oil via a pipeline from South Sudan to the Red Sea, destabilising a war-torn petrostate. Ethiopia could try to take advantage of the war to encroach on long-disputed agricultural land along its border with Sudan. The instability could also rekindle Ethiopia's civil war, in the Tigray region, or its long-running conflict with Eritrea, both of which border Sudan. Eritrea is training Sudanese militias aligned with the SAF. Tigrayans have been spotted fighting alongside the SAF in the region of Sennar.

In February American intelligence agencies warned that Sudan, which hosted Osama bin Laden in the 1990s, "could once again become an ideal environment for terrorist and criminal networks". Western officials worry that branches of al-Qaeda and Islamic State (ISIS) all over Africa will gain new sources of or smuggling routes for guns, cash and fighters. Israel is concerned that Iran might try to find new ways to supply Hamas via Sudan.

Iran has asked for a naval base on Sudan's coast, according to the *Wall Street Journal*. Though the SAF says it demurred, it might accede to the request if it gets desperate. Arms-smuggling is already rife between Yemen, Somalia and Sudan. Sudan could give Iran another node in its network of proxies. American officials are concerned that the Houthis and al-Shabab, a jihadist group in Somalia, have been discussing co-operation. They would be all the more alarmed if Sudanese Islamist groups got involved as well.

The balance of power in the Red Sea could be altered in other ways. A Russian base would threaten Western interests and make it easier for Russia and Iran to co-operate. If the RSF were to defeat the SAF and seize Port Sudan, the Emirati client across the water would exacerbate tensions between the UAE and Saudi Arabia.

Even if none of this comes to pass, the messy collapse of Sudan would still be a huge risk to the Red Sea. "If Sudan becomes a failed state, then its instability no longer stops at the water's edge," argues Mr Hudson. Malik Agar, the number two in the SAF's junta, warns: "If Sudan collapses, the Horn of Africa collapses. It will be a great economic hindrance for Europe and America...Navigation will be impossible."

Then there are refugees. Though the vast majority of the 2.2m people to have fled Sudan are now in neighbouring countries, migration to Europe "is only going to pick up speed", says a European diplomat. In February dozens of Sudanese drowned when a boat carrying migrants from Tunisia to Italy capsized. Médecins Sans Frontières, a charity, says that at least 60% of the people in camps in Calais hoping to claim asylum in Britain are Sudanese.

Bandwidth exceeded

It is another of Sudan's misfortunes to disintegrate as the world is preoccupied by Ukraine and Gaza. America's attention is focused on those conflicts and on China; Africa, never a priority even in less busy times, has been sidelined even more over the past few years. Tom Perriello, America's special envoy to Sudan, was appointed only in February. He has yet to visit Sudan in his current role. The White House has been wary of upsetting the UAE because it needs Emirati support on Gaza. Britain and the EU have largely ignored the war. The UAE, for its part, feels that it has not suffered any consequences for breaking with American policy.

International law on atrocities, arms-smuggling and access to humanitarian aid has been repeatedly flouted. The UN secretary-general has used little of his convening power; the Security Council, which in the past might have sent peacekeepers to stop the killing, is paralysed by hostility between Russia and the West. It has outsourced diplomacy to regional bodies, such as the Intergovernmental Authority on Development (an eight-country trade block in the Horn) and the AU, which are riven by their own internal rivalries. "The failures of these institutions are on African political leaders and diplomats—arguably the most complacent elites in the world," says Ken Opalo, a Kenyan scholar.

Sudan, in short, is a grim reminder that the international order is on shaky ground. Often the deterioration of the rules that have governed international relations since the second world war seems modest—a blind eye turned to sanctions here, a trade agreement undermined there. But the collapse of a huge state at the crossroads of Africa and Asia, partly as a consequence of the West's lack of interest and the impunity of ascendant middle powers, is much starker. If a theme of the 2020s is a growing sense of international disorder, then Sudan is its most glaring instance yet. ■

United States

Bitcoin and electricity markets

Power hungry

ROCKDALE, TEXAS

Why Texas Republicans are souring on crypto

CRYPTOCURRENCY IS NOW campaign talk, thanks to Donald Trump. Last month, in their party platform, Republicans announced plans to bring an end to the "unAmerican crypto crackdown" and pledged to "defend the right to mine Bitcoin". At a bitcoin conference in Nashville days later, the biggest such get-together in the world, Mr Trump vowed to make America the "crypto capital of the planet".

Unlike most campaign promises this one ought to be easy to keep—because it is already true. After China banned bitcoin in 2021, crypto-miners went looking for refuge. In Texas they found everything they needed: cheap power, an abundance of land, low taxes and a libertarian ethos that matched their own. Three years on, America is home to more bitcoin mining than anywhere else, and Texas has more than most other states combined. But soon the Lone Star State could drive them out.

An hour's drive north of Austin, the state capital, Riot Platforms has converted the site of an abandoned aluminium-smelting plant into the world's biggest bitcoin mine. Seven steel buildings house 100,000 "miners", computers the size of a toaster that compete in a mathematical race to generate codes that award their owners bitcoin. Rows of miners are submerged in tanks of non-electrically-conductive oil to cool them. Dead crickets float on the surface, caught between tentacles of wires that feed the machines.

→ ALSO IN THIS SECTION

20 Texas's oldest motel

21 For-profit colleges

22 Mass deportation

23 Campaign calculus, Senate edition

— Lexington is away

Pierre Rochard, head of research at Riot, says it costs roughly $30,000 of electricity to mine one bitcoin and last year Riot mined nearly 7,000 (implying an annual cost of some $200m). And Riot is just getting going. The company is building a second plant in Corsicana, south of Dallas, that will be twice as big.

The ambitious plan belies a new growing-pain for the industry. This summer Texas's lawmakers—some of the most conservative in the nation—have started to show signs of turning against crypto. At a committee hearing in June, the Electric Reliability Council of Texas (ERCOT), the grid operator, warned that demand for energy could nearly double before 2030. An influx of people moving to Texas, harsher winter storms and hotter summers are already straining the grid and causing blackouts in cities, as Hurricane Beryl did in Houston in July. But an onslaught of new data centres, including ones for bitcoin mining and artificial intelligence, are expected to account for half the surge.

In response to ERCOT's caution Dan Patrick, the lieutenant-governor, criticised the mining industry for not creating enough jobs relative to the amount of energy it sucks. "It can't be the Wild Wild West of data centres and crypto miners crashing our grid and turning the lights off," he wrote on X. State senators wondered out ▸▸

loud how they could get miners to leave. "[There are] too many pigs at the table who just run out of food," said Donna Campbell, a Republican who represents seven counties in the Hill Country. "If they don't come with their own trough full of food, can we just say no?"

Just saying no to crypto would be an ideological swerve for Texas. When running for governor in 2014 Greg Abbott took campaign donations in bitcoin before it was cool. He has since fervently embraced miners. After Uri, the winter storm in 2021 that left 4.5m Texan households without power and killed nearly 300 people, he looked to crypto as a tool to make the grid more robust. Bringing more large loads on to the grid would incentivise power stations to produce more electricity and keep the cost of energy low, he reckoned. That year Mr Patrick created a working group to "develop a master plan for the expansion of the blockchain industry in Texas".

Around the same time many crypto miners, including Riot, signed contracts with energy suppliers that locked them into fixed rates for up to a decade. Several years later, that decision looks to have been a clever one on their part. Unlike steel factories or paper mills, bitcoin miners can temporarily shut down without harming supply chains (because, although they say bitcoin is "not just magic internet beans", there is no product that needs to get to market). That allows them to take advantage of two emergency schemes.

The art of the deal

On the hottest and coldest days, when demand for electricity peaks and the price rockets, the bitcoin miners either sell power back to providers at a profit or stop mining for a fee, paid by ERCOT. Doing so has become more lucrative than mining itself. In August of 2023 Riot collected $32m from curtailing mining and just $8.6m from selling bitcoin.

The Tech Transparency Project, a nonprofit organisation based in Washington, DC, accuses miners of acting as an energy-arbitrage business in disguise, holding Texas "hostage" and wasting taxpayer dollars. Their ties to China make them more dubious. But the industry is adamant that it is a stellar corporate citizen and critical to the grid's health. By acting as "dimmer switches", mines offer ERCOT flexibility at a price that no one else can match, says Lee Bratcher of the Texas Blockchain Council, an advocacy group. Riot reckons the industry is being unfairly targeted and that replacing mines with batteries would cost the state even more.

Yet a business that benefits financially from the state's crisis and has lobbied against power-market reforms may no longer be the governor's first choice to stabilise a grid facing mounting pressure. These days, assuring anxious Texans that their lights will stay on when the weather gets bad is a top priority, says Brian Korgel, head of the Energy Institute of the University of Texas at Austin. If Texans blame bitcoin miners, rightly or not, their leaders will too, he predicts.

Last year a bill to restrict the miners from taking part in the "demand-response" scheme passed in the Texas Senate but stalled in the House. Crypto insiders expect lawmakers to bring more such "bad bills" come January. Meanwhile Brian Morgenstern, Riot's head of public policy, says his team is "wearing out the leather on our shoes going office to office" to persuade politicians to let them stay. He believes that Mr Trump will bring a "sea change" if elected. After all, Mr Abbott is reportedly pining for a cabinet position, and Mr Patrick, the governor's second-in-command, is a known Trump yes-man. It is surely not in their interests to chase out Mr Trump's new favourite industry. ■

Rooms with a view

Over the Rainbow

ROCKDALE

What Texas's oldest motel reveals about the rural South

IT IS RARE for crickets to drone out pickup trucks. But off a country highway, Texas's oldest motel is anything but common. The grit of a typical roadside stop is replaced by an oasis that tells the story of a changing South.

Rainbow Courts "follows the history of the automobile", says Joan Ratliff, its owner. When her great-uncle Monroe Bullock bought land in Rockdale in 1918, cars were new. Since many models didn't have windscreens and roads were unpaved, holiday-goers would arrive in the boonies spattered in dirt. Mr Bullock reckoned they would rather drive up to the door of their room than track mud through the lobbies of the town's hotels.

He furnished some small cottages on a four-acre plot, planted irises between them and started renting rooms. By the mid-20s the place was touristy: a newspaper suggested driving past at dusk to see it lit up by a constellation of campfires. During the second world war it was majors and lieutenants whose names filled the guestbook. Tennessee Williams, a playwright, stayed one night.

In the 1950s Alcoa, an aluminium-smelting firm, moved in and Rockdale's population doubled to 5,000. Restaurants opened to entertain cosmopolitan executives and locals got good jobs at the plant. The motel boomed.

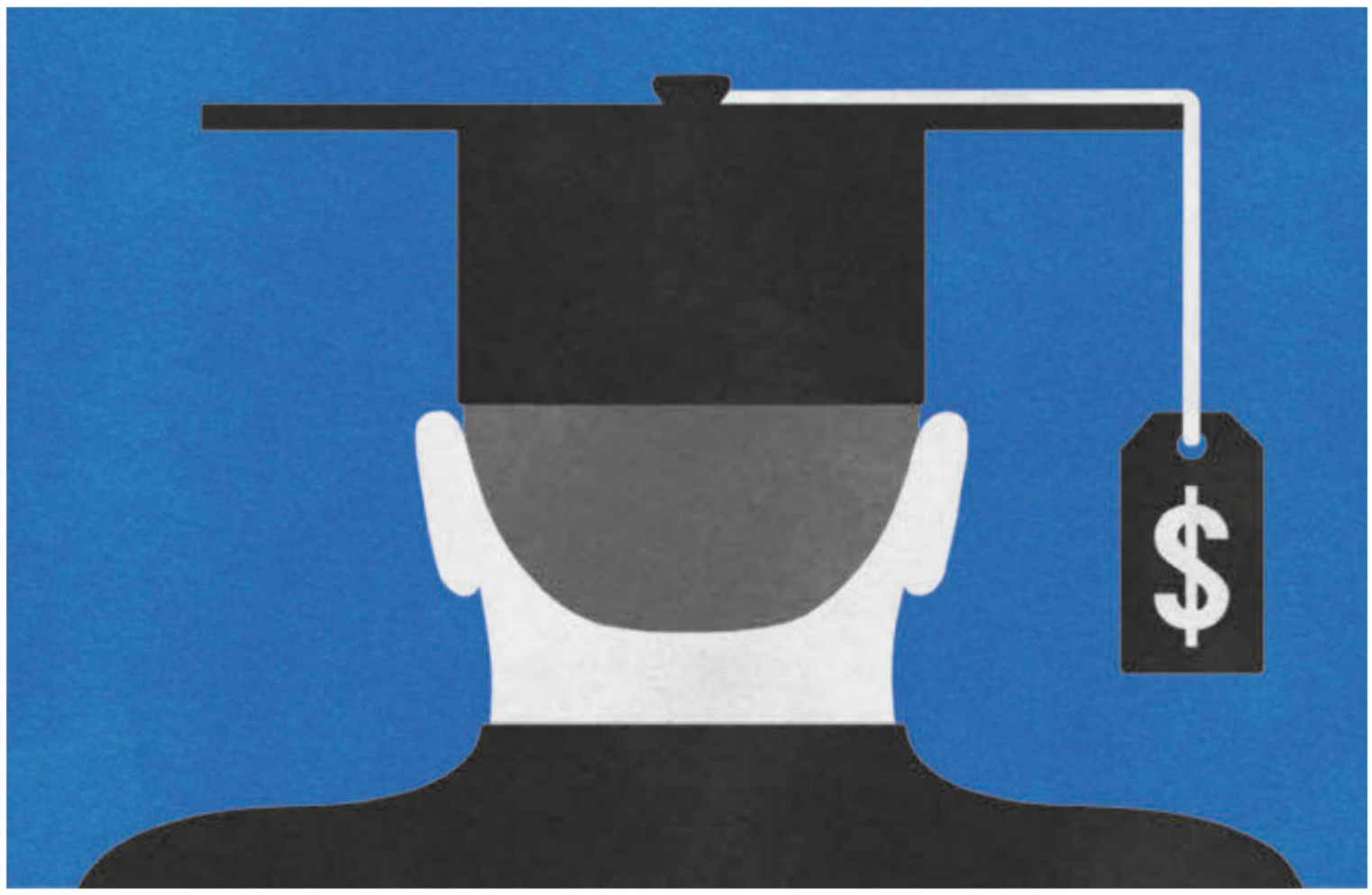
When the hippie movement captured the hearts of America's urbanites, Ms Ratliff's parents, the new owners, put in orange shag carpets and fake wall-panelling. Rates were cheap and though credit cards were hip, the motel took only cash. It became a druggie party joint and local teens sold sex to guests.

In 1992 Ms Ratliff moved back from a stint in the Midwest to run the business. Within a year she had straightened the place up and Alcoa's big shots came to stay. But when the plant closed in 2008 the town slumped into a depression.

These days travellers come for weddings and an annual rodeo. A bitcoin mine helped Rainbow Courts survive the pandemic and an article on the Thorndale Meat Market in *Texas Monthly* brings barbecue buffs to town for smoked sausage. Ms Ratliff, now in her 70s, is keen to sell the motel. She reckons business will only get better. Samsung is building a $17bn chip factory in Taylor, half an hour's drive down Highway 79.

Sitting in one of the cottages, Ms Ratliff recalls chasing the maids as a little girl. A Coca Cola machine, which broke just a few years ago, has sat by the check-in desk since the 1930s. She plans to take it with her. "They don't make appliances like that anymore," she says.

A night at the museum



Education as a business

180 degrees

WASHINGTON, DC

For-profit colleges would have very different futures under Trump or Harris

DONALD TRUMP and Kamala Harris are at odds on many policy issues, but one topic is particularly personal for both: for-profit colleges. Mr Trump once owned a for-profit college, predictably called Trump University. He agreed to pay $25m in 2016 to settle lawsuits brought by students alleging their *alma mater* had not taught them anything. Three years earlier, as California's attorney-general, Ms Harris went after a different for-profit college. She sued the now-defunct Corinthian Colleges for "predatory and unlawful practices" and won $1.2bn.

The outcome of the upcoming election could be consequential for for-profit institutions. Ms Harris would probably want to crack down, while Mr Trump would probably loosen the reins. Both would claim they were acting in the name of fairness.

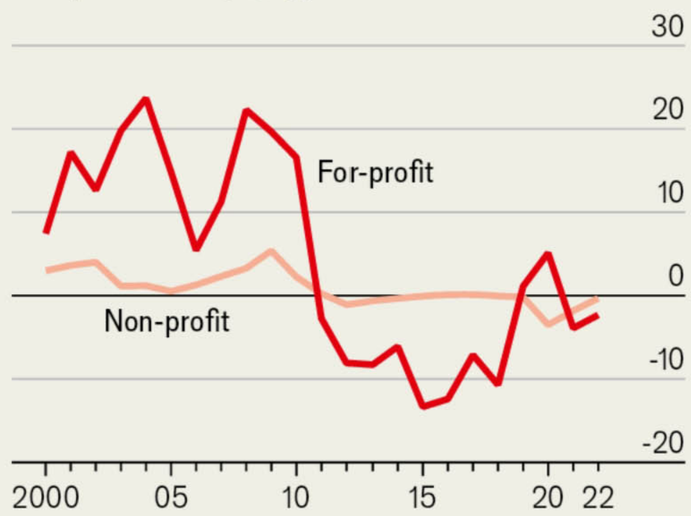
For-profit colleges have grown quickly, but their progress has not been steady (see chart). Enrolment tends to increase most during tough economic times. Between 2000 and 2010, for-profit college enrolment grew four-fold from 450,000 students to 2m. Interest also grew in 2020 during the pandemic. For all of the attention paid to them by politicians, for-profit colleges are small players in the postsecondary market. For-profits accounted for only $14bn in revenue from tuition and fees in 2021-2022 compared with $81bn from non-profit private institutions that same year.

For-profit colleges tend to receive outsize attention, and not of the positive kind. Many perform as expected, but the sector has been tarnished by scams. In 2018 the Century Foundation, a think-tank, studied federal-borrower defence claims, which allow federal-loan forgiveness for students who successfully prove that they have been defrauded. It found that 98% of successful applications were from students who attended for-profit institutions.

For-profit colleges rely on student tuition and fees more than other institutions. As such, "there's a big incentive [for for-profit institutions] to bring students in the door and enroll them," says Stephanie Riegg Cellini of George Washington University. "And there's not a big incentive on the backside to ensure that students have good outcomes." Compared with their non-profit peers, for-profit college graduates have higher loan-default rates and lower earnings and employment rates.

Profit and loss

United States, college enrolment, % change on a year earlier, by type of institution



Source: National Centre for Education Statistics

In 2014 Barack Obama's administration implemented the "gainful employment" rule to deal with these concerns. The regulation required for-profit colleges to prove the value of their degree or risk losing federal funding. This posed a threat to for-profit colleges, which get 70% of their revenues from Pell grants—federal aid for poor students. Data released by the Department of Education in 2017 showed that about one-tenth of programmes, nearly all of them at for-profit institutions, would have failed the test. Many of these programmes closed voluntarily. But then Mr Trump took office and reversed course. In 2019 his administration officially rescinded the "gainful employment" rule, which it argued unfairly punished for-profit colleges. Mr Trump also vetoed a bipartisan resolution that would have facilitated student-loan forgiveness for those who attended allegedly fraudulent colleges.

And then as quickly as they were taken away, the regulations returned with Joe Biden's election. Rather than merely reinstate the Obama-era rules, the Biden administration proposed new ones. The updated regulation cuts off federal funds to colleges that saddle students with debt they are unable to repay. A new provision also denies federal student aid to career programmes that demand more training than required by state law. This part of the rule was set to take effect on July 1st of this year, but a judge issued a temporary injunction in June.

Teachers for Trump

A Harris administration would continue in this vein. In addition to suing a for-profit college as attorney-general, Ms Harris has at various times pushed for student-loan forgiveness and free college for all. A second Trump administration would undo regulations on for-profit schools again.

Democrats want federal financial aid directed towards high-quality programmes, whereas Republicans want it to be spent in as many programmes as possible, says Dominique Baker of the University of Delaware. Both parties claim that they are doing what is best for students—Democrats by regulating predatory colleges and Republicans by expanding access to a wider range of options beyond the traditional four-year degree.

"The world has been stuck in an unfortunate, unproductive back-and-forth for the last few administrations without any creativity," says Daniel Currell, a former senior adviser in the Department of Education. Still, at least some educators will be rooting for Mr Trump. ■

Immigration

Return to sender

DALLAS

Donald Trump's dream of mass deportations is a fantasy

JUDGE CHRISTOPHER THIELEMANN already seems exhausted when he walks into his chambers. But his exasperation is not directed towards the lawyers, interpreter or immigrants seated before him. It's just another day at immigration court in downtown Dallas—and lately those days have been busy. Judge Thielemann says he currently has 23,000 cases pending. "I'm going to keep saying that out loud," he remarks, as if he can't believe it himself. Then his next deportation hearing begins.

During his campaign for president, Donald Trump has vowed to deport millions of irregular immigrants. Delegates at the Republican National Convention last month in Milwaukee waved "Mass deportation now!" signs. He portrays the policy as something he could achieve by sheer force of will. But the grinding pace of Judge Thielemann's courtroom in Dallas is just one example of the ways in which carrying out mass deportations would be harder than Mr Trump allows. In practice, such an effort would be stymied by legal, logistical and political obstacles.

Mr Trump has talked about mass deportations since 2015. Even during his first run for president he spoke approvingly of "Operation Wetback", the Eisenhower administration's aggressive campaign in the 1950s that resulted in the return of seasonal farmworkers to Mexico. Mr Trump has not said how many people he wants to deport. The Migration Policy Institute, a think-tank, reckons there were 11.3m unauthorised immigrants living in America in 2022. The former president sometimes suggests he would like to get rid of them all. J.D. Vance, a senator for Ohio and Mr Trump's running-mate, recently said they should "start with 1m...and go from there".

Yet even removing 1m immigrants in one year is wildly ambitious. Deportations are a combination of "removals", when a migrant is ordered to leave, and "returns", when they voluntarily agree to leave. In the 1990s and early 2000s most migrants were Mexicans who could be returned relatively easily. Fewer migrants trekked north during the global financial crisis, beginning in 2007, and returns plummeted (see chart).

Expelliarmus

Removals increased under Barack Obama, who was dubbed the "deporter-in-chief". But the most Mr Obama removed in one year was fewer than 400,000 people, less than half what Mr Vance is suggesting. At first glance, President Joe Biden may look like the recent deporter-in-chief, but that is only because Title 42, a public-health measure, allowed him to expel border-crossers quickly during the pandemic. Often those expelled just tried to cross again.

It is now common for migrants crossing America's southern border to try to claim asylum, a lengthy process adjudicated in the country's immigration courts. As of July, there were 3.7m cases pending. While a migrant's case is being considered they cannot be deported. If their claim is denied they can appeal. Recently arrived illicit migrants who don't claim asylum can be deported quickly without a hearing through a process called "expedited removal". Mr Trump could try to expand that policy to migrants who have been in the country longer and live far from the border, as he attempted to do during his first term, though he would face legal challenges.

If Mr Trump cannot find his millions to deport near the border, he may try to round up migrants who have been deported previously and returned to America, or have been ordered to go but have not yet left. Records from Immigration and Customs Enforcement (ICE), the agency that carries out removals, suggest that there were 1.3m people in 2023 awaiting deportation. Some of them are monitored by ICE, but many are not. Finding and deporting those people would require cash from Congress to hire and train more ICE agents, build more detention centres and operate more deportation flights. "The issue has never been a willingness to enforce the law," says John Sandweg, a former acting head of ICE under Mr Obama. "It's a resource issue." That is despite ballooning spending on immigration enforcement. Together, the annual budgets of ICE and Customs and Border Protection grew by 78%, to nearly $30bn, in the decade to 2023.

A visit to the Prairieland detention centre south of Dallas reveals why such facilities can't be built quickly. Barbed wire abounds. Rooms are set up with video conferencing so detainees can meet their lawyers and attend virtual court. To enter any room, staff must push a button that signals to some unseen watchman to unlock the heavy-looking doors. A woman scared to be seen by a doctor screams for several minutes before staff can calm her. Stephen Miller, the architect of Mr Trump's restrictionist immigration policy during his first term, has suggested setting up detention camps on open land in Texas. It's hard to imagine that a camp in the Texas hinterlands would have the infrastructure needed to respond to security challenges or safeguard the well-being of its detainees.

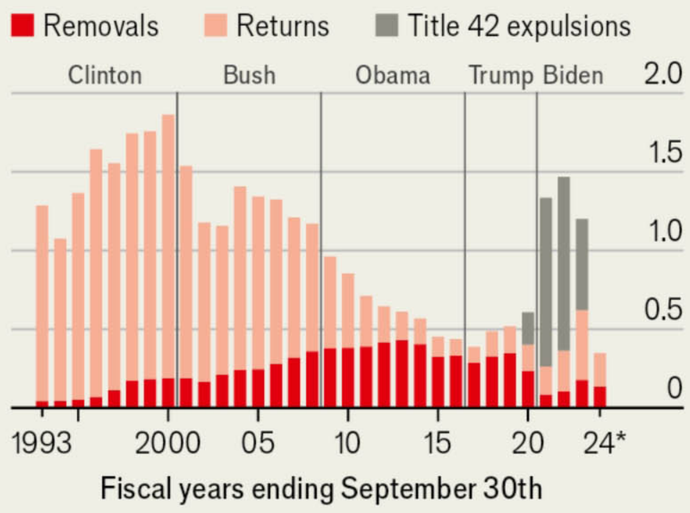
The final hurdles Mr Trump would face are political. Persuading countries to take back their citizens requires a diplomatic touch. Mr Biden has had some success here. Deportation flights to Venezuela resumed last year when America, briefly, lifted sanctions. They have since stopped. The first large flight to China since 2018 took off this year. Mr Trump's tendency to act more like an insurgent than a diplomat may undermine his stated aims.

Domestic politics also matters. Mr Trump might decide to focus on unlawful

Next year's project

Homeward, bound

United States, repatriation of unauthorised migrants, m



Source: Migrant Policy Institute *To February 29th

migrants who are already incarcerated. When Mr Obama was in office he prioritised the deportations of convicted criminals using "Secure Communities", a programme that helps identify the immigration status of those in custody. ICE can request that a local jail detain an immigrant. But not all states and cities comply. An unofficial tally from the Centre for Immigration Studies, which advocates lower immigration, suggests that 13 states and more than 200 cities and counties have some kind of "sanctuary" law on the books that restricts co-operation with ICE.

Consider two states home to large numbers of irregular immigrants: Texas and Illinois. Greg Abbott, Texas's Republican governor, would probably be a willing partner in federal immigration enforcement. ICE's Dallas field office has arrested more illicit migrants this year than any other. The deputy field-office director attributes this, in part, to politics. Meanwhile, Illinois passed a law in 2021 that blocked local jails from detaining people for ICE. If Mr Trump wins the election in November, blue states may pass more sanctuary laws to pre-empt any attempt at mass deportations. The result would be a deportation campaign enforced unequally across the country, depending on the politics of each place.

To get around the lack of ICE agents the former president has suggested that he would use the National Guard. A Reconstruction-era law prohibits the military from taking part in civilian law enforcement. There are some ways the National Guard might still be used, but the president cannot, for example, suggest that a Republican governor send troops to a Democratic state to round up immigrants. "The 800-pound gorilla in the room is the Insurrection Act," says Joseph Nunn of the Brennan Centre, a think-tank. The law, which has been invoked 30 times, allows the president to use the military as a police force. Mr Trump's dream of deporting millions is far-fetched. But even botched attempts to do it could breed chaos. ■

Campaign calculus

A Montana to climb

WASHINGTON, DC

To hold the Senate, Democrats must overcome the largest partisan gap since 1978

AMID THE congratulatory messages for Kamala Harris, there has been one notable absence. Jon Tester, the longtime Democratic senator from Montana running for re-election, has declined to endorse his party's standard-bearer. Currently down by an average of one point in the polls against his Republican opponent Tim Sheehy, a former Navy SEAL, Mr Tester told local newspapers that he did not want to nationalise his race. "This isn't about national politics, this is about Montana," he declared.

Democrats aren't complaining about this strategy. Mr Tester has won his past three Senate races in a very Republican state by an average of just 2.7 points. And this year Democrats' hopes of keeping the Senate hinge on Mr Tester eking out another victory. In addition to the race in Montana, Democrats are defending Senate seats in six other states: Arizona, Michigan, Nevada, Ohio, Pennsylvania and Wisconsin. To retain control of the Senate, Democrats will need to win all six of those races plus Montana and the presidency, or flip seats in other Republican states like Florida and Texas.

Democrats must do battle in such unfavourable terrain because the Senate is heavily skewed against them. In every presidential election since 1980, Republicans have tended to win rural states that receive the same representation as more populous, urban states where Democrats do well. This year the Senate's Republican bias is compounded by the fact that a disproportionate number of Republican-leaning but Democratic-held states will elect senators. If Democrats are to end up with 50 seats this year, they will have to win at least one state where in 2020 Republicans led by at least ten points more than the national average (see chart). That would go against a pattern that has held since at least 1978.

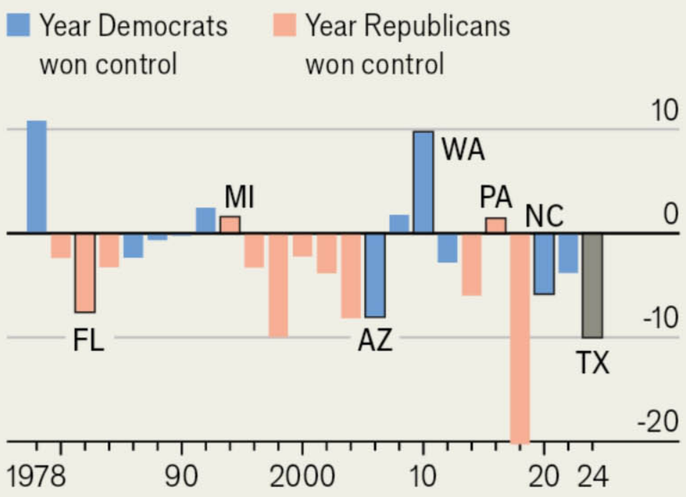
The best hope for Democrats therefore lies in Senate candidates who can run ahead of the presidential ticket. So far, encouraging polls for Democratic candidates suggest this might be the case in some races. When pollsters have asked voters about their Senate and presidential preferences in the same survey, the Democratic Senate candidate's margin has been about three percentage points better than Ms Harris's (excluding Maine, where independent incumbent Angus King is running for re-election). In states where the Democratic candidate is an incumbent, this number swells to nine points.

In some races Republicans have themselves to blame for their poor numbers. In the 2022 midterm elections they failed to gain seats despite a favourable Senate map and national environment. MAGA Republicans lost close races in swing states like Pennsylvania, Arizona and Georgia. This year Arizona Republicans appear poised to repeat this mistake in the state's Senate race by nominating Kari Lake, who is running against Democrat Ruben Gallego, a former US marine. Ms Lake lost her gubernatorial race in the state in 2022 by 0.7 points while her colleagues in Arizona's House races won by 13 points. Mr Gallego is now polling six points ahead of her, and two better than Ms Harris.

The last two Senate elections held on the same day as the presidential election featured historically low levels of split-ticket voting, where people vote for a presidential candidate from one party and a congressional candidate from another. There is now only one senator—Susan Collins of Maine—who can claim to have been elected on the same day that her state voted for the opposing party's presidential nominee. In the unlikely scenario that Democrats hold the Senate this year, Ms Collins would probably be joined by at least one more senator who can boast the same.

Troughs, mostly

US Senate, Democratic lean in preceding presidential election of pivotal state*, % points



Source: MIT Election Lab *Hardest state Democrats need to win to reach 50 seats

The Americas

Canada

The Conservative uplift

OTTAWA

Pierre Poilievre has built an unlikely but powerful coalition of voters

"HOW IS MY life better?" demands Kareem Lewis, a 32-year-old Canadian software engineer, after almost a decade of Liberal government. "Real wages are flat. The cost of rent as a proportion of your income has increased," he says. And forget about buying a house. Fed up, he has moved to New York. Always a Liberal backer, he will vote Conservative in the election due next year. Pierre Poilievre, the Conservative leader, is attracting other unlikely voters, too. He has spent much of the summer in factories from British Columbia to Newfoundland, surrounded by employees in hard hats and safety glasses, to cement his lead among working-class voters.

When Mr Poilievre won the leadership of the party in September 2022, the Conservatives were tied with the Liberals, led by Justin Trudeau, the prime minister. Today the Conservatives have a 17-point lead (see chart on next page). The party has not polled this well since 1988. Many of Mr Poilievre's plans are still foggy, but he has built his popularity on a pair of issues that bother swathes of the electorate: inflation and a drum-tight housing market strained by millions of immigrants. He couples this with a well-honed pitch to young voters and relentless hard-hat-heavy signals that he feels for working people's troubles. That Mr Trudeau has a net personal approval rating of minus 35 helps, too.

The 45-year-old Mr Poilievre can seem beset by contradictions. He has never held a full-time job outside politics, yet he rails against political insiders. Despite leading the traditional party of business, he did not criticise rail workers for a recent strike that threatened to disrupt the supply of goods across North America. Though he shares Donald Trump's bombastic style and scorn for the mainstream media, unlike Mr Trump he strongly backs Ukraine and vows never to restrict access to abortion. That these tensions seem to help him testifies to his political skill and to his credibility on the two big issues.

The first is inflation. Ahead of other Canadian political leaders, he identified the despair of younger Canadians and the frustrations of working-class voters during the sudden bust of the pandemic and the inflation-fuelled property boom that followed. That put him at odds with the governor of the Bank of Canada, Tiff Macklem, who suggested that inflation was transitory. When Mr Poilievre's prediction of prolonged high inflation proved right, he pushed for Mr Macklem's sacking.

His second strong card is over immigration and housing. More than 471,000 permanent residents were admitted to Canada in 2023, the highest annual increase in the country's history. Add to this the roughly one million student visas issued last year and an even larger number of temporary work permits granted. All of this strains public services and Canada's housing market, both big worries for voters.

In Europe some right-wing parties have drifted into immigrant-bashing. Mr Trump still boasts of his "Muslim ban". Mr Poilievre, whose wife was born in Venezuela, is careful to avoid alienating voters in the politically crucial multiracial suburbs of ▸▸

→ ALSO IN THIS SECTION

25 Nicolás Maduro clings on

26 Mexico's constitution

Toronto. Instead he frames the issue as a numbers game. He says he will tie the number of newcomers to the rate of new homes built each year. Last year some 240,000 homes went up, so his policy would mean a sharp cut in immigration. The plan polls so well that even Mr Trudeau has put in a new minister for immigration—and has vowed to cut it.

To help increase the supply of housing Mr Poilievre would reward cities with federal money if they build more homes. Fail to increase permits for home building by at least 15% and they would lose grants. Federal money for public transport would depend on building high-density housing near stations. His plan has been panned as unworkable by federal bureaucrats for failing to take renters into account, according to documents obtained by the *Toronto Star*, a newspaper. Mr Poilievre has a ready retort: incompetent bureaucratic "gatekeepers" in big cities are preventing younger Canadians from owning their own homes.

Thanks in large part to this issue, the Conservatives now lead by 15 percentage points among voters aged 18 to 35, a sharp reversal of traditional patterns. That lead opened up once Mr Poilievre began to attack Mr Trudeau over the 66% rise in house prices since the Liberals were elected in 2015. That year there was an unprecedented increase in first-time voters. Many were attracted to Mr Trudeau's promise to legalise marijuana use and to bring down carbon emissions. Young voters now care a lot more about moving out of their parents' basements and eventually buying a home. "Home ownership just seems so unreachable," laments Justin Lee, a 25-year-old also switching from Liberal to Conservative.

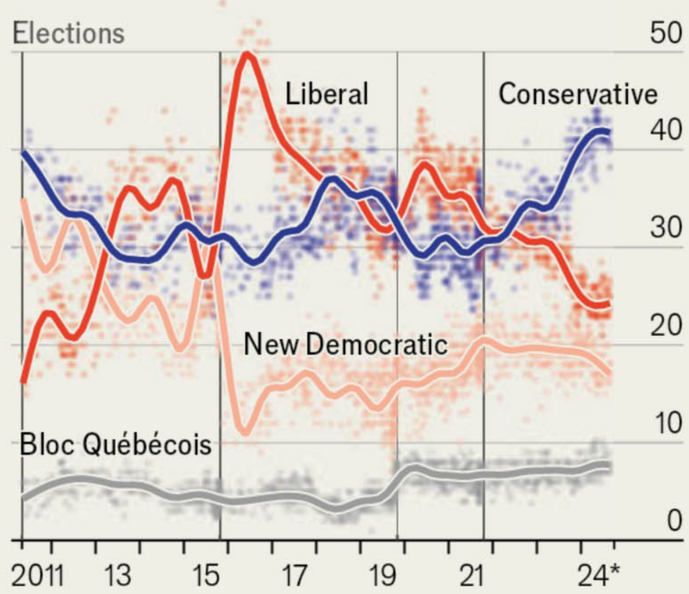
Mr Poilievre has aggressively courted working-class voters. He still recites some of the priorities of a corporate conservative, offering broad-based tax relief including tax cuts for big business, without clarifying how these will be paid for. He has also vowed to scrap the carbon tax, currently C$80 ($59) per tonne. And he says he will make it easier to exploit Canada's vast oil and gas resources. Yet he told a blue-chip audience of bosses earlier this year that he is not interested in meeting them for lunch at plush private clubs and would rather talk to workers on factory floors. His "daily obsession" as prime minister would be, he said, "about what is good for the working class of people in this country". He would ban his ministers from attending the elite gabfests in the Swiss resort of Davos. Pin-striped Tories, with nowhere else to go, are sticking with him.

But he not only offers selfies among hard hats. Earlier this year he supported legislation that bans strike-hit companies from taking on replacement workers. That is a big change for a man who in 2012 proposed ending the compulsory collection of union dues from non-members in unionised workplaces. Bea Bruske, head of the Canadian Labour Congress, a big union, points out that Mr Poilievre has never walked a picket line and calls him a "fraud". But her members seem to differ. A survey of private-union members by Abacus Data, a pollster, suggests that 43% back the Conservatives compared with 24% for the Liberals. "The centre of Conservative gravity is no longer the entrepreneur," says Sean Speer, a policy adviser to the last Conservative government. "It's the wage earner."

A general election is not expected for about a year. Much disdain for the Liberals is tied to Mr Trudeau, stoking rumours he could step aside. Some hope that Mark Carney, a former governor of the Bank of England, might replace him. Interest-rate cuts and a dramatic economic recovery could yet help the Liberals. But if Mr Poilievre can keep his unlikely coalition together for another year, a thumping victory will surely be his. ■

We see thee rise

Canada, voting intention in general election, %
Selected parties



Source: National polls *To Aug 19th

Venezuela

Doubling down

CARACAS

Nicolás Maduro's inner circle is a big barrier to negotiations

ONE MONTH after President Nicolás Maduro brazenly stole an election, the consequences still reverberate across Venezuela and the region. Border posts with Brazil teem with people desperate to leave. Inside the country thousands who protested have been targeted by a regime that is now openly hunting down its critics, even as all the major democracies in the region have either rejected the result or called for an impartial audit.

That will never happen. Everyone knows the clear winner of the election was Edmundo González, a former diplomat and the stand-in for the popular opposition leader María Corina Machado, who was banned from running. The indelible evidence of his victory is the paper receipts from more than 25,000 voting machines, four-fifths of the total, which the opposition obtained and published online. These show Mr González won 67% of the vote, to Mr Maduro's 30%. The regime tried to make its victory look legitimate by asking the Supreme Court, which it controls, to validate it. State television broadcast masked officials opening election boxes and perusing supposed vote receipts. On August 22nd the pantomime concluded with the court endorsing as "definitive" the original official result, which gave a comfortable victory to Mr Maduro.

In all probability he will begin his third six-year term on January 10th. Assuming he does, he will rule as a dictator. The brutal tactics used in the past month are a bitter foretaste. More than 2,400 people were arrested in the 16 days after the vote, according to the government. Some 24 were killed in the demonstrations, mostly by gunfire, reported Provea, a rights group. Rather than express regret, the regime has labelled its opponents and the journalists and poll workers it is locking up as "terrorists" and "fascists". Mr González himself may face imprisonment. The attorney-general is investigating him for "usurpation" among other things. The former diplomat remains in hiding.

A regional diplomatic push for the regime to compromise with the opposition is making little headway. Diplomats need to convince not just Mr Maduro but also his closest confidants, who were given yet more power in a reshuffle on August 27th. They are deeply implicated in the regime's crimes but some are even less likely to end up with amnesty than Mr Maduro is, making compromise less appealing.

Aside from his wife and his son, Mr Maduro's inner circle is made up of four people. All are under sanctions from the United States government. Vladimir Padrino López, the defence minister who commands the army, could in theory force the president to step down. But he is a diehard loyalist, in part because he is understood to benefit from a web of companies and ▸▸

properties both in and outside Venezuela. He has been indicted by American prosecutors for drug-trafficking. The Venezuelan government denies all the charges against him and other senior figures.

The other military man is Diosdado Cabello, an army captain who is vice-president of the ruling party and has just been promoted to interior minister. He is alleged to be one of the richest and most powerful men in the country, lording over a network of military and civilian contacts which he first developed as a close ally of the late president, Hugo Chávez. The United States government has offered $10m for information leading to his arrest in relation to allegations of drug-trafficking and narco-terrorism.

The head of the national assembly, Jorge Rodríguez, and his sister, Delcy Rodríguez, the vice-president who was recently also made oil minister, complete the inner cabinet. Their father was a Marxist who died in 1976 after being tortured by security men. Mr Rodríguez has previously led talks with the opposition and the United States. He also serves as the government's chief propagandist, recently promoting the lie that the opposition-collated electoral tallies were forgeries.

Ms Rodríguez, who studied in Paris in her 20s, has been presented as the acceptable face of the regime to foreign governments and even mooted as a possible presidential candidate. Before the election, diplomats in Caracas, the capital, would ponder how both she and her brother, who seemed so intransigent on television, were so charming and reasonable in person. The limits to that charm are now clear. They, and other close allies, have shown themselves prepared to defy the will of the people and let Venezuela suffer—because it suits them. ■

Still droning on

Mexico's constitution

A dangerous last blast

MEXICO CITY

The outgoing president will use his final month in power to reshape Mexico

MOST MEXICAN presidents would be a lame duck in their last month in power. But not Andrés Manuel López Obrador. After newly elected congressmen and women take their seats on September 1st, a month before president-elect Claudia Sheinbaum takes office, Mr López Obrador will take advantage. His ruling party Morena and its allies will be so dominant he will almost certainly be able to pass a constitutional reform of the judiciary.

That threatens the country's democracy and economy. Under the reform, all federal judges would be fired and replaced by popular vote, supplanting a system of professional exams and, in the case of the Supreme Court and electoral courts, a nomination process. Members of a new disciplinary tribunal, with powers to punish judges, would also be elected. It is taking "a guillotine" to the judiciary, says Julio Ríos of ITAM, a university in Mexico City.

This would give Morena, and any future dominant party, immense sway over the courts. It further opens up the legal system to undue influence, corruption and interference by criminal gangs. Many fret that the quality of judges will fall: the reform cuts their salaries and reduces the required qualifications to a law degree with a solid grade. The judicial elections would be held next year and in 2027.

Mexico's justice system does need an overhaul. Fully 90% of crimes go unreported, and few of those that are reported lead to convictions. It is true, as Mr López Obrador says, that access to justice is poor and some judges are corrupt. But the proposed reform does not tackle these problems. Indeed, it may make them worse. It does not mention prosecutors, who are widely recognised as the weakest part of the system. And it would make Mexico a global outlier. Few countries elect federal judges—only Bolivia elects its Supreme Court—and most that do struggle to retain judicial independence. Instead, the overhaul is typical of the outgoing president: throwing the baby out with the bathwater. Even Morena lawmakers struggle to justify it. Morena's party leader called passing the reform "a present" for the president.

The reaction has been vociferous. The judiciary is on strike. Business associations in the United States and Mexico have warned against the dangers. So has the American ambassador to Mexico, who has hitherto tiptoed around Mr López Obrador. Markets are rattled. Morgan Stanley, a bank, downgraded Mexican shares to "underweight". A *Wall Street Journal* columnist suggested people sell the peso. The reform may violate the USMCA, the free-trade agreement between Mexico, the United States and Canada.

It is not just the judiciary that is at risk. Mr López Obrador seems intent on pushing through many of the other 17 constitutional amendments he introduced in February, when he lacked the votes to get them passed. The most worrying are those concerning Mexico's institutions: putting the National Guard under the defence ministry (which the Supreme Court ruled unconstitutional); eliminating autonomous agencies such as the transparency body and the energy regulator; and banning the state electricity company from partnering with private businesses.

Mr López Obrador is unlikely to change course. He prefers to "pause" the relationship with the United States embassy rather than soften the overhaul. He wants to consolidate his "fourth transformation" of Mexico, which is "about getting rid of the old elite or any institution they could come to dominate again", says Pamela Starr of the University of Southern California. Mr López Obrador also holds a grudge. His rancour towards the judiciary dates back to 2006, when the electoral courts ruled that his opponent had won a presidential election that he, without evidence, claimed was fraudulent. It has grown since the Supreme Court struck down some of his signature policies.

Ms Sheinbaum, the president's mentee and successor, is fully behind the fourth transformation. Like Mr López Obrador, she appears to think democracy merely requires elections, with the winner ruling to benefit the majority, rather than needing other institutions and procedures, says Ms Starr. Yet Ms Sheinbaum at first appeared to have reservations about judges being elected by popular vote, before offering a full-throated endorsement. She may be able to make some tweaks in subsequent legislation—for example, on who can run for election. But her inability or unwillingness to put the brakes on her mentor is worrying democrats.

The fallout she will inherit could be particularly painful for the economy. The upheaval and uncertainty are putting off investors. The country needs them to quickly spur growth and finance the fiscal deficit, which is running at over 5% of GDP, the highest rate since the 1980s. Ms Sheinbaum has been trying to court investors, aware that Mexico needs to take advantage of a brief window to attract companies looking to relocate closer to the United States. She has told onlookers that they have "nothing to worry about". But they do—and so does she. ■

Asia

Modi v the RSS

Fraying saffron

DELHI

India's prime minister faces a new threat: his Hindu-nationalist patrons

NARENDRA MODI, India's prime minister, likes to do yoga to relieve stress. He might have had to do some extra *asanas* following India's general election result in June. With his Bharatiya Janata Party (BJP) now bereft of its majority in parliament, he has had to cut deals with coalition partners to remain in power. To appease young voters frustrated by under-employment, he has hurriedly recalibrated his budget to boost spending on job creation. And he recently suffered a big foreign-policy setback with the ouster of Sheikh Hasina, a close ally, as prime minister of Bangladesh.

If that was not enough to unbalance his *chakra*, Mr Modi is also grappling with an unusually public rift between his party and the Rashtriya Swayamsevak Sangh (RSS), the Hindu-nationalist organisation from which it grew. After weeks of testy exchanges, the two sides held talks on August 11th to repair relations ahead of an annual RSS conclave in Kerala between August 31st and September 2nd. The agenda for that meeting is expected to include the general election result, attacks on the Hindu minority in Bangladesh and, perhaps most importantly for Mr Modi, the future leadership of the BJP.

The first clear sign of a schism emerged in May when J.P. Nadda, the BJP's president, suggested in an interview that his party, which was founded in 1980, no longer needed the help of the RSS, which celebrates its centenary next year, in elections. "In the beginning, we would have been less capable, smaller and needed the RSS," he told the *Indian Express*, a newspaper. "Today, we have grown and we are capable. The BJP runs itself."

His remarks touched a nerve with the leaders of the RSS, who see themselves as custodians of the Hindu-nationalist, or Hindutva, movement. The organisation claims not to engage directly in politics: it focuses on promoting ideology through 73,000 cells, or *shakhas*, which meet daily for communal exercises, songs and discussion, often on nationalist themes. But it set up an affiliated political party after briefly being banned following the assassination in 1948 of Mahatma Gandhi, the independence leader, by a former RSS member. That party became the BJP.

For most of the years since, the two organisations have worked closely together. Most BJP leaders—including Mr Modi and Amit Shah, his closest associate, home minister and electoral strategist—started as RSS volunteers. Indeed RSS officials are seconded to senior BJP posts and, under Mr Modi, people associated with the group have taken leading roles in educational and cultural institutions. Lately, however, the balance of power in the Hindutva movement has shifted towards Mr Modi and Mr Shah as they have become increasingly unreceptive to advice or criticism.

The election result gave Mohan Bhagwat, the 73-year-old RSS chief, a chance to strike back. Addressing a gathering of members six days later, he said that a true public servant never displayed arrogance. He called for urgent action to stabilise the north-eastern state of Manipur, where Mr Modi's government has struggled to quell ▸▸

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months of deadly unrest. And he said that "decorum was not kept" in the heated rhetoric of the election campaign.

Two other senior RSS figures weighed in the following week. Ratan Sharda, a veteran writing in the organisation's magazine, criticised the BJP's election strategy. He accused it of "not listening to the voices on the streets". Indresh Kumar, a senior RSS official, then suggested in a speech that Lord Ram, a Hindu deity, had punished the BJP for its arrogance by limiting it to 240 parliament seats. The organisation's student wing took its frustration to the streets later in June when it joined opposition protests against a government-run national examination body, following widespread corruption allegations.

This is not the first spat between the BJP and its ideological mothership. As India's first BJP prime minister in the early 2000s, Atal Bihari Vajpayee clashed repeatedly with RSS leaders over ministerial appointments, coalition management and foreign policy. Still, this appears to be the worst rupture since then. And repairing it will be an urgent priority for Mr Modi.

One reason is that he needs the help of the Hindu-nationalist foot soldiers when campaigning for four regional elections in the coming months: in the states of Haryana, Maharashtra, Jharkhand and in the union territory of Jammu & Kashmir. The BJP is expecting a tough battle to retain control of Maharashtra and Haryana. The newly energised opposition is also likely to mount a challenge for the poll in Jammu & Kashmir, which is the first since Mr Modi scrapped the Muslim-majority region's semi-autonomous status in 2019.

A second factor is that the RSS is likely to reassert its influence in selecting a replacement for Mr Nadda, whose term ended in June. Although power within the party still resides predominantly with the prime minister, the BJP's president is technically its leader. One frontrunner is the current BJP general secretary, Sunil Bansal. Smriti Irani, who just lost her parliament seat, could also become the first woman to lead the party. But a delay in the appointment suggests a lack of consensus.

Third, the RSS could complicate Mr Modi's plans to choose a like-minded successor. His preference, and the favourite in opinion polls, is thought to be Mr Shah. But the candidate closest to the RSS is Nitin Gadkari, the roads minister, whose relations with Mr Modi have been rocky. Mr Modi, who is 73, is expected to serve a full five-year term. He could even stand again in 2029. Still, he needs RSS backing to do either. And it could try to clip his wings by pressing him to appoint one of its loyalists as deputy prime minister.

Leaders of the RSS have played down the discord. Some observers think it is overblown too. Yet Mr Modi's government made a significant concession to the organisation in July when it lifted a 58-year-old ban on civil servants being members of it. That will give it far greater influence in the bureaucracy. Mr Bhagwat's security detail has also been upgraded to the same status as Mr Modi's and Mr Shah's.

And there are signs that the RSS and its affiliates are carving out a bigger role in shaping government policy. For example, before releasing the government's budget on July 23rd, Nirmala Sitharaman, the finance minister, consulted economists including a leader of the Swadeshi Jagran Manch, the economic wing of the RSS. It criticised last year's budget but praised this year's, which incorporated some of its proposals to support smaller businesses. Ms Sitharaman also conferred with other RSS affiliates, including its labour union and farmers' body, which have been critical of recent government policies.

The RSS has reason not to prolong the friction. While frustrated by Mr Modi, it wants him in power for now and worries that further electoral setbacks could harm the Hindu-nationalist movement. But if tensions flare anew or the BJP fails in the coming state polls, the RSS might well flex its muscles again. In politics, as in yoga, Mr Modi should watch his back. ■

Migration

Visa lottery

SINGAPORE

Rich parts of Asia are finally attracting migrant workers

FOR A LESSON on how complaining gets results, look to South Korea. Economists have long warned the country's shrinking working-age population would create a shortfall, but few have moaned about it as assiduously as the business lobby. Finally, their pressure has yielded results. Last year the quota for E-9 visas, which cover "non-professional" workers, was 120,000, by a wide margin the most ever (see chart). This year the E-9 quota will rise to 165,000. The total stock of migrant labour increased by 9% in 2023.

This is good news for South Korea. Between 2016 and 2022 its population of foreign labourers stagnated, even as labour shortages grew increasingly severe. Low visa quotas and tough eligibility conditions were only the beginning. Workers who did manage to enter the country had few routes to permanent residency and faced limits on bringing in family members.

Belatedly and slowly, barriers are coming down. A new scheme announced in February will let the parents of international students there perform seasonal work in labour-starved rural areas. And more transient workers are being encouraged to stay. In the 2010s only 400 workers per year were allowed to go from a temporary E-9 visa to an indefinitely renewable E-7-4 visa, notes Jonathan Chaloff, a migration specialist at the OECD, a club of mostly rich countries. The cap was raised in 2022 to 2,000, and this year South Korea will let up to 35,000 non-professional migrant workers stay.

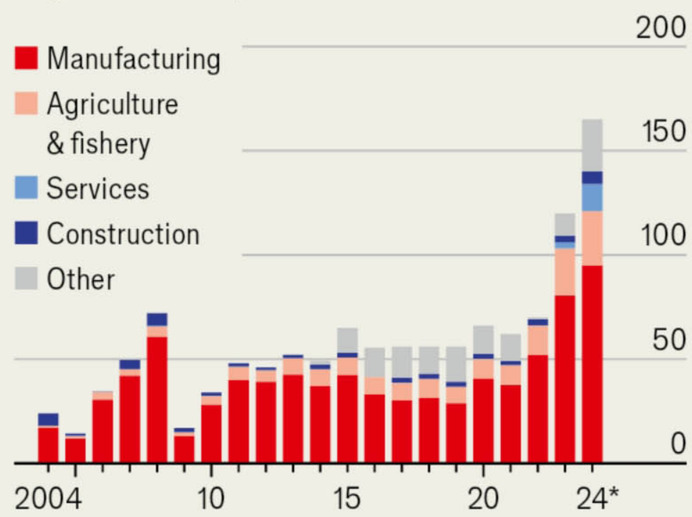
It is part of a trend. Last year the stock of migrant labour hit record highs in Japan, Taiwan and Singapore. Japan's 2m foreign workers in 2023, a 12% rise from the year before, was nearly triple the number a decade ago. Singapore and Taiwan's foreign workforces are now 7% and 11% bigger than in 2019, respectively. A Taiwanese scheme that came into force in 2022 lets mid-skill migrants with significant work experience become residents. Singapore is loosening limits on low- and mid-skill visas for jobs aligned with the country's "strategic economic priorities". Singapore shares this aim with Japan, which in 2019 launched a programme for letting in "specified skilled workers" in industries afflicted by shortages, such as nursing.

Big differences remain. Immigration is politically contentious in parts of Asia. Many in Japan and South Korea still prize homogeneity. By contrast Singapore is a proudly multi-ethnic society. In Taiwan the president has avowed the need to protect its "multicultural heritage". These differences are visible in labour-market data. The foreign workforce's share in South Korea and Japan, at 3% of each of their total labour forces, is much smaller than in Taiwan (at 7%) or Singapore (at 39%).

Is the recent momentum grounds for hope? The scale of the problem is daunting. To stabilise long-run growth, South Korea must raise the foreign share of its workforce to 15% over the next four decades, argues Michael Clemens, an economist, in a recent paper. Our back-of-the-envelope calculations suggest the foreign ▸▸

It's a start

South Korea, visa quotas for non-professional migrant workers, '000



Sources: OECD; Korean Ministry of Justice *Provisional

workforce would have to expand around 4% a year for 40 years to meet Mr Clemens's mark. This will be hard, but there is room for hope: it grew 3.3% annually over the past decade, due to strong growth in the 2010s. A state think-tank in Japan reckons it needs an additional 2.1m foreign workers by 2030. That implies an 11% annual expansion, in line with the rate Japan achieved in the past decade.

But this numerical exercise understates how hard sustaining high inflows of people will be. As rich Asia competes for workers, they may become harder to attract. Many migrant workers' countries of origin, including Indonesia and China, are themselves ageing. And an anti-immigrant backlash could increase. Indeed, a recent Taiwanese plan to bring in more Indian workers sparked demonstrations. ■

Indonesia

The King of Java

SINGAPORE

President Jokowi is making a power grab

IT WAS THE kind of move that Suharto, a strongman who ruled Indonesia with an iron fist from 1967 to 1998, would have admired. Joko Widodo, Indonesia's president, staged a hostile takeover of the late dictator's party, Golkar, on August 21st, when its members elected Bahlil Lahadalia, the president's fixer and Indonesia's energy minister, as its chair. No one dared run against Mr Bahlil. In a smug victory speech, the new chair warned his charges "not to play around with the King of Java"—a clear reference to Jokowi, as the president is known—adding that it would end badly for them.

At the same time, the president's allies in the legislature were hastily writing up revisions to the country's electoral laws ahead of regional elections in November. The amendments would have barred Anies Baswedan, the leading opposition politician, from running for governor of Jakarta, the capital. They would have also lowered the minimum age to run by a few months, a change which would benefit perhaps only one candidate, 29-year-old Kaesang Pangarep, the president's second son.

The next day, tens of thousands of protesters descended on the legislative building and lit up social media with images declaring a "democratic emergency". Film stars and prominent journalists joined the fray. They pointed to the Instagram account of Mr Kaesang's wife, which showed that the two had travelled from Jakarta to Los Angeles by private jet earlier in the week for some shopping. By late afternoon, it appeared as though the protests might swell further, to challenge the ruling coalition's grip on power. Later that day the president's coalition withdrew the bill. It seems to have placated the protesters; demonstrations continued elsewhere in Indonesia, but Jakarta has been quiet.

Jokowi was first elected in 2014 on a promise to change Indonesian politics. Unlike other Indonesian presidents, who have mostly come from the military or political dynasties, he seemed different. He was a small businessman. His children, he claimed, had no political ambitions. Winning a close election over Prabowo Subianto, a bombastic retired general and former son-in-law of Suharto, he refused to give out cabinet seats in exchange for support in the legislature from Indonesia's ten political parties, promising to appoint a government of technocrats. Six of the parties responded by discussing Jokowi's impeachment before he had even set foot in the presidential palace.

That experience appears to have haunted Jokowi. After taking office, his administration manipulated splits within opposition parties to install executive committees supportive of him. By 2016 he had welcomed them into his coalition and his cabinet, and shared the spoils of victory with them through state-owned enterprises. After defeating Mr Prabowo again in 2019, he stunned Indonesians by naming him minister of defence. He brought Mr Prabowo's Gerindra party, too, into the cabinet, further expanding his coalition to eight parties and 74% of the legislature's seats.

Jokowi's approval ratings have consistently remained around 75%, despite his increasing authoritarianism. During the pandemic, he toyed with the idea of extending his term through an emergency declaration, or changing the constitution to allow him to run a third time. But political party leaders shot down the idea, and Jokowi changed course. In the presidential election earlier this year, he endorsed Mr Prabowo, who selected Gibran Rakabuming Raka, Mr Jokowi's eldest son, as his vice-president. They are due to take office on October 20th.

The man who would be monarch?

So far, the partnership between the two families has held fast. But there have been some cracks. Gerindra was the first party to pull out of negotiations on changing the regional-elections law. And Mr Prabowo, in an oblique reference to Jokowi, said on August 25th that "some have an endless thirst for power". It was a rare sign of ingratitude from Mr Prabowo, and yet another sign that the balance of power between them is coming under strain. ■

Sino-Australian tension

Not digging it

SYDNEY

Why Australia is not yet a critical minerals powerhouse

ON THE FACE of it, Australia should have a huge advance in the race for critical minerals. Its red centre holds large reserves of the minerals and rare earths that are vital for green and military technologies. Its centre-left Labor government wants to dig and process more of them. It should be the perfect match.

But Australia is struggling to get its critical minerals out of the ground. A string of its lithium and nickel mines have closed this year. Refineries are also in trouble. In July BHP, a mining giant, said it would close its nickel-processing facilities in Western Australia. Weeks later, Albemarle, an American company, announced it was scaling back a lithium refinery. Ostensibly the problem is a market crash. Demand for electric vehicles, which use these minerals, is weaker than expected. And supplies of minerals have soared, driving down prices.

Australian miners see a bigger hand at work. China produces more than half the world's rare earths and refines almost all of them. It subsidises rare-earth companies. Where it lacks its own big critical mineral deposits, it has invested abroad—including in the Indonesian nickel that is flooding the market. It buys and refines the lion's share of lithium. This lets China force down prices, says John Coyne of the Australian Strategic Policy Institute.

Australia's rare-earth miners are dangerously exposed, complains Tom O'Leary, chief executive of Iluka Resources, one such group. In 2022 China issued a direc- ▸▸

tive for its producers to "guide product prices to return to rationality". Rare-earth prices have since plunged by more than two-thirds. This makes it hard for competitors to be profitable, says Mr O'Leary.

Chinese investors are also accused of using shady methods to secure access to Australian supply chains. Last year Australia's government barred a Chinese-linked fund from increasing its stake in Northern Minerals, a miner, on national-security grounds. Shares were subsequently purchased by several other funds. After an investigation, the government determined that they were linked to China and ordered them to divest their holdings in June.

For Australia, it is not just the potential for lucrative mines at home that China's dominance severely threatens. It's also about its own security of supply. China cut off rare-earth exports to Japan during a diplomatic dispute in 2010, and curbed exports of gallium and germanium, used in semiconductors, last year. Western countries face "an existential risk around security of supply", says Mr O'Leary.

So far, Australia's answer is to support miners with cheap loans and grants. It promises them tax breaks under a new industrial policy. But the help only goes so far. The government lent Iluka A$1.25bn ($850m) in 2022 to open a rare-earths refinery. On August 21st Iluka declared that it needs more funding to complete the facility. There is still a long way to go to end, or even reduce, reliance on China. ■

BANYAN

The definition of madness

Why does the West back the wrong Asian leaders?

ON AUGUST 27TH Malaysian prosecutors charged Muhyiddin Yassin, the leader of the opposition, with sedition. His crime? Complaining that the king did not ask him to form a government after the last general election, even though he claimed to have the support of a majority of parliament. It was the second indictment for Mr Muhyiddin. Last year, prosecutors charged him with misuse of funds while prime minister from 2020 to 2021, which he denies.

The charges might seem unremarkable in an illiberal democracy like Malaysia's, except for one thing. The man whom the king did ask to form a government in 2022 was Anwar Ibrahim, himself twice jailed on false charges of sodomy when leader of the opposition. Back then, Mr Anwar had been a favourite of Western reporters and officials, heralded as a man who could liberalise Malaysian politics if only the prime minister would unlock his cell. But after taking power at the head of a coalition government in November 2022, Mr Anwar has emerged as a very different kind of leader.

He defends the use of the sedition act to protect the monarchy and denies that its use against his opponents is the result of political interference. In a country defined for far too long by the institutionalised privileges of the Malay majority, he tells supporters that campaign promises of greater pluralism must wait. And though Malaysia has yet to recover fully from the scandal involving 1MDB, a state investment fund which had $4.5bn pilfered from its coffers, he has embraced a deputy prime minister accused of corruption and defended the decision to drop charges against him.

Nor did Western governments' support during his years in the wilderness win them any favour with Mr Anwar. The prime minister will visit Vladivostok next week to meet Vladimir Putin. In May he was in Qatar to meet Ismail Haniyeh, the leader of Hamas who was killed in Tehran on July 31st. Courting Beijing, in June he unexpectedly announced after meeting Li Qiang, China's prime minister, that Malaysia supports the "reunification" of Taiwan with the mainland.

The West got Mr Anwar wrong. But that should be no surprise. Western governments often champion Asian opposition figures who promise a liberal approach without looking too closely at their track records, or their statements in the vernacular to crowds back home. In Mr Anwar's case, his time as deputy to Mahathir Mohamad—the authoritarian and anti-Western prime minister of Malaysia from 1981 to 2003—should have been a clue as to how he would rule.

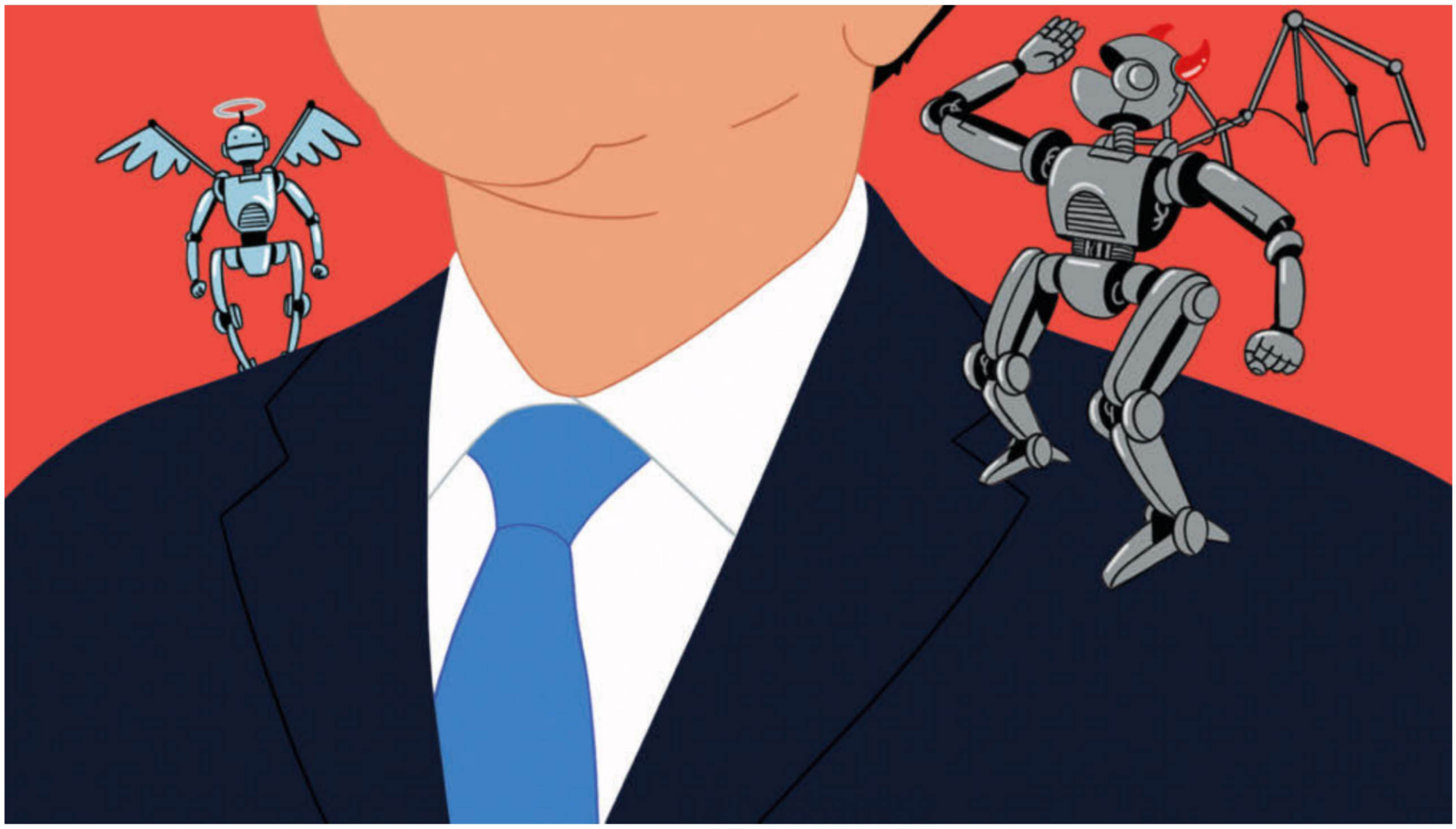
Why do Western officials so often back the wrong Asian leaders? For a start, they tend to be too easily persuaded by those who have spent a lot of time in Europe or North America, where they tend to pick up a way of speaking about universal values that Westerners recognise. It does not always follow that they pick up the values themselves. When Aung San Suu Kyi, Myanmar's former leader, was under house arrest in the 1990s, she drew on decades in Britain and America, urging Westerners to "use your liberty to promote ours". But as head of government she trampled on notions of liberty or democracy, defending military atrocities against the Rohingya Muslims.

Western opinion-makers' view of a country's politics are often refracted through the prism of influential individuals. Many in America came to understand Malaysian politics in the 1990s through the perspective of Robert Rubin, the treasury secretary under President Bill Clinton. He became a friend of Mr Anwar's when both served as finance ministers. Diasporas can play a role, too. The cause of Sam Rainsy, Cambodia's opposition leader, has benefited from the skilful activism of prominent exiles, even though his campaigns back home have been full of invective against ethnic Vietnamese residents of the country.

Power can also change a leader. One example is Joko Widodo, Indonesia's president (see preceding article). But when it becomes apparent that an Asian leader is no liberal, Western officials can stick with them for too long. There is an element of Orientalism to this: Western officials are more willing to excuse conduct by Asian leaders that they would not tolerate in Europe or the Americas.

It is possible to avoid these traps. Independent institutions are more reliable guardians of rights and freedoms than individuals. They deserve more support. But when it comes to leaders, Western governments should stick to their principles, even when their friends abandon them.

China



Technology and power

Is Xi Jinping an AI doomer?

China's elite is split over artificial intelligence. But those who see the technology as an existential risk are growing louder

IN JULY LAST year Henry Kissinger travelled to Beijing for the final time before his death. Among the messages he delivered to China's ruler, Xi Jinping, was a warning about the catastrophic risks of artificial intelligence (AI). Since then American tech bosses and ex-government officials have quietly met their Chinese counterparts in a series of informal gatherings dubbed the Kissinger Dialogues. The conversations have focused in part on how to protect the world from the dangers of AI. American and Chinese officials are thought to have also discussed the subject (along with many others) when America's national security adviser, Jake Sullivan, visited Beijing from August 27th to 29th.

Many in the tech world think that AI will come to match or surpass the cognitive abilities of humans. Some developers predict that artificial general intelligence (AGI) models will one day be able to learn unaided, which could make them uncontrollable. Those who believe that, left unchecked, AI poses an existential risk to humanity are called "doomers". They tend to advocate stricter regulations. On the other side are "accelerationists", who stress AI's potential to benefit humanity.

Western accelerationists often argue that competition with Chinese developers, who are uninhibited by strong safeguards, is so fierce that the West cannot afford to slow down. The implication is that the debate in China is one-sided, with accelerationists having the most say over the regulatory environment. In fact, China has its own AI doomers—and they are increasingly influential.

Until recently China's regulators have focused on the risk of rogue chatbots saying politically incorrect things about the Communist Party, rather than that of cutting-edge models slipping out of human control. In 2023 the government required developers to register their large language models. Algorithms are regularly marked on how well they comply with socialist values and whether they might "subvert state power". The rules are also meant to prevent discrimination and leaks of customer data. But, in general, AI-safety regulations are light. Some of China's more onerous restrictions were rescinded last year.

China's accelerationists want to keep things this way. Zhu Songchun, a party adviser and director of a state-backed programme to develop AGI, has argued that AI development is as important as the "Two Bombs, One Satellite" project, a Mao-era push to produce long-range nuclear weapons. Earlier this year Yin Hejun, the minister of science and technology, used an old party slogan to press for faster progress, writing that development, including in the field of AI, was China's greatest source of security. Some economic policymakers warn that an over-zealous pursuit of safety will harm China's competitiveness.

But the accelerationists are getting pushback from a clique of elite scientists with the party's ear. Most prominent among them is Andrew Chi-Chih Yao, the only Chinese person to have won the Turing award for advances in computer science. In July Mr Yao said AI posed a greater existential risk to humans than nuclear or biological weapons. Zhang Ya-Qin, the former president of Baidu, a Chinese tech ▸▸

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giant, and Xue Lan, the chairman of the state's expert committee on AI governance, also reckon that AI may threaten the human race. Yi Zeng of the Chinese Academy of Sciences believes that AGI models will eventually see humans as humans see ants.

The influence of such arguments is increasingly on display. In March an international panel of experts meeting in Beijing called on researchers to kill models that appear to seek power or show signs of self-replication or deceit. A short time later the risks posed by AI, and how to control them, became a subject of study sessions for party leaders. A state body that funds scientific research has begun offering grants to researchers who study how to align AI with human values. State labs are doing increasingly advanced work in this domain. Private firms have been less active, but more of them have at least begun paying lip service to the risks of AI.

Speed up or slow down?

The debate over how to approach the technology has led to a turf war between China's regulators. The industry ministry has called attention to safety concerns, telling researchers to test models for threats to humans. But it seems that most of China's securocrats see falling behind America as a bigger risk. The science ministry and state economic planners also favour faster development. A national AI law slated for this year fell off the government's work agenda in recent months because of these disagreements. The impasse was made plain on July 11th, when the official responsible for writing the AI law cautioned against prioritising either safety or expediency.

The decision will ultimately come down to what Mr Xi thinks. In June he sent a letter to Mr Yao, praising his work on AI. In July, at a meeting of the party's Central Committee called the "third plenum", Mr Xi sent his clearest signal yet that he takes the doomers' concerns seriously. The official report from the plenum listed AI risks alongside other big concerns, such as biohazards and natural disasters. For the first time it called for monitoring AI safety, a reference to the technology's potential to endanger humans. The report may lead to new restrictions on AI-research activities.

More clues to Mr Xi's thinking come from the study guide prepared for party cadres, which he is said to have personally edited. China should "abandon uninhibited growth that comes at the cost of sacrificing safety", says the guide. Since AI will determine "the fate of all mankind", it must always be controllable, it goes on. The document calls for regulation to be pre-emptive rather than reactive.

Safety gurus say that what matters is how these instructions are implemented. China will probably create an AI-safety institute to observe cutting-edge research, as America and Britain have done, says Matt Sheehan of the Carnegie Endowment for International Peace, a think-tank in Washington. Which department would oversee such an institute is an open question. For now Chinese officials are emphasising the need to share the responsibility of regulating AI and to improve co-ordination.

If China does move ahead with efforts to restrict the most advanced AI research and development, it will have gone further than any other big country. Mr Xi says he wants to "strengthen the governance of artificial-intelligence rules within the framework of the United Nations". To do that China will have to work more closely with others. But America and its friends are still considering the issue. The debate between doomers and accelerationists, in China and elsewhere, is far from over. ■

Xi Jinping and Deng Xiaoping

Two very different leaders

BEIJING

China's ruler tries to claim the mantle of an esteemed predecessor

DENG XIAOPING was barely five feet tall, but China's late ruler was a political giant. He was a leading figure in the Communist revolution and a hard-nosed Leninist. Yet, as ruler, he launched market-oriented reforms and opened China up to the world. On August 22nd, the 120th anniversary of Deng's birth, China's current leader, Xi Jinping, lauded his "extraordinary life".

As if grabbing Deng's mantle, Mr Xi also said that China should deepen its commitment to the reform-and-opening agenda. That has led to grumbling from many observers. Much of what Mr Xi has done during his 12 years in power flies in the face of Deng's legacy.

Deng's most important reform was to reduce the role of the state in the economy and encourage private enterprise. The party should allow "some people to get rich first", he said. Compare that with Mr Xi, who has reined in market forces and reinstituted a state-dominated growth model. His "common prosperity" campaign aims to chasten billionaires and reduce inequality.

What would he make of Mr Xi?

Differences between the two leaders can also be seen in the political realm. Deng called for separation in the functions of the Communist Party and the government. He also extolled the notion of "collective leadership", with big decisions made by consensus. Mr Xi, in contrast, has reimposed one-man rule. The party, meanwhile, is an ever-growing presence in everyday life.

When Deng was in charge, China was still poor and relatively weak. So, in foreign affairs, he argued for keeping a low profile. Now China is more powerful—and Mr Xi more assertive. Deng's eldest son, Deng Pufang, made headlines in 2018 with a speech that was widely seen as an attack on Mr Xi's increasingly ambitious foreign policy. China should "know its place" in the world and not be "overbearing", he said.

In one area, at least, Mr Xi is aligned with Deng. The late ruler reportedly thought Mikhail Gorbachev was an "idiot" for allowing the Soviet Communist Party to lose its grip on power. In 1989, when confronted with big pro-democracy protests in Tiananmen Square, Deng ordered troops to crush the demonstrations, at the cost of hundreds if not thousands of lives.

Chinese leaders seldom talk about that episode. But Mr Xi made an exception in his remarks on August 22nd. "At the critical juncture, Comrade Deng Xiaoping led the party and the people to stand firmly against turmoil and resolutely defend the power of the socialist state." Few doubt that Mr Xi, if faced with a similar challenge to the party's rule, would act as forcefully.

CHAGUAN

China's rise divides the world

After six years in China, our inaugural Chaguan columnist says farewell

SHOULD THE world admire or fear China's model of governance? Since this column was launched in September 2018 that question has become more urgent, as Xi Jinping declares it time for China to "move closer to the centre stage" of world affairs.

Today's China welcomes other countries to follow its "pathway to modernisation". Mr Xi, the most powerful Chinese leader in decades, calls his one-party model efficient, equitable and dignified. In case foreigners miss his coded message—that competent government, equality and order matter more than freedoms—officials boast of "two major miracles" that shaped China's rise, namely "fast economic development and long-term social stability".

During six and a half years in Beijing, your columnist has watched China's swagger divide the world. Most importantly, Sino-American relations have collapsed, raising the prospect of a globe divided into rival camps, even as other countries insist that they have no desire to pick sides. Wary but profitable coexistence has turned into a contest for primacy in the 21st century.

That confrontation is more alarming because logic guides each side. American leaders have solid grounds for alarm. By its actions and words, Mr Xi's China reveals an ambition to be so powerful by mid-century that no other country on Earth will dare to thwart or defy it. To achieve that status, China is bent on reshaping the world order from within, using its heft in such forums as the United Nations to challenge, redefine or discredit any norms and rules that might curb its rise.

For their part, Chinese officials and scholars have every reason to fear and resent the new bipartisan consensus in Washington. They are right to suspect that American leaders (from both main parties) are trying to slow or block their country's progress in any field of endeavour—whether technological, economic or geopolitical—that might imperil American national security. Chaguan has heard senior American officials frame this strategy as a simple question: why would we let American cash or American technology strengthen China's military or national-security apparatus?

That approach is, of course, intolerable to China. Your columnist has not forgotten the metaphor offered by a leading Chinese scholar over dinner in Beijing. America is only willing to let China become a "fat cat", producing harmless consumer goods, he ventured. But, he added, "it is natural for a country to want to become strong, like a tiger". Put bluntly, China and America are two giant powers with mutually incompatible ambitions.

To many Chinese officials, scholars and citizens, their country has never been so impressive. At the same time, China feels criticised as never before by America and other liberal democracies. China has not changed, runs a frequent complaint in Beijing, it merely grew successful and strong. Clearly a querulous, declining West is too racist to tolerate an Asian power as a peer competitor.

The latest global opinion survey by the Pew Research Centre finds just one rich country, Singapore, where most adults approve of China. But views of China are much warmer in low- and middle-income countries, notably in Africa and South-East Asia. Ambassadors from the global south call China's emergence from deep poverty an inspiration. They thank China for offering the world new markets, investments and infrastructure, without the "colonial-style" lectures beloved of Western powers.

Some of those same envoys grow impatient when they hear European or American counterparts criticise China's iron-fisted treatment of ethnic minorities, or condemn China's defend-Russia-blame-America approach to the war in Ukraine. What about American rights abuses in Iraq and Afghanistan, Chaguan has heard Latin American and Middle Eastern ambassadors ask? What about America's arming of Israel in Gaza? Beneath such questions lie real resentments that China stands ready to exploit. During the depths of the pandemic, Chaguan was summoned to a government guesthouse for a one-on-one conversation with a senior Chinese official. Western countries talking about universal values are like colonial-era missionaries telling other countries which god to pray to, was the official's message.

Because the world is divided in its perceptions of China, that has fuelled another dynamic. Over the past six years, Chinese leaders have become increasingly unwilling to accept foreign scrutiny of their country. Not long ago, Chinese reformers quoted foreign critics to help them push for change. Now the reformers do not dare. In Mr Xi's China, even constructive foreign criticism is called a ploy to hold China down.

Your lonely columnist

The siege mentality of China's rulers goes beyond a dislike of foreigners with complaints. Mr Xi has told diplomats, scholars and state media to be more confident, and to defend China with home-grown measures of success. In today's China it is unpatriotic even to engage with foreign arguments about what makes for good governance, wise economic management or the rule of law.

Reporting from China has become a shockingly lonely business. Too many foreign correspondents, notably from America, have been expelled or pushed out by harassment. When others left voluntarily, their news organisations struggled to obtain new visas. The Trump administration bears blame for expelling scores of Chinese reporters, giving officials in Beijing a perfect excuse to retaliate. But the numbers are stark. During Chaguan's current posting, the *New York Times* went from ten foreign correspondents in mainland China to two at present, the *Wall Street Journal* from 15 to three, and the *Washington Post* from two to zero.

Chinese anger at foreign criticism has its roots in an argument about legitimacy. As long as China's economy was roaring ahead, and each year saw its cities fill with gleaming new skyscrapers and

high-speed-train stations, Communist Party bosses could claim "performance legitimacy", to use the jargon of political scientists.

To be clear, China's modernisation is worth boasting about. China has not just become wealthier. Newly paved roads have saved mountain villages from being cut off by heavy rains. In every rural county, highway tunnels and bridges have reduced journey times by hours. Urban landscapes have been transformed. Air and water pollution have declined dramatically. Across China on a typical evening, newly built parks and cleaned-up rivers attract strolling families or pensioners who gather to play Chinese chess or practise tai-chi. Cities are more orderly and street crime rarer. Ask middle-aged Chinese whether they have better lives than their parents, and they answer yes almost in unison. Others note the weakening of cruel traditions, such as the migrant worker in Chongqing who recalled that, in the hometown of his youth, women could dine only after their male guests had eaten their fill.

As China's economy slows, however, the Chinese public's mood has soured. The party has duly adjusted its claims to rule. To those arguments about performance, leaders have added assertions that China has the ideal political system. These claims emphasise the country's second self-styled miracle, namely its stability. American democracy is in a "disastrous state", officials say. They accuse Western politicians of heeding voters only at election time. They call China a "whole-process people's democracy", in which technocrats (purportedly kept honest by internal discipline and the unending anti-corruption campaigns of the Xi era) tirelessly study and address the needs of the many, not the few.

China is not a democracy. It is, at best, a country run in the interests of the majority, as defined by an order-obsessed party. Covid-19 tested this utilitarian model to breaking-point. The pandemic was days old when Chaguan caught an almost-empty flight to Henan province in January 2020. His taxi passed villages closed by fresh barricades of earth, guarded by old men with red armbands. At last he reached Weiji, the final village before Hubei, a province of 58m people sealed to the world after the disease first emerged in its capital, Wuhan. Asked whether they supported strict pandemic controls, villagers scolded your columnist. "Chinese people really listen to the government" and will put the common good ahead of their self-interest, said one man. "It's different from you Western countries."

Hundreds of millions of Chinese proved that villager right, staying at home for weeks, often without pay, to break covid's chains of transmission. Given China's weak health system, their sacrifices saved untold lives. Over the next two years, simple arithmetic explained public tolerance of zero-covid controls. At any given moment, the system imposed pain on those unfortunates who lived in locked-down areas, or who had been hauled off to quarantine camps. But most Chinese, most of the time, felt safe.

Then the highly contagious Omicron variant reached China. Ever larger numbers faced lockdowns, including Shanghai's 24m residents. In late 2022 protests broke out across an exhausted country. Abruptly, controls collapsed. A million or more died, many of them unvaccinated old people. The precise toll is secret.

Returning to Henan in January 2023, this columnist found hospitals that lacked painkillers and met doctors banned from recording covid as a cause of death. The system was to blame. Throughout 2022 scientists had urged leaders to vaccinate the old, stockpile drugs and prepare an exit from zero-covid. Alas, Mr Xi's policy could not be questioned, or order jeopardised, ahead of a party congress in October at which he was handed a third term.

China's version of utilitarian rule offers no protections to individuals who fall on the wrong side of the majority-minority line. Worse, that line can move without warning. In Xinjiang Chaguan saw mosques closed or demolished after religious rules were tightened. He reported on a sterilisation campaign imposed on Uyghur women after 2017, when their high birth rates were declared a threat. In Guangdong he wrote about female workers whose bosses cheated them of pension contributions. An algorithm spotted the women's online talk of petitioning the authorities. Police raided their dormitory, humiliating them with strip searches. Though legal, their petition plans challenged social stability.

China's crushing of Hong Kong's freedoms, after anti-government protests in 2019, follows a majoritarian logic. Mainland officials scorned the idea that a territory of 7.5m people could imagine it had the right to defy a motherland of 1.4bn. They accused the CIA of planning the demonstrations. The truth is sadder: there was no plan. Chaguan met youngsters who could not explain how confronting China would end well, but who wanted to protest while they could.

China is declaring its own citizens traitors if they question the party's model of governance, and is calling all foreign scrutiny a form of attack.

Most alarming, leaders increasingly emphasise one last form of legitimacy, which brooks no appeal at all. This is a claim to rule based on "5,000 years of unbroken Chinese civilisation", synthesised with a dose of Marxism. Under Mr Xi, the party presents itself as the "faithful inheritor" of all that is virtuous and wise in Chinese history. "The fact that Chinese civilisation is highly consistent is the fundamental reason why the Chinese nation must follow its own path," Mr Xi has declared. And because Chinese civilisation is unusually uniform, Mr Xi adds, different ethnic groups must be integrated and the nation unified: code for imposing the majority-Han culture on all, and for taking back Taiwan.

A new host at the teahouse

Nothing worries Chaguan more than this ethno-nationalist drive. China is declaring its own citizens traitors if they question the party's model of governance, and is calling all foreign scrutiny a form of attack. More than ever, pluralism is seen as a security threat. When feminists, environmentalists or religious teachers are detained, they are questioned about contacts with foreigners and treated as potential spies. If this inward turn continues, it may give some admiring countries pause. China is willing to be praised and copied, but not doubted in any way. This is not a magnanimous moment in its history. The future may be still darker.

This reporter has written 220 Chaguan columns, from all but one mainland province and region (a permit to visit Tibet was not forthcoming). That access to China's people, from packed sleeper trains to the halls of power in Beijing, was a privilege and a necessity. When his successor receives a resident press visa, the Chaguan column will return. ■

Middle East & Africa

Israel's settlers

Real estate and religion

JERUSALEM

Israel's settlers are winning unprecedented power from the war in Gaza

DRIVE ALONG Highway 60, which traverses the West Bank from north to south, and it feels like a real-estate road trip. It is festooned with signs in Hebrew offering "Two Last Apartments in Mitzpe Levona" and promising that "Your Grass Can be Greener" seen from a villa in Tzofim. These are boom times for Israel's settlers, who are gaining land, military influence and political power.

The war in Gaza has emboldened them. Binyamin Netanyahu's government depends on settler-backed parties for its majority, giving them huge sway over the prosecution of the conflict and, some fear, a veto-power over any truce. Meanwhile the fighting has boosted the influence of settlers over the army, and provided a smokescreen for more land grabs in the West Bank. As a member of the government puts it: "With everyone distracted, last year by the protests over the legal reform and now by the war, we've done unprecedented things for the settlements."

"It's like a period of a miracle," said Orit Strock, the minister in charge of settlements and a member of the hard-right Religious Zionism Party, talking to settlers. "I feel like someone who has been waiting at the traffic-lights and then the green light comes on." In June the government authorised new settlements with 5,295 houses over 2,965 acres (1,200 hectares). Since 2022 it has also "legalised" planning for outposts that it had not previously recognised. Peace Now, an Israeli NGO which monitors settlement-building, said this was the largest appropriation of land in the West Bank since the Oslo accords between Israel and the Palestinians in 1993.

→ ALSO IN THIS SECTION

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37 Nigerians party on the cheap

The consensus among international-law experts is that all Israeli settlements in the West Bank are illegal under the Fourth Geneva Convention, which forbids countries to transfer population into occupied areas. The International Court of Justice underlined this view in July. Israel disagrees, claiming that the status of the land is contested and has Jewish associations going back millennia. Today around half a million settlers occupy parts of the West Bank. Another 200,000 live in neighbourhoods of Jerusalem east of the 1967 borders, which Israel has formally annexed.

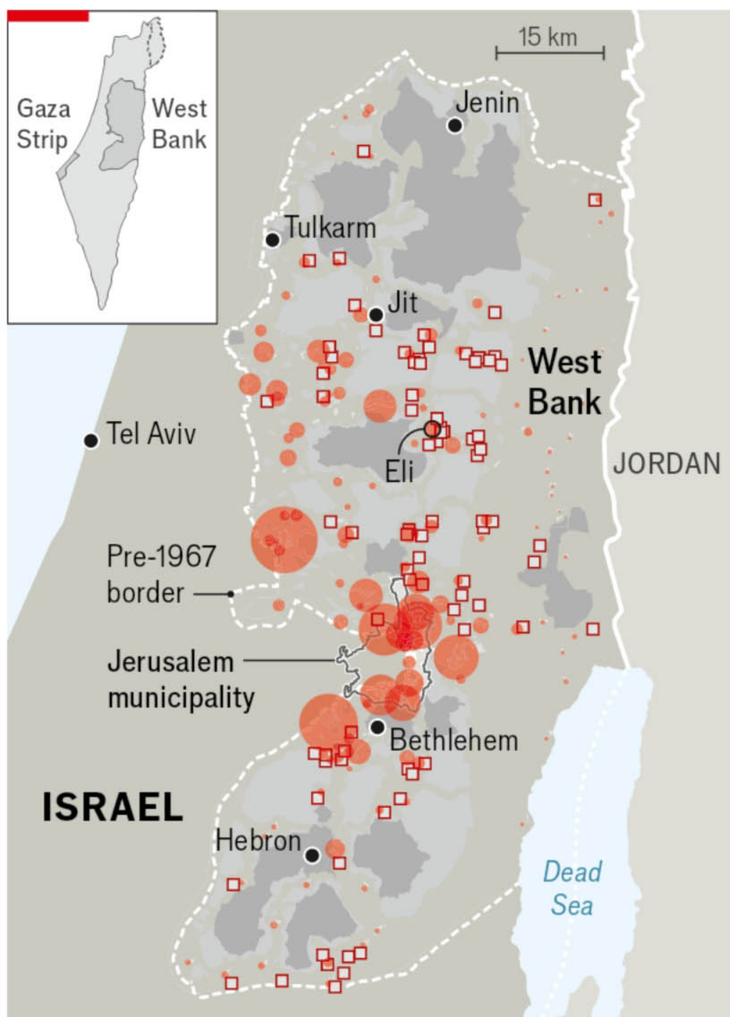
Some of those settlements were built with the approval or encouragement of the government of the day. Others have sprung up in defiance of the country's leaders. But there is no mistaking the current government's stance. In addition to Ms Strock's ministry, which funnels state funds to the settlements, her party's leader, Bezalel Smotrich, a settler, is Israel's finance minister and also has responsibility for much of the non-military administration of the West Bank within the ministry of defence.

Not all settlers belong to the ideological national-religious community that sees living in the West Bank as part of a sacred mission to occupy the Jewish biblical heartland. Plenty are secular or ultra-Orthodox Israelis who have taken advantage of lower house prices in big settlements close to the 1967 border. But the smaller ▸▸

outposts deep in the West Bank, whose members clash with neighbouring Palestinian villagers, are nearly all religious (see map). They see their presence there as part of their duty to prevent the establishment of a Palestinian state in the Holy Land.

That mission is becoming increasingly bloody. Settler violence in the West Bank has increased sharply since October 7th. On August 26th armed settlers attacked a tiny Palestinian village just south of Bethlehem. Israeli soldiers followed. A Palestinian man was killed. On August 15th settlers set homes and cars alight in the Palestinian village of Jit and killed a 22-year-old man. Mr Netanyahu condemned them. But locals said Israeli soldiers were present during the attack and did not intervene for some time. The UN says this was the 11th murder of a Palestinian by settlers since the Gaza war began.

There have been only a handful of arrests. According to Israeli officials, since the appointment of Itamar Ben-Gvir, leader of the Jewish Power party (and a settler too), as minister of national security, the Israeli police have been reluctant to conduct investigations into settler violence. The Shin Bet, Israel's internal-security agency, was asked to investigate the murder in Jit. Israel's law-enforcement and security agencies are working at cross-purposes. The police, under the control of Mr Ben-Gvir, are standing aside. Meanwhile the Shin Bet is dedicating substantial resources to preventing what its director, Ronen Bar, in a recent letter to ministers, called "Jewish terror". Israel's prosecution services have started investigating attacks on Palestinians properly only because the government is worried that Western allies may impose sanctions on settlers.



West Bank, 2023
Areas of control: Palestinian, Joint, Israeli
Israeli settlement population*, '000: 10, 80
Israeli outpost†
*Officially established by the government
†Established without government approval (population data unavailable)
Source: Peace Now

Continuing operations against Palestinian militants by the Israel Defence Forces (IDF) make it harder to keep a lid on settler violence in the West Bank. On August 27th Israel embarked on its largest operation there since October 7th, with incursions into the cities of Jenin and Tulkarm.

The secular old guard laments

Israel's generals seem worried. Major-General Yehuda Fuchs left his post in July as head of the IDF Central Command, in effect the military governor of the West Bank, with a blistering speech accusing the settlers of allowing a "minority" to engage in "ultranationalist criminal activity". "Under the cover of the war and the lust for revenge" they were, he said, "terrorising Palestinian civilians who posed no threat". But even amid such warnings, many soldiers have taken part in this violence while in uniform, using their IDF-issued weapons.

Settlers are an increasingly big part of the IDF. Bnei David was Israel's first pre-military academy. It was established in the settlement of Eli in 1988 and offers religious and military training. Thousands of its students have joined Israel's armed forces. One graduate was a military secretary to Mr Netanyahu. West Bank settlers are only 5% of Israel's population, but they are heavily represented in the IDF's combat units and are climbing the promotion ladder. The new general of Central Command lived as a child on a settlement and studied at the Eli academy. Ron Shapsberg is an army officer who tracks religious Zionists' grip on the army. "They're well educated, ideologically driven and mentally strong. They're engineering a quiet revolution."

They are changing the character of the Middle East's most powerful army, once mostly secular. This can be seen in the war in Gaza, where many units hold prayers before going into battle and soldiers adorn their combat fatigues with patches depicting the ancient Jewish temple in Jerusalem or the word "Messiah".

The settler movement has experienced setbacks since 1967. Settlements in Sinai were dismantled when Israel made peace with Egypt in the early 1980s. The Oslo accords gave the Palestinian Authority limited control in Gaza and parts of the West Bank. But the settlers' worst trauma was the "disengagement" of 2005, when Israel withdrew entirely from the Gaza Strip and evicted over 8,000 settlers living there. The settlers' pain for what they still call "the banishment" persists. Today, soldiers in Gaza have erected "We Have Returned!" banners on the sites of former outposts.

For most Israelis the war in Gaza is a tragedy. But many settlers see it differently. "For this movement, which historically saw secular Zionism as just a prelude to a much wider process of divine redemption, the war has come at a serendipitous moment, when they are at an unexpected peak of their political power," says Tomer Persico, an expert on modern Jewish thought at the Shalom Hartman Institute in Jerusalem. "For them it is a heavenly sign, a miracle."

Mr Netanyahu insists that his government does not intend to rebuild the settlements in Gaza and that Israel's presence is strictly for security purposes. But ministers in his government have been at rallies calling for Gaza's Palestinian population to be deported and Jewish towns to be built instead. Daniella Weiss is a veteran settler who backs such policies. She recalls half a century ago in the West Bank: "First there were IDF bases. Then we came along and settled the land". ■

God and country

A kingdom divided

Israel's religious nationalists are both powerful and fractured

IN OPPOSITION, RELIGIOUS nationalists were lured by the promise by Binyamin Netanyahu that he would lead a government of *yamin al-male*, Hebrew for the "full right". They now hold great power in Israel's government. But discord over how to wield it is cracking the movement.

Zionism has many strands from the secular and socialist to the religious. At the extremes of its religious fringes experts speak of a schism between those who prioritise the physical land of Israel and the concept of the Holy Land (over the unity of Israelis, for example, or the sanctity of life), and those who prioritise its people. "A fierce religious and cultural battle is raging," writes Yair Ettinger in his study of religious nationalism; "one that pits observant Jews against other observant Jews."

The Talmud, Judaism's ancient body of law and lore, was compiled 1,500 years ago when Jews were the subjects of foreign rulers, not masters of a 21st-century state. Small wonder then that religious nationalists disagree over how to govern a modern country with a powerful army. "Jewish law sets no limit on the number of civilians you can kill for one terrorist," says Shai Glick, a far-right Israeli activist.

The notion of religious Zionism emerged in the mid-19th century. The movement was formally established in 1902. It began as a quietest adjunct to the secular mainstream and remained so for 70

years. Today its most powerful leaders see Israel's capture of biblical sites as a prelude to messianic salvation. They have wrested control of the movement and cemented their claims by settling on Palestinian land.

Leading the hardliners are the finance minister, Bezalal Smotrich, and the national-security minister, Itamar Ben-Gvir. In pursuit of land, they want to annex the West Bank, topple the Palestinian Authority, permanently reoccupy and resettle Gaza, and push Palestinians abroad. They seek to subvert Israel's secular laws with the *halacha*, the religious code. For them, Mr Netanyahu's aborted plan to curb judicial powers in the early months of this government was but the first step. Their aim, so far only partly realised, is to extirpate the secular "deep state" and seize control of the army, security agencies and courts.

For their religious nationalist rivals, who do not share Mr Ben-Gvir et al's loathing of the establishment, the people of Israel come first. Naftali Bennett used to head a religious nationalist party, Yamina, that favoured annexing much of the West Bank. But in 2021 he jettisoned his far-right allies and became Israel's first religious prime minister in a government that included secular leftists and, for the first time, an independent Arab-Israeli party. Their strain of religious Zionism has, for now, been pushed out of government.

Both the far-right militants like Mr Smotrich and pro-establishment figures such as Mr Bennett champion the use of military force. All see their wars as holy. But while Mr Ben-Gvir seeks to arm his followers, in effect mobilising a religious militia, his rivals look to the army, alongside their secular counterparts. Such are the tensions, warns Ehud Olmert, a former prime minister, that Israel's war in Gaza could "become a war of Jews against Jews".

A smaller contingent of religious Zionists, versed in Biblical prophets who ranted against abuses of power, question the morality of both sides. "The [Holy] Land has high moral demands," says Ethel Melka, one such activist. "We were expelled before, for not being moral."

For now the far right of religious Zionism appears in the ascendant. But it would be surprising if Israel's longest and perhaps least decisive war had no impact on their influence. Other wars inflamed by religion in the Middle East have proved their proponents' undoing. Horrified by Islamic State's excess, many Syrians and Iraqis rejected the jihadists and their ideology. Even Iran's ayatollahs seem minded to pursue a slightly more inclusive government; on August 26th they approved the appointment of Iran's first Sunni vice-president. A backlash against religious nationalism's hardliners could be coming. ■

Hizbullah and Israel play with fire

In a series of air and missile strikes in the early hours of August 25th Israel and Hizbullah, the Iran-backed militia in Lebanon, brought to a boil their simmering conflict. Israeli warplanes bombed dozens of Hizbullah's missile-launch sites in southern Lebanon. Hizbullah launched at least 200 rockets and drones towards northern Israel. Israel's Iron Dome missile-defence system intercepted most of them. The few that got through caused little damage and no Israeli casualties. Three militants were killed in Lebanon. The strikes seem to have been calibrated to avoid all-out war. Neither side wants to be blamed for scuppering the talks over a ceasefire in Gaza. The latest exchange of hostilities seems to have petered out, but it is unlikely that the bigger conflict between Iran (and its proxies) and Israel will.

Nigeria's cost of living crisis

Cut your coat

LAGOS

Even the most lavish of partygoers are adjusting to the cozzie livs

YORUBA WEDDINGS last months, not days. There is a party when families are introduced. A bigger one follows for traditional marriage rites and the presentation, from the groom's family to the bride's, of everything from yams to jewellery. Last comes the religious ceremony and a reception. The betrothed can cycle through over ten bespoke outfits during the celebrations. But as a cost-of-living crisis bites, people across Nigeria are learning how to party on the cheap.

For the couple, cramming all these events into a single day is a good start. Even if you insist on the myriad of costume changes, that at least saves on venue fees. Perhaps you do not need Grammy-award-nominated King Sunny Ade to perform his *jùjú* classics live. A tribute band should sound good enough on the dance floor.

Guests usually buy matching *aso ebi* ("cloth of the kin") from the couple's families. Doing so brings aesthetic cohesion and, crucially, helps raise money to pay for the wedding. But do you really need to buy another pink and royal-blue headtie if you have a mauve and periwinkle set from your nephew's nuptials last year?

When the waiter takes your order, it may be from a shorter menu. King prawns have been swapped for shrimp. Multiple speciality caterers are no longer the norm. Those hoping to wash everything down with a glass of Moët & Chandon should bring their own.

A chaotic currency redesign last year means cash is hard to come by. So "spraying", the smothering of celebrants in crisp naira notes as they dance, is less common (a recent high-profile conviction has also reminded Nigerians that the tradition is in fact illegal). Agents with point-of-sales machines will sidle onto the dance floor to help those who still want to offer a discreet financial gift.

In years past, wedding guests would stagger out, weighed down by kettles, coolers, three-tier food steamers and even mobile phones, colourful with stickers bearing the couple's names. Today, party favours are more likely to be bags of rice, oil and pasta. More modest, but arguably more welcome.

Europe

Germany's hard right

Rising in the east

CHEMNITZ, ERFURT AND NEUSTADT AN DER ORLA

Thirty-four years after Germany was reunified, extremists are doing better than ever in the east. Why?

THE LATE summer sun is beating down on a merry crowd assembled in Neustadt an der Orla, a small town in the east German state of Thuringia. As children slurp ice cream and Thuringian *Bratwürste* warm on the grill, Björn Höcke (pictured), a practised provocateur who leads the state branch of the hard-right Alternative for Germany (AfD), launches a diatribe against immigrants, journalists and the politicians who exploited the covid "plandemic" to test the limits of Germans' support for freedom. He urges his audience to give the "cartel parties" the boot on September 1st, when Germany's most fraught state elections in years will take place in Thuringia and neighbouring Saxony.

The conspiratorial slogans displayed on some attendees' shirts indicate the presence of a radical fringe. But when asked, onlookers seem more exercised by local teacher shortages and hospital closures—and say they are tired of the western German media's portrayal of the AfD as brownshirts in suits. Mr Höcke notes, accurately, that the audience is more diverse than the older men who filled his rallies at Thuringia's last election five years ago.

That helps explain why in Thuringia, and possibly in Saxony as well as Brandenburg, which votes later in September, the AfD is set to take top slot (see chart 1 on next page). This would be a first for a party set up in 2013 to oppose euro-zone bailouts, and has steadily drifted rightward.

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This week the AfD has been demanding tougher asylum rules after a Syrian who had evaded a deportation order murdered three people in western Germany.

The *Brandmauer* (firewall) other parties have erected around the AfD means it has no chance of finding the partners it would need to govern. But another populist outfit, the Sahra Wagenknecht Alliance (BSW), is primed to join the centre-right Christian Democratic Union (CDU) in an ideologically bizarre coalition in Saxony or Thuringia, or both. The BSW is named for its leader, who recently quit a hard-left party but whose positions on some matters (migration, Russia) resemble the AfD's. "We're fighting for those AfD voters who dislike unfairness," explains Katja Wolf, the BSW chief in Thuringia. She offers the example of a family earning little more than the minimum wage observing refugees enjoying similar living standards on benefits.

Together, the AfD and BSW command almost half the vote in Saxony and Thuringia. They significantly outperform in the five states that used to comprise communist East Germany (excluding East Berlin, see chart 2). Almost 35 years after the Berlin Wall fell and Germany reunited, the populist tilt of parts of the east has reignited a rancorous debate across the whole country. "East-bashing" in some media is ▸▸

back in vogue, albeit with a twist: easterners' harshest critics can sometimes be found among their own ranks.

In response some eastern intellectuals have revived the tendentious narrative that reunification was akin to western "colonisation", with assets stripped and westerners exported to run eastern state governments, universities and courts. (Some add that most AfD leaders, such as Mr Höcke, are *Wessis* themselves.) On the ground, meanwhile, the mood is grim. "Since 1945 we have never had a situation like this...a campaign based so much on emotion and so little on facts," says Bodo Ramelow, the leftist premier of Thuringia.

Mr Ramelow, who is set to lose his job, argues with frustration that Thuringia is thriving: low unemployment, high inward investment. Germany's current economic stagnation is indeed concentrated in the west. But material factors have "limited explanatory power" in accounting for the rise of extremism in east Germany, says Steffen Mau, a sociology professor at Humboldt University in Berlin. Average incomes remain around 80% of western levels, in part because of lower productivity in east Germany's many small companies. Still, this is comparable to, or better than, north-south differences in Italy or Britain. Nor is it easy to find good evidence for a claim sometimes levelled at the east: that its people secretly yearn for autocracy.

Mr Mau instead points to political and social structures. West Germany's parties failed to put down roots in the east after 1990, he argues; the success there of the CDU in the post-reunification years was a "chimera". Now easterners have more immediate expectations for their politicians than do western voters, and are more readily disappointed in them. And the region lacks the lattice of civil-society groups found across western Germany, from churches to unions to *Vereine* (clubs).

So when crises came, from refugees to covid and the war in Ukraine, some easterners were receptive to the appeals of political entrepreneurs like Ms Wagenknecht, skilled at tapping into specific eastern grievances. In this telling, democracy is not so much distrusted in the east as differently conceived. Over half of easterners, but just a quarter of westerners, agree with the statement "We only appear to live in a democracy; in reality, citizens have no say."

Demography provides another clue. The entire country is ageing, but in much of east Germany outside cities like Leipzig and Jena the situation is essentially irredeemable. The east-to-west exodus after reunification of some 3.9m people was concentrated among the young, especially women. The scars are visible in the depopulated villages and towns across much of the former GDR. Thuringia has shrunk by a fifth since 1990, and the decline in the east is set to continue (see map).

Studies find that the AfD and BSW do better in depopulating, ageing areas, and that locals' perception of living conditions matters more than reality when predicting voting behaviour. But there is a second consequence to the east's demographic woes. "A reputation for extremism is a headwind against recruitment efforts," says Christoph Neuberg, head of the Chamber of Commerce in Chemnitz, a former industrial stronghold in Saxony. East Germany's working-age population is already shrinking, in contrast to the west. Eastern firms who fear that politics will scare off the immigrants they need—from elsewhere in Germany or abroad—are waging campaigns with buzzwords like "openness" and "tolerance". But as their voting behaviour suggests, it is hard to convince Germans in shrinking regions to replenish their ranks with outsiders.

Waiting in the wings

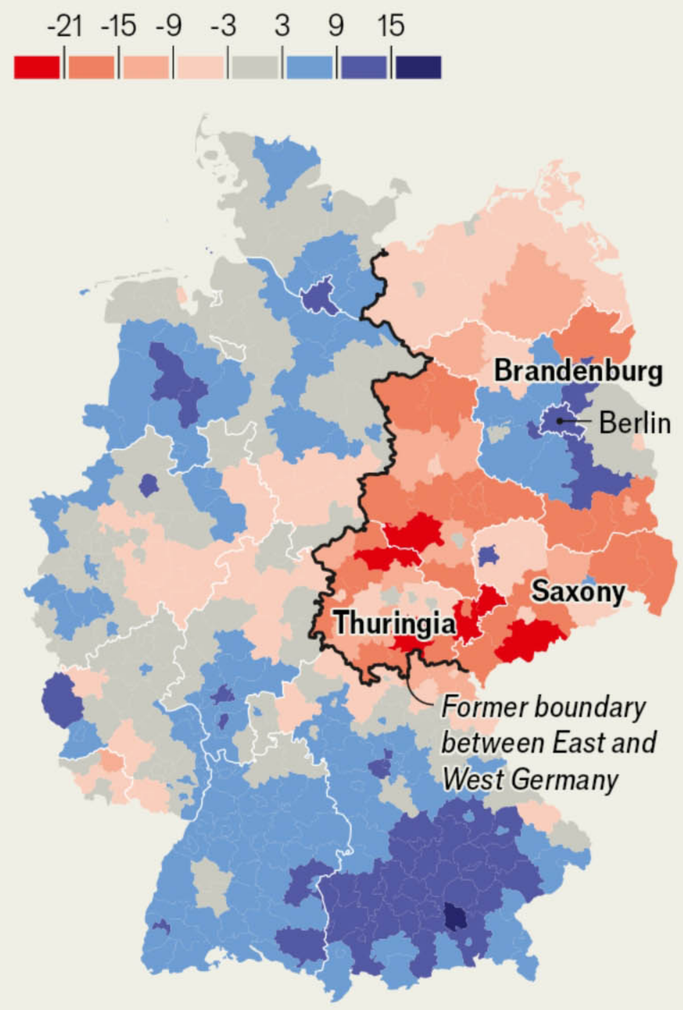
How long can the *Brandmauer* against the AfD hold in the east? Volker Dringenberg, who leads the party in Chemnitz, says it is only a matter of time until the CDU ushers it into government. CDU bigwigs in Berlin insist that will never happen. Yet at the municipal level in eastern Germany there are countless examples of informal co-operation; the AfD has simply become too big and entrenched to ignore. "People say we have to protect democracy," says Sven Schulze, the Social Democratic mayor of Chemnitz, who oversees a newly elected council where the AfD and other radicals occupy nearly one-third of seats. "But we can't exclude the AfD from everything. It's my job: I have to accept this."

Mr Schulze is doing his best. Others are losing faith. In 2018 Chemnitz was overrun by far-right rioters. Many came from other parts of Germany, but Sören Uhle, then a city official, says he was shocked to observe how many residents, including many he knew, joined the marches. Locals still bridle at the media's portrayal of their city as a hothouse of neo-Nazism. But Mr Uhle, a Chemnitz native who speaks of his city with obvious affection, worries that its leaders have not taken the hard-right threat seriously enough.

The elections could have profound consequences: for government in the east, for the AfD and the BSW, and potentially for Germany's national coalition. All three of its constituent parties could fall below the 5% threshold to enter parliament in both states. They may also confirm a growing sense that east and west are diverging. "We hoped that our generation could work it all out and deal with the trauma, but we failed," says Judith Enders, a political scientist from Brandenburg who was a teenager when the wall came down. "West Germans still look at the east, and say they don't understand. It's sad." ■

Still heading west

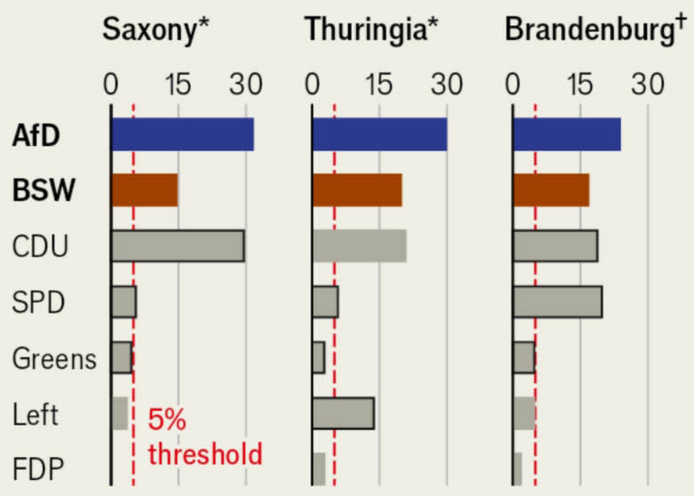
Germany, population forecast, 2021-45, % change
By district



Source: BBSR

Alternative states 1

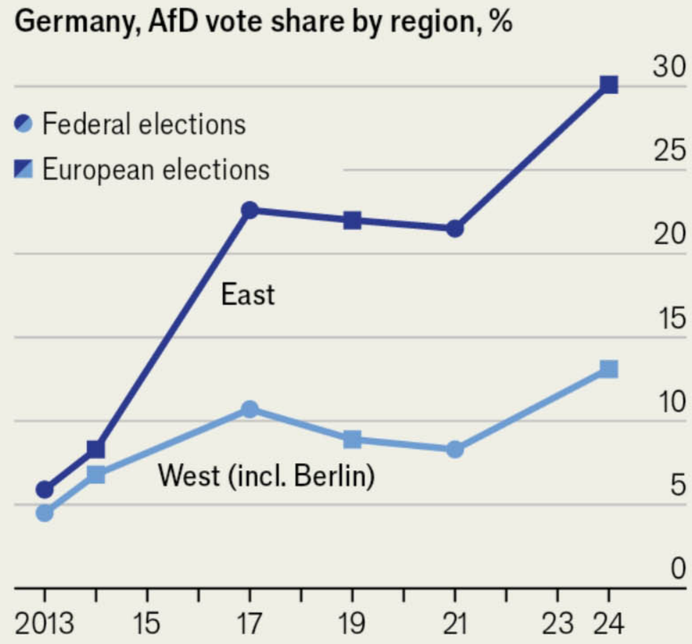
Germany, voting intention in September 2024 state elections, %



Source: INSA *Polled Aug 24th †Polled Aug 6th

Tale of two countries 2

Germany, AfD vote share by region, %



Source: Federal Returning Officer

France's new prime minister

Impasse

PARIS

Even under a new prime minister, stability will be elusive

ALMOST EIGHT weeks after an inconclusive legislative vote, France is still struggling to put together a new government. In other European countries, used to stitching together painstaking coalition deals between rivalrous political parties, this would be unremarkable. In 2017-18 it took Germany nearly six months, and even longer in the Netherlands earlier this year. But for France, which cherishes the stability that its Fifth Republic has brought since it was established in 1958, this hiatus is unprecedented. It reflects a failure to treat compromise as anything other than capitulation, and will render the new prime minister's task unusually challenging.

France has been run by a caretaker government since July 16th, when the outgoing prime minister, Gabriel Attal, formally resigned, staying on to oversee the hugely successful Paris Olympic games. As *The Economist* went to press on August 29th, President Emmanuel Macron had yet to name a new prime minister, a decision that the constitution puts in his hands. No single parliamentary bloc—including the left-wing New Popular Front (NFP), Mr Macron's centrists and Marine Le Pen's hard right—won anything close to a majority in the 577-seat National Assembly. In July, therefore, Mr Macron called on political parties to try to forge a compromise that might lead to a cross-party government.

Nothing of the sort has taken place. Instead the NFP has dug in its heels. With 193 seats, it is the biggest bloc in the lower house, though still 96 seats short of a majority. An alliance that reaches from Jean-Luc Mélenchon's radical Unsubmissive France (LFI) to moderate pro-European Socialists, it did manage to agree on a joint candidate for prime minister: Lucie Castets, a senior civil servant at the Paris town hall. All summer the NFP has insisted that it won the elections, that it can govern alone, and that it has no intention of compromising on its tax-and-spend manifesto pledges. This was the message it conveyed to Mr Macron, who met its leaders, along with Ms Castets, on August 23rd.

The president could have decided to offer Ms Castets the job anyway, knowing that she would probably be swiftly toppled by a vote of no confidence in parliament. That would at least have had the merit of demonstrating the NFP's relative weakness, and the lack of parliamentary support for its programme. Instead, Mr Macron decided to take that putative defeat as given. Three days after meeting its leaders he ruled out naming an NFP government. His aides argue that he is acting according to his constitutional duty to ensure "institutional stability". The NFP instantly accused Mr Macron of undermining democracy and abusing his presidential powers. The LFI is organising a protest march on September 7th. Mr Mélenchon has called for the president to be impeached.

Mr Macron has now embarked on fresh talks, in search of a figure who could command enough respect. Among new leaders being summoned to the Elysée palace are Carole Delga, the moderate Socialist leader of the Occitanie region in the south of France, and David Lisnard, the centre-right mayor of Cannes. Speculation in Paris swirls around other senior figures too. Those on the left include Bernard Cazeneuve (a former Socialist prime minister), Didier Migaud (a former Socialist MP, now head of a public-transparency watchdog) and Pierre Moscovici (a former Socialist finance minister, now head of the national audit body). Others hail from the right, including Michel Barnier (a former European commissioner), Xavier Bertrand (head of the Hauts-de-France region) and Christine Lagarde (head of the European Central Bank). The French seem simply baffled. A poll in August suggested that the most popular choice for a new prime minister was the caretaker incumbent, Mr Attal.

It's not going well

The nomination of a new prime minister, when it happens, is likely to mark the beginning of a new chapter of political upheaval, not the end of it. The left now feels that Mr Macron has stolen its election victory; Mr Mélenchon is taking his anger to the streets. The right is chronically divided. The centre is weakened and dismayed by the whole affair, brought on by Mr Macron's unexpected decision to call a snap election. And the leader most likely to benefit from all this discord in the longer run is Ms Le Pen. It will take unusually deft handling by a new French prime minister to bring about anything like the sort of stability and clarity that Mr Macron thought he would achieve by dissolving parliament in the first place. ■

Ukraine

Digging for victory

KYIV

Russia and Ukraine are building new fortifications, this time inside Russia

FOUR WEEKS into Ukraine's advance into the Russian province of Kursk, the soundscape of war is changing. The rat-a-tat clap of enemy machineguns was always a feature, but now it is punctured by the clangs and agonies of direct hits. "The enemy has wised up," complains Serhiy, an armoured-vehicle driver with the 80th brigade, one of the four key units that led the charge. "The firing was wild in the first few days. Now we are up against professional gunners, we think from the naval infantry." Ukraine is continuing to edge forward, using electronic warfare and the green cover of summer to evade the worst of Russia's attention. Their commanders in particular appear determined to push westward towards the natural frontiers of the Seym river. But the pace is slowing—and a new front line, stretching for hundreds of kilometres, is taking shape.

The fog of war and cloak of Ukrainian operational secrecy mean details are still scarce. But satellite images showing Russian fortifications offer the most obvious confirmation of stabilisation. In the initial phase, Russian engineering teams protected against worst-case scenarios, digging in around high-value targets like the nuclear-power station near Kurchatov and along the main road leading north to the regional capital, Kursk. Now they are building extended fortifications to the east and west, much closer to the new front lines—and at the closest point, only 16km from assumed Ukrainian positions, according to Brady Africk, an American analyst who tracks ▸▸

these defences. The pace of the construction mirrors that seen in southern Ukraine in early 2023. The appearance of the so-called "Surovikin line", named after Russia's commanding general at the time, played a key part in stopping Ukraine's counteroffensive later that year.

Ukrainian military-intelligence sources say they are untroubled by the likely culmination of the Kursk offensive. The operation has already achieved important objectives, says "Detective", an officer involved in the action. Kursk was a "proof of concept", he says, demonstrating Ukraine's continued ability to circumvent Russia's numerical advantage. It was synchronised with a broader campaign of "deep strikes" into Russia, using Ukrainian-produced weapons to hit aerodromes and energy infrastructure every day. Success has shown what could be achieved if Ukraine's Western allies were to drop their restrictions on using their weapons. It has also brought in nearly 600 prisoners of war for exchange.

Russian resilience

But the Kursk operation has failed to achieve its big aim of distracting Russian forces from their push towards Pokrovsk, a vital logistical hub for Ukrainian troops. Russia has moved some troops from the Kherson region in the south, and from the Chasiv Yar and Siversk lines in the east. But as Ukraine's commander-in-chief, Oleksandr Syrsky, admitted on August 27th, Russia has only intensified its focus on the crossroads town. Moreover, Ukrainian defences appear to be crumbling, with Russia making rapid gains along the main railway from the east. By the end of General Syrsky's press conference, Russian forces had moved fully into the mining town of Novohrodivka, less than 9km from Pokrovsk. Oleksandr, a drone commander with the 110th brigade, says the Russians are excelling in surprise operations of their own.

"They hide in the forests, gather forces, and then they surge forward."

Russia's swift progress has highlighted weaknesses in Ukraine's own fortifications. In some instances, advancing Russian troops have turned Ukraine's concrete trenches into their own. More often than not, there have simply not been enough Ukrainian obstacles or men to hold the lines. The Russians are much better resourced in this regard, with ten dedicated engineering regiments against Ukraine's one regiment and two brigades. Part of Ukraine's problem is cultural, says an officer in one of Ukraine's few engineering units. "The General Staff simply isn't managing the process, and there isn't a plan."

Ukraine's troubles in the Donbas region pose questions about what it is doing with its reserves, which Russian commentators claim are not insubstantial. "Botsman", a soldier with the Khorne group, which is fighting in the Kursk salient, says Ukraine is indeed preparing a new stage in its operation. "This is far from the last surprise for the enemy from us," he says.

In the past few days, reports have emerged of new troop build-ups near the Russian border in the Belgorod region, and on the Belarus border in the north. Speculation about a possible second incursion in the south is being aired. But after the humiliation of Kursk for Russia, one thing is clear: it will be watching. There will be no new element of surprise. The danger is that as the situation deteriorates around Pokrovsk, Ukraine will be compelled to use whatever it has to halt the slide. ■

Repression in Azerbaijan

The new enemy

TBILISI

The war with Armenia is over, so domestic critics are now the target

BAHRUZ SAMADOV, a young Azerbaijani academic and writer, was arrested on August 21st. He has since been charged with treason, reportedly because he had written critical pieces about the country's conflict with Armenia. His arrest was quickly followed by that of another peace activist, Samad Shikhi. These are the latest markers in a harsh and growing crackdown on the few remaining independent voices in the country.

The arrests took place in the run-up to a general election on September 1st, which the ruling party, led by Azerbaijan's autocratic president, Ilham Aliyev, will again dominate. No one expects the balloting to be free. The main opposition party is boycotting it, saying it will be a charade.

Azerbaijan's opposition had long hoped that the country would open up after its war with Armenia ended. Optimistic reformers argued that the authoritarian system was the result of the war footing the government had been forced to adopt in the 1990s after losing a big chunk of territory, including the enclave of Nagorno-Karabakh, to the Armenians. In a series of offensives between 2020 and 2023, Azerbaijan managed to take back all of the land it had previously lost. But if anything this has empowered Mr Aliyev to go after his enemies at home even more vigorously.

Others bet that outside pressure would persuade Azerbaijan to put on a friendly face. After Russia's full-scale invasion of Ukraine, Azerbaijan signed an agreement to provide much-needed natural gas to the European Union—a club that, in theory, puts human rights at the heart of its foreign policy. And in November, Baku, Azerbaijan's capital, will host the COP29 climate summit.

Yet the repression keeps on getting worse. Late last year several journalists from Abzas Media, an investigative news website, were arrested and hit with trumped-up charges of financial crimes; they are still behind bars. Another prominent political activist, Anar Mammadli, was arrested in April and charged with similarly spurious offences. Now it is the turn of Mr Samadov and Mr Shikhi.

Whatever leverage the outside world may once have had for influencing Azerbaijan has disappeared, as the country has become deeply involved in the sharpening conflict between Russia and the West. "[Mr Aliyev] thinks that he can push red lines further and further because everybody now needs him," says Altay Goyushov, head of the Baku Research Institute, a think-tank. "They don't want to spoil relations with him." Mr Goyushov himself recently left the country. "I knew that my turn could be coming," he says.

Defeating Armenia militarily means Mr Aliyev needs a new enemy. Few know this better than Mr Samadov, a doctoral student researching "authoritarianism and the logic of exclusion in Azerbaijan". In a 2021 essay he described how the state demonises Armenians and domestic critics in parallel fashion: "The enemy, internal or external, must be eliminated." ■

CHARLEMAGNE
The other xenophobes

Europe's lefties know how to bash migrants (nearly) as well as the hard right

As EUROPE FACED a sharp rise in the arrival of migrants seeking asylum in 2015, many national governments demanded more be done to stem the flow. Sweden's prime minister disagreed. "My Europe does not build walls," Stefan Lofven, leader of the Social Democrats, thundered in response, exuding the high-mindedness left-wingers muster at will. A couple of electoral setbacks later—it turns out voters are rather keen on walls during migration crises—the party is speaking from a different register, this time as an opposition force. "The Swedish people can feel safe in the knowledge that Social Democrats will stand up for a strict migration policy," Magdalena Andersson, its current leader, said in an interview to a local paper in December. Remember peace, open borders and the socialist brotherhood of man? Not Mrs Andersson. "Free immigration is not left-wing," she now argues.

Migrant-bashing has had a good run of late in Europe, largely as a result of the xenophobic hard right gaining ground across the continent. But these days it is not just the ideological allies of Marine Le Pen in France or Geert Wilders in the Netherlands banging on about new arrivals, or the integration of old ones. Parties on the other end of the political spectrum sometimes join in. On September 1st Sahra Wagenknecht, a German stalwart of the radical left, is expected to do well in two state elections, with a third to come later in the month. Polls show that in some contests her one-woman band, launched in October, will beat all three parties of the ruling coalition. Beyond wanting to soak the rich, it is Ms Wagenknecht's overt animosity to migrants that stands out. Her claim there is "no more room" to take in refugees is the kind of rhetoric that has helped propel the nationalist Alternative for Germany (AfD) to the top of the polls. A stabbing spree by a Syrian failed asylum-seeker that left three dead on August 24th would once have delivered a windfall to the hard right. This time it is likely to help Ms Wagenknecht's lot just as much.

Is the left simply aping the xenophobic right to siphon off some of its votes? If so, it is becoming a proven strategy. In Denmark Mette Frederiksen, prime minister since 2019, has inserted a hefty dose of hard-nosed policy on migration into her centre-left party's programme. Far from reversing her conservative predecessors' tough rhetoric on new arrivals, she made it her own. So-called "ghettos" with lots of migrants and crime (or just poverty) have been razed in a bid to force newcomers to integrate. Some refugees from Syria have been told their country is now safe enough to return to. A plan to deport asylum-seekers to Rwanda so they could be processed there was mooted. The strategy horrifies many socialists beyond Denmark—but is popular. With the exception of tiny Malta, Ms Frederiksen is the only centre-left leader in Europe whose party is both in office and ahead in the polls.

Part of the left, especially its revolutionary fringe, has long been uncomfortable about migration. Karl Marx saw the importation of foreign labourers as a ploy by capitalist bosses to keep the proletariat down. His French disciples among communists and trade unionists were among the most ardently opposed to open borders. A softening of that policy in the 1980s left the door open to Ms Le Pen's father to build a truly xenophobic political movement, often pitched to the same working-class electorate. Jean-Luc Mélenchon, France's latest firebrand of the left, has advocated against the right of European Union citizens to settle in France. For him, migration is at its root an exploitation of the migrant.

More centrist lefties have long been relaxed about immigration. That is in part because mainstream social-democratic parties that once catered to blue-collar types—those worried about jobs going to foreigners—have been taken over by college-educated yuppies for whom inclusion trumps class warfare. But even that bleeding-heart urban electorate occasionally questions the effects of letting in lots of new people. Some, like David Goodhart, a British thinker of the left, argue that high levels of migration undermine support for the welfare state. The solidarity required to enforce redistribution rests on the belief those in need are "people like us" that have merely fallen on hard times. Carsten is happy to bail out Torsten, whose values he shares. But what about Ahmed? Too much diversity frays societal bonds. America never fully developed a welfare state in part because those in need (often blacks or hispanics) did not look like those with plenty.

I'm not racist, but...

For those on the front lines of political life, rather than in its ivory towers, the left's shift to grappling with migration feels overdue. Yes, xenophobes exist. But even open-minded voters worry about migration for all sorts of legitimate reasons, including the strain on housing and public services. In some places, notably Sweden, a rise in gun crime can be tied back to a rise in poorly integrated migrants. Yet in the political centre, and particularly on the left, *omerta* prevailed for years. Merely talking about the effects of migration was "doing the far right's bidding"; voters would always "prefer the original to the copy" at the ballot box.

The result was that an issue voters care about was mostly brought up by parties with abhorrent views. If that is changing, so much the better. Signs are it might be. Plenty on the left talk about being "pro-integration" rather than "pro-migration", ie, dealing with foreigners already here rather than allowing more to come. At the EU level, socialists in May voted for a new "migration pact" that will make life tougher for illegal migrants—including building the metaphorical walls Mr Lofven once objected to. The debate around immigration requires nuance: welcoming people is a boon to society if handled well (not to mention a moral obligation when dealing with refugees) but can be a burden if not. It is one the left should not be left out of. ■

Britain

Social care (1)

The real test of Labour's ambition

Fixing social care will require reform, money and—above all—courage

PHILIPPA RUSSELL'S son, Simon, has spent his life defying the odds. Born with fluid on the brain, he was one of the first children to have successful life-saving shunt surgery. He surprised his doctors first by making it out of his teens, then by living to 35. Today he is 60, and the expectation is that he could live into his 80s. That prospect should fill Dame Philippa with joy. Instead she is frantic with worry.

Simon has always had learning disabilities. But last Christmas he became seriously ill. He is currently living in a nursing home which costs £36,000 ($47,000) a year. Dame Philippa, who is 86, frets about who will support him once she is gone; to give him the care he needs she will probably have to sell his small house. "We must give you lots of vitamins," Dame Philippa's daughter tells her. "We've got to keep you alive to keep getting your pensions."

How to care for the vulnerable and the elderly is a challenge facing every rich country (see next story). Yet as Richard Humphries, author of a book called "Ending the Social Care Crisis", observes, England has handled the task particularly badly. (Social care is a devolved matter in Britain; Scotland, Wales and Northern Ireland are far more generous.) Its system offers a safety-net that often fails to cover essential needs; a lottery where the unlucky are exposed to catastrophic costs; and a workplace that badly undervalues its carers.

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Successive governments have shied away from confronting this mess. Boris Johnson, unexpectedly, came closest with his plan for a (now-ditched) health and social-care levy. Whether the new Labour government has the mettle to do so will be perhaps the truest test of its character.

Underfunding is at the root of the problems. Social care is provided by local authorities, the bits of government that have been hit hardest by austerity. The largest share of their funding comes from council tax, a regressive levy based on outdated property values that councils cannot raise by more than 4.99% a year without triggering a vote among local residents. A recent survey found that in the most recent fiscal year, almost three-quarters of local authorities had exceeded their budgets for adult social care.

With money so tight, spending is rationed in two main ways. The first is to restrict access to care, in stark contrast with the universal ethos of the National Health Service (NHS). To be eligible for publicly funded care, Britons must have only the most meagre assets left. The threshold of £23,250 for residential care, which includes the value of their home, has been frozen since 2010 (it would be around £34,800 in today's money). They must also have severe support needs and be able to navigate a bureaucratic maze.

There are some other ways for people to get help from the state. Attendance allowance, a non-means-tested benefit, covers some of the costs of personal care for pensioners with disabilities. The NHS pays for nursing care in care homes and, arbitrarily, social care for a few whose health issues are caused by accident, illness or disability. But getting that usually requires legal challenges and huge amounts of luck.

The most obvious sign that things are going wrong is that fewer people are receiving publicly funded care (see chart). The number of people aged 65 and over rose by 745,000 between mid-2016 and mid-2022. But since 2016 the number of over-65s receiving care has fallen by 8% to 543,000, with almost half that number still waiting for an assessment.

The second way councils control spending is to pay fees to providers that fall short of the true costs of care. Clients in residential homes who fund their own care are estimated to pay around 40% more than publicly funded residents: in effect, they subsidise the stinginess of the state. It is hard for providers to make the sums add up. "We're held together by goodwill and glue," says Mike Padgham, who runs a small group of care homes in North Yorkshire. In 2022-23 profits for care homes fell to historically low levels.

The market for providing care at home, partly because it is cheaper, is more buoyant: in the five years to 2023, the number of registered providers of domiciliary care rocketed by 53%, to almost 13,000. But it is poorly regulated, and there are concerns about the quality of some new entrants.

Some of those whose needs are not met by the state have relatives who can look after them. An estimated 5m unpaid carers pick up the slack where the system does not; their support is worth an estimated £162bn a year, according to Carers UK, a charity. Those who have to fund their own care often find that it can be astronomically expensive. The government's own estimates are that one in seven people aged 65 and over will pay more than £100,000 for their care. Because no one knows how long they will need to be looked after, it is impossible for them to plan for how much they will spend.

The precariousness of this system extends to social-care workers, too. Boosting the minimum wage has increased pay somewhat but has also eroded the premium commanded by experience. Skills for Care, a charity, finds that workers with five years' experience only earn an extra six pence more per hour than rookies do. Hardly surprising, therefore, that the turnover rate in the industry is 28% and that vacancies are tough to fill.

Recent governments have relied on migrants to plug some of these shortages. In the year to March 2023 some 70,000 care workers came to Britain on a special health-and-care visa extended to care workers in 2022. If that influx felt uncontrolled, the last Tory government's response, to ban care workers from bringing dependents, was ham-fisted: in the quarter to June visas fell by 81% compared with the previous year, which is bound to worsen labour-market gaps.

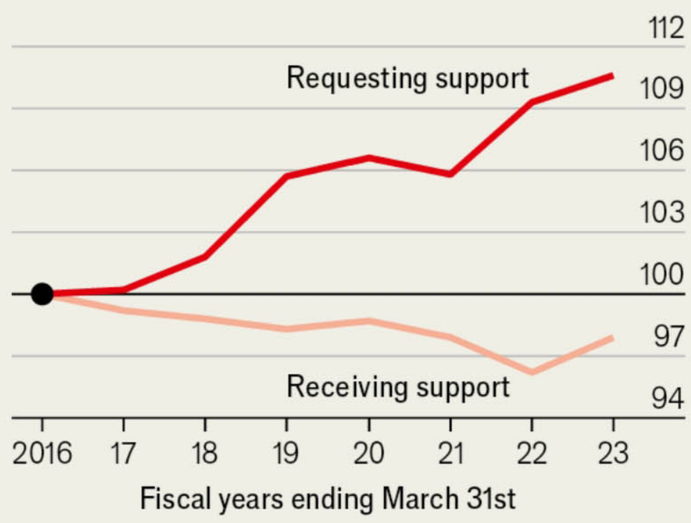
Labour is planning a different approach to make social-care jobs more palatable. An employment-rights bill planned for the autumn is likely to include a fair-pay agreement for care workers, collective-bargaining rights and fewer zero-hours contracts. Technocratic solutions of this sort can alleviate some problems. Joining up data with the NHS—something the health service aims to do with a new federated data platform—would make the sector more efficient. Better-aligned financial incentives for councils to invest in prevention and supported housing would keep more people out of hospital and care homes.

But the real problem is money: higher wages for care workers, for example, risk worsening the squeeze on their employers without more funding. And money is something that Rachel Reeves, the chancellor of the exchequer, is reluctant to dish out. In July the new government scrapped a plan that would have spread the risk of catastrophic overspending across the population by raising the floor at which people are eligible for public funding to £100,000 and capping people's lifetime care costs at £86,000. The plan, a diluted version of a proposal first made by Sir Andrew Dilnot, an economist, back in 2011, was not perfect but it had at least been legislated for.

There are rumours that Labour will establish a royal commission to find another way forward. For now, however, it is back to square one. Ultimately, the sector needs a long-term funding settlement. Social care should be an "enabler for the lives we want to live", says Dame Philippa. Successive governments have failed to deal with the problems she and her son face. Labour has yet to show it will be any different. ■

Jaws of defeat

England, social-care demand and supply
2016=100



Sources: King's Fund; NHS England

Social care (2)

Careful consideration

Lessons for Britain from other countries

TO JUDGE BY the record of successive British governments, reforming social care is almost impossible. But other rich countries have managed to grasp the nettle. Doing so, notes Natasha Curry of the Nuffield Trust, a think-tank, usually requires a government to make a compelling case for change. It also requires some difficult policy choices.

Most countries accept that some of the costs of care should be shared by the state. Voluntary private insurance comes up short, in part because the young do not think about their old age until it is too late and because the old find that premiums are too high. Out-of-pocket costs can quickly spiral, leaving poorer folk dependent on relatives or charity. The state can help in two main ways: through general taxation or social insurance.

England uses general taxation to fund a threadbare safety net. Nordic countries are more generous. Aside from the Netherlands, Norway, Sweden and Denmark spend the most on long-term care as a share of GDP in the OECD, a club of rich countries. Funds are raised locally, topped up with government grants to iron out regional variations, and then ring-fenced. Costs are contained by reducing levels of residential care, which is dearer than care at home. But the Nordic countries still face problems of financial sustainability, says Ana Llena-Nozal, a health economist at the OECD. Cost pressures mean that care has been cut back in recent years; variation between regions is increasing.

In social-insurance schemes, individuals—and often employers, too—make mandatory contributions that entitle them to a basic level of care when they need it. In Germany, which introduced its social-insurance scheme in 1995, these contributions amount to 3.4% of workers' income. Those without children must pay more. Japan's system was reformed in 2000; there, contributions start from the age of 40 (in part because many people start to care for ageing relatives at about that time) and also tap pensioners' income.

Yet this model, too, has its challenges. As people live longer and costs rise, social-insurance contributions are usually still topped up with taxation. When Japan's costs rose too quickly, the government cut bespoke care for the lowest categories of need and replaced it with prevention programmes and exercise classes. By incenti- ▶▶

vising people in need to take cash instead of services, the German system still relies on families—usually women—to provide care at home, notes José-Luis Fernández of the London School of Economics.

Almost every system requires out-of-pocket payments, on top of what has been paid by taxes or contributions. Often they are tied to some kind of means test. Australia, with a tax-based system, uses a mix of means-tested fees and charges for services for the elderly, though lifetime costs and annual "hotel costs" for bed and board in care homes are capped. (A parallel system for those with disabilities is more generous.) France tapers the level of state-funded support according to income.

If the Labour government is to get serious about reforming social care, two lessons stand out. One is that it must articulate the case for change. For Germany, it was a matter of equity after reunification. For Japan, it was to ease the burden on relatives, many of whom were dropping out of the labour market. The other is that context matters. Nordic citizens are used to high taxes and a more fulsome welfare system. Social insurance offers greater transparency on the contract between the individual and the state; that may be a better way to persuade Britons to shell out. ■

Electric vehicles

Charging ahead

For the moment, Britain is welcoming cheap Chinese cars. Good

A SHORT WALK down the road from Berkeley Square in Mayfair, a swish part of London, sits a BYD showroom. The Chinese electric-vehicle (EV) manufacturer set up shop there last year. Rolls-Royce displays its luxury cars just across the street, having first taken up in the neighbourhood in 1932. BYD probably doesn't mind the association.

BYD clearly hopes to pitch its vehicles as aspirational. But their real allure is that they are affordable. One model on display, the Dolphin, sells for around £25,000 ($33,000); British car reviewers have called the pricing "attractive" and "impressively low". What really worries BYD's Western rivals is that there is plenty of room for prices to fall. In China the Dolphin sells for 99,800 yuan, or just over £10,000. An analysis by Rhodium Group, a consultancy, found that BYD could cut its prices in Europe by 30% and still make the same profit per car that it does in China.

Consumers are gradually cottoning on to the appeal of Chinese EVs. Seeing an

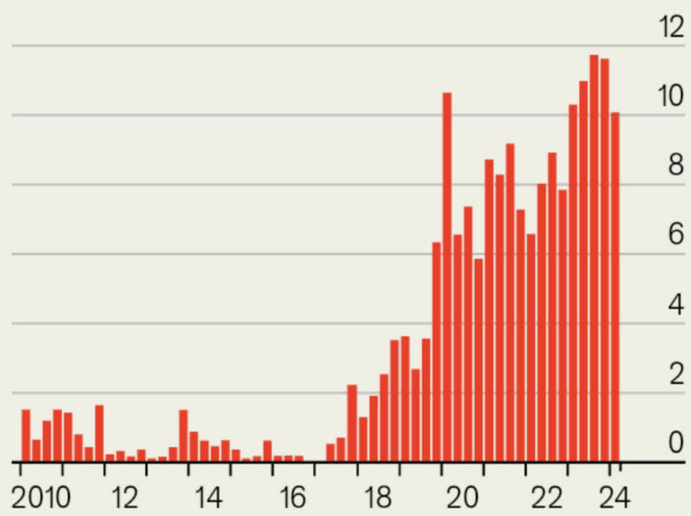
Battery pack

Ora, Maxus, MG or BYD marque on the road in Britain still feels noteworthy. On current trends, that won't be the case for long. Chinese brands now make up around 10% of new EV sales in Britain, up from around 3-4% five years ago (see chart). Those figures, if anything, understate China's increasing role in the car market because Western brands are also shifting carmaking to China. According to data from JATO Dynamics, an automotive-research firm, 22% of EVs registered in Britain (and 7.5% of all cars) are now made in China.

More affordable cars are welcome news for households: EVs are more expensive than their petrol equivalents for now, but the gap is narrowing fast. Making it cheaper to get around ought to be a welcome spur to growth. Speedy EV penetration is critical for the government's decarbonisation goals. But these arguments also apply in America and the European Union, and they are both instituting hefty tariffs on Chinese cars to discourage imports and shield domestic carmakers. On August 26th Canada said that it was following suit.

Juiced up

Britain, new battery electric-vehicle registrations from Chinese brands, % of total



Sources: Department for Transport; DVLA; *The Economist*

Wisely, Britain's new Labour government has so far largely leant away from such protectionism. Jonathan Reynolds, the business secretary, said in July that he was not planning to ask the independent Trade Remedies Authority (TRA) to investigate Chinese EVs, a necessary first step towards tariffs. Britain's own car industry, which can also demand an investigation, has held off, too.

Why the different approach? The main motivation is likely to be fear of retaliatory tariffs. China is a big export market for high-end producers like Rolls-Royce, Jaguar and Bentley, which make up a big chunk of Britain's car industry. And China would be unlikely to limit its retaliation to the car industry. Scottish salmon and whisky might be juicy targets; China buys lots of both products and Labour is loth to risk alienating voters north of the border.

Advocates of trade barriers on Chinese EVs also raise security concerns. Modern cars gather vast amounts of data. Sensors scan road conditions; on-board computers connect to passengers' smartphones; voice-control systems record conversations. The Chinese military has banned Tesla vehicles from its facilities since 2021, citing security issues with their on-board cameras. A Chinese carmaker should not be supplying ministerial cars in Britain—no matter how cheap. And there may come a point when Chinese EVs exert too much control over the market for comfort.

But what distinguishes Chinese EVs is less their usefulness for surveillance and more that they are increasingly competitive. For cameras, smart toasters and more, Chinese manufacturers have an incentive to behave well because any whiff of association with spying would be commercially harmful. The logic isn't any different behind the steering wheel. ■

International

Climate change

The poisonous politics of water

DENILIQUIN, MATHARE AND PUNITAQUI

Polarisation makes it harder to adapt to increasing droughts and floods

THE WATER thieves come at night. They arrive in trucks, suck water out of irrigation canals and drive off. This infuriates Alejandro Meneses, who owns a big vegetable farm in Coquimbo, a parched province of Chile. In theory his landholding comes with the right to pour 40 litres of river-water a second on his fields. But thanks to drought, exacerbated by theft, he can get just a tenth of that, which he must negotiate with his neighbours. If the price of food goes up because farmers like him cannot grow enough, "there will be a big social problem," he says.

The world's water troubles can be summed up in six words: "Too little, too much, too dirty", says Charlie Iceland of the World Resources Institute (WRI), a think-tank. Climate change will only aggravate the problem. Already, roughly half of humanity lives under what the WRI calls "highly water-stressed conditions" for at least one month a year.

Adapting will require not only new technology but also a new politics. Villages, regions and countries will need to collaborate to share scarce water and build flood defences. The needs of farmers, who use 70% of the world's freshwater, must be balanced with those of the urbanites they feed, as well as industry. In short, a politics of trust, give-and-take and long-term planning is needed. Yet the spread of "them-and-us" demagoguery makes this harder. A global study by Jens Marquardt and Markus Lederer of the University of Darmstadt notes that populists stir up anger, sow distrust of science and dismiss climate policies as the agenda of liberal elites.

Around 97% of the water on Earth sits in the salty ocean; land-, lake- and river-bound life depends on the remaining 3%. Although the amount of water on Earth is immutable, the daedal workings that move it around are not. The water cycle is made up of a dizzying number of processes, many of them non-linear, which operate across manifold timescales and areas. All are, ultimately, driven by the energy of the sun, which makes seawater evaporate, plants transpire and, by disproportionately heating the tropics, powers ocean currents and weather systems.

Global warming alters the ways water behaves. It intensifies the water cycle, increasing the severity of both very wet events and very dry ones. Warmer air can hold more moisture, which also evaporates more readily out of warmer oceans. More moisture in the atmosphere means more water falls back as rain or snow. This increases the likelihood of heavier deluges in wet regions—and of less potential precipitation in drier spots. "Thirsty" air there is more likely to suck moisture out of the soil, prolonging and worsening droughts.

The UN reckons that flooding affected around 1.6bn people between 2002 and 2021, killing nearly 100,000 and causing economic losses of over $830bn. Droughts in the same period affected 1.4bn, killed over 20,000 and cost $170bn. The World Bank estimates that by 2099, the global supply of freshwater per head will fall by 29% from what it was in 2000; and by a massive 67% in Africa, while rising by 28% in Europe (see chart on next page).

In Chile, "too little" is becoming a crisis for which politics is nowhere close to finding a solution. It is the most water-stressed country in South America. "Santiago [the sprawling capital] is all right now, but in ten years' time it might not be," warns Jessica López, the minister for public works.

For centuries, Chileans who wanted ▸▸

water simply took it from streams and rivers, or sank wells to pump groundwater. But as parts of the country dry up, water rules written in wetter times are increasingly out of date. Intense distrust between left and right—in a country that has seen massive protests in recent years—makes them hard to revise.

Conservative governments granted many landowners "water rights", allowing them to pump a generous amount each day, free of charge and for ever. Today, the total volume of granted water rights far exceeds what can sustainably be extracted. So farmers like Mr Meneses have had to sit down with their local water association and agree on how much everyone can pump. Yet some people cheat, sinking illicit boreholes. Tension between big farmers, small farmers and villagers is high. "We're surrounded by farms with illegal wells, and that's why we have no water," says Erica Díaz, a hard-up villager who relies on water trucks and recycles her washing-up water onto her vegetable patch.

Conservative Chilean landowners think of "water rights" as a natural part of property rights. But water is not like land. A house need not encroach upon a neighbour; but a well depletes groundwater for everyone. Granting a fixed volume of water rights in perpetuity is nuts.

Meanwhile, politicians and activists on the Chilean left push the notion that water is a human right. A draft constitution, backed by the current government but rejected by voters in 2022, referred to "water" 71 times, affirming everyone's right to it, especially if they were poor or indigenous. Yet the draft gave little clue as to how that water might be delivered.

The trickiness of water politics is on display at a meeting of small farmers in Punitaqui, a town in northern Chile. Everyone agrees water is too scarce. Some farmers complain big companies have taken an unfair share. Others complain of widespread criminality—including a water inspector getting death threats. An expert shows how to use ultrasound to detect leaks, which are common. Yet many farmers in the room admit they don't even know where their local pipes are buried.

In one sense Chile has plenty of water: to the west is the Pacific Ocean. But getting a permit to build a desalination plant can take more than a decade. The problems are political more than technical. Just for permission to use a bit of shoreline for a plant, a firm must apply to the ministry of defence—taking three or four years. The archaeological-monuments council needs to be assured nothing of cultural interest is being damaged. That can take another three or four years. And then transporting water is a bureaucratic morass.

Chile needs to think about water logically, says Ulrike Broschek of Fundación Chile, a think-tank. Desalination is useful, but unless powered by renewable energy it is bad for the climate. By one estimate, global emissions from desalination could match all of those from Britain by 2025.

In Chile, bigger, cheaper gains are there to be made. Farms, which account for four-fifths of water use, could use more drip irrigation and hydroponics. If farmers paid directly for water, they would use it more efficiently. Cities, instead of having impermeable pavement everywhere, could use "rain gardens" to capture rain and replenish the groundwater below. And the rules need to be simpler: 56 public bodies regulate water, with no overall co-ordinator, points out Ms Broschek.

Ms López, at least, offers an encouragingly pragmatic view. A pending bill will speed up permits for desalination, she promises, and more water infrastructure will be built. More broadly, she argues that water "needs to have an appropriate price".

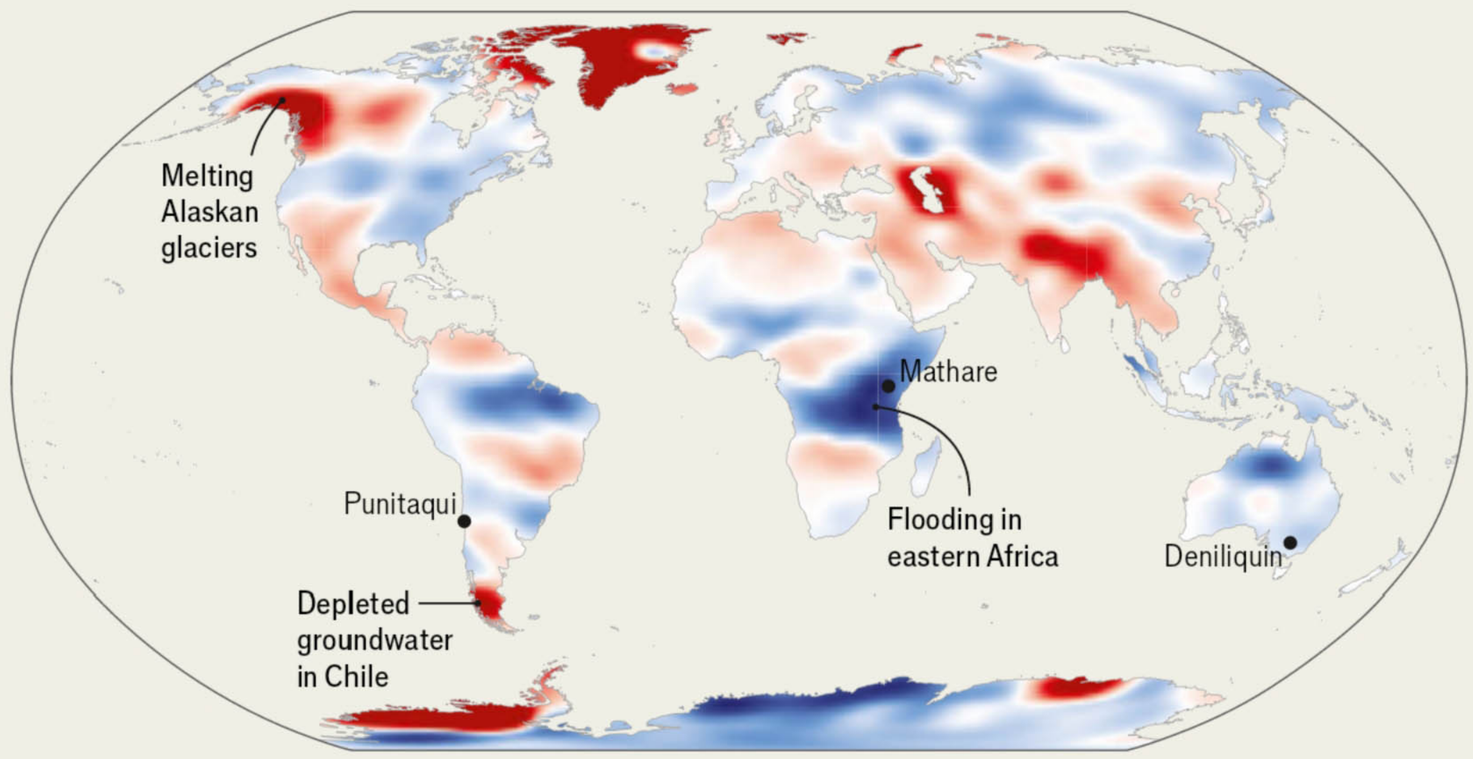
Elsewhere, sensible water pricing is as rare as it is necessary. Even in places where it has been shown to work, it can be politically fraught. Take Australia, another dry country where farmers use more water than everyone else combined. Federal and state governments thrashed out an agreement in 2012 to conserve water in the Murray-Darling Basin, Australia's biggest system of interconnecting rivers. It relied on an existing scheme allowing farmers to buy or sell water entitlements. The goal was to save 3,200 gigalitres (gl) by 2024, either by "buying back" entitlements from farmers or by investing in projects that could save equivalent amounts, such as more-efficient irrigation systems.

Australia has conserved about 2,130gl of water, equivalent to over 20% of what was previously consumed. Meanwhile, farm output has risen. It helps greatly that the country is rich. The government has pumped A$13bn ($8.8bn) into water-saving. Systems for measuring water use are sophisticated. When Malcolm Holm, a dairy farmer, needs to irrigate his pastures, he orders water online. Sensors measure out the volumes. Locks are raised, and it trickles into his fields. The system sustains his 1,200 cattle.

Yet nearly everyone is unhappy. Environmentalists say the targets should be more ambitious. Farmers say they are too strict. No one is forced to sell their water to the government, but because many do, the system reduces the total amount available to trade for irrigation. This is one reason why water prices have risen in the past decade. That is the point: higher prices spur conservation. But they also threaten rural livelihoods. Protests have erupted in rural New South Wales. "Pre-schools are struggling to get children in. Footy clubs haven't got enough players," says Linda Fawns, a councillor in Deniliquin, a small town. A

Wetter and drier

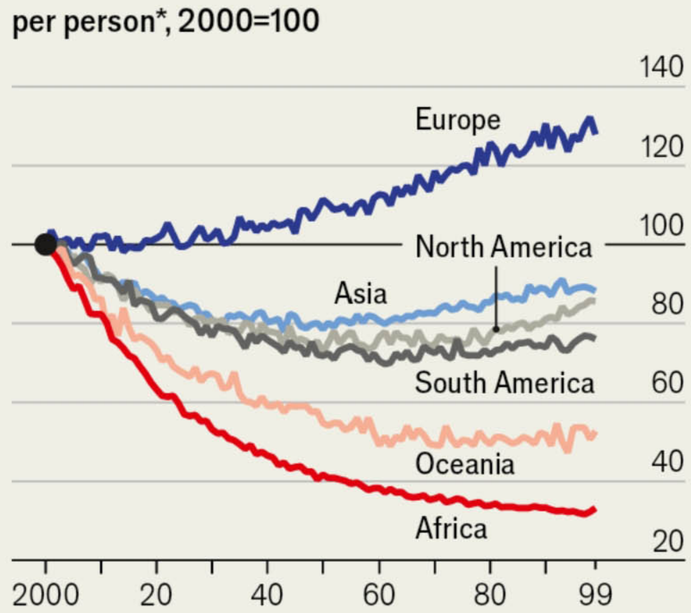
Change in water level*, May 2024 compared with 2005-10 average, metres
As estimated by surface mass anomalies



Source: NASA GRACE
*Includes groundwater, ice, snow, soil moisture and surface water

More mouths, less river

Estimated freshwater available per person*, 2000=100



*Under the RCP 4.5 climate change scenario
Sources: United Nations; World Bank; *The Economist*

local agricultural mechanic, Jamie Tasker, claims the government is "scaremongering" about the environment and squeezing irrigation to shore up city votes.

Almost nine out of ten Australians live in cities, and politicians, certainly, do not want their taps to run dry. But priorities change as parties alternate in power. The (conservative) Liberal Party, which is more pro-farmer and reluctant to do much about climate change, stopped doing water buybacks. The Labor Party, in federal power since 2022, resumed them.

And then there is water theft. Last year a farmer was fined a mere A$150,000 for stealing over A$1.1m-worth of groundwater. "Theft is a business model, because fines don't fit the crime," grumbles Robert McBride, an outback sheep farmer.

In 2026 the Murray-Darling plan comes up for review. As droughts grow worse, the government ought to buy back more water, thus raising water prices and driving the least water-efficient farms out of business. They won't go quietly.

From conflict to compromise

If the politics of water is touchy in well-off, stable places like Australia and Chile, it is explosive in poorer countries. In many of them, climate change seems to be making the weather more erratic, for example by magnifying the variability inherent in the El Niño-Southern Oscillation, a global driver of monsoons and their rains.

In April and May floods in Kenya were the worst in memory, with bridges, schools and railways destroyed. Perhaps 300 people died. Following years of drought, the government was caught off-guard, says Kennedy Odede of SHOFCO, an NGO serving Kenya's slums. "When it started raining, people were happy. Nobody was expecting there to be too much."

The government should have been better informed. Persistent drought paves the way for flooding, because the soil hardens and the water has nowhere to go but sideways. Kenya's populist president, William Ruto, ignored warnings last year of impending floods.

Benninah Nazau, a vegetable-hawker in Mathare, a Nairobi slum, recalls rain pounding on her tin roof at 5pm on April 23rd. When she peered out, she saw tables and chairs swept along by the nearby river. By 1am the water was surging through her home. She grabbed her five children and took them to higher ground, unable to salvage any possessions. "It was life or death." Neighbours were carried off in the deluge.

Political dysfunction makes cities less resilient. Rules barring the construction of homes dangerously close to watercourses are ignored (Ms Nazau's home was only six metres away). Landowners bribe officials in order to flout planning codes. Builders pave over wetlands.

Whereas scarcity has an obvious solution—higher prices—the problem of too much water does not. Flood defences must be built and people discouraged from living in the riskiest places. But where, and how? Kenya's government is sponsoring tree-planting along Nairobi's river banks, to help hold back future floods. A moratorium has been placed on new building permits in the city. Officials are evicting people from homes built 30 metres or less from the riverbanks and destroying the buildings. In the worst-affected part of Mathare, all that remains is rubble and a stench of sewage. Compensation for each household was 10,000 shillings ($77.60).

Many residents are resisting by refusing to leave their shacks. Others want more compensation. Many distrust the government, widely seen as corrupt. Some Kenyans even think politicians deliberately caused the flooding, to pave the way for the slum clearances that followed. Belief in such far-fetched conspiracy theories makes co-operation between state and citizens less likely.

Squabbles over water can turn violent. The Water, Peace and Security partnership, a global body, crunches data to predict water-related conflicts. Its latest update, in June, noted that herders and farmers across the Sahel are fighting over scarce water. Drought-related skirmishes are expected in South Africa, Madagascar and Mozambique, and floods in Iran and Afghanistan have displaced populations into areas where they may not be welcome.

Tensions between states are common, too. As rivers grow more erratic, negotiations between downstream countries and upstream ones may grow more fraught. Dry countries (such as China and the Gulf states) are buying up farmland in Africa and the Americas to secure future supplies of food. In effect, they are importing vast quantities of water in the form of wheat and soyabeans. This could become a political flashpoint.

Water wars between states are fortunately rare. But Egypt is furious about an Ethiopian dam that could disrupt its access to the Nile river, from which it gets nine-tenths of its water. Talks over how to share the water keep failing. Egyptian officials hint they might go to war. They may be bluffing, but no one can be sure.

To avoid water wars, countries need to use water more efficiently (Egypt wastes it copiously) and negotiate more amicably. Much work needs to be done in both areas. The world spends roughly 0.5% of GDP on water, the World Bank estimates, but 28% of allocated public funds go unspent. Meanwhile, a typical water utility has "efficiency losses" (leaks and theft) of around 16%. As for amicable haggling, three-fifths of the world's 310 international river basins lack frameworks to govern disputes.

Another thing that makes water policy hard is that many people—such as those whose homes are too costly to defend from floods, or whose crops wither—will eventually have to move. Chilean vineyards are already shifting south. Outback towns will shrink. Inundated Africans and Asians will keep migrating to cities or abroad.

Rich countries may be able to help compensate those whose homes and fields are rendered worthless, but the process will be disruptive everywhere. Nonetheless, it should be manageable. The WRI estimates that solving the world's water crises would cost 1% of GDP per year until 2030, and that every $1 invested in sensible ways to do so would yield $6.80 in benefits. However, getting the politics right will require calm, collaborative leadership, disproving the epigram attributed, perhaps erroneously, to Mark Twain: "Whisky's for drinking; water's for fighting." ■

Chile's jetties to nowhere

Business

Social media and the law

A Russian in Paris

The case against Telegram's founder will have lasting effects

SOON AFTER his private jet touched down on August 24th at Le Bourget airport, on the outskirts of Paris, Pavel Durov was arrested by French police. Soon came a flurry of speculation as to the reasons behind the detention of the founder and boss of Telegram, a social-media platform. Elon Musk, the libertarian owner of X, framed it as part of a worldwide battle over free speech, posting that in Europe people will soon be "executed for liking a meme". Others saw geopolitical motives, noting Telegram's role in Russia's war against Ukraine, both as a disseminator of information and a military communication tool.

On August 28th French prosecutors placed Mr Durov under formal investigation over Telegram's alleged failure to control illicit activity on the app, including the distribution of child sexual-abuse material (CSAM), and its refusal to co-operate with law enforcement. His lawyer issued a statement saying that "Telegram is in conformity with every aspect of European norms on digital matters." Mr Durov was released from custody but required to post bail of €5m ($5.5m) and will not be allowed to leave France.

Mr Durov—who has been dubbed Russia's answer to Mark Zuckerberg, the founder of Facebook—left Russia ten years ago, complaining that he had been forced to sell his first social network, the Facebook-ish VKontakte, to Kremlin-friendly investors. He now lives in Dubai and is a citizen of the United Arab Emirates, St Kitts and Nevis, his native Russia—and France. Until recently he seldom spoke to the media, preferring to communicate via topless selfies on Instagram.

Telegram, which Mr Durov founded 11 years ago, is a small player in much of the West. But globally it is the eighth-largest social-media platform, claiming 900m monthly users, making it 50% bigger than X. Three-quarters of internet users in Russia have it. Telegram does not make money yet, but hopes to within the next year or so, after introducing advertising in 2021. Though often described as a messaging app, its "channels" with thousands of members make it a formidable broadcast platform. It occupies a "unique niche" in Russian media, says Gregory Asmolov of King's College London, who says it is the only place where Russians can get news (both real and fake) about Ukraine.

Mr Durov is idolised by some free-speech advocates, who fear that the internet is increasingly targeted by censors. On August 27th Mr Zuckerberg revealed that in 2021 the American government "repeatedly pressured" his company to remove content related to covid-19, including humour and satire. The European Commission is investigating X for allegedly not complying with its rules on misinformation, and in Britain there are calls for stricter laws on the spread of malicious content after riots in the country.

But Telegram's hands-off approach to ▸▸

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moderation has allowed content to flourish that is straightforwardly illegal. A report last year by Stanford University's Internet Observatory identified large groups sharing CSAM on the platform. Child exploitation is one area where there is little argument about free speech. "In practice, I do not think that the rules concerning CSAM are meaningfully different across Europe, the UK or the United States," says David Kaye, a former UN rapporteur on freedom of expression now at the University of California, Irvine.

Although illegal material exists on all platforms, it is unclear what steps, if any, Telegram takes to remove it. The firm reportedly has a staff of around 50; Meta, Facebook's parent company, has about 40,000 in its safety and security teams alone. "All Telegram chats and group chats are private amongst their participants," the company's website states.

For French prosecutors, Telegram may present a unique opportunity to track down online criminals. Although the platform bills itself as "more secure than mass market messengers like WhatsApp", the reverse is true. Most messages on Telegram are not end-to-end encrypted, meaning that they are visible to the company—and any government that successfully ordered it to hand them over.

Telegram says it has never handed over information to any government. But recently Russia has discovered the identities of previously anonymous Telegram users, leading to prosecutions. Western governments, for their part, could be tempted to lean on Telegram for information on Russia. Even though it is not very secure, it is used operationally by the Russian military, which is short of alternatives, says Mr Asmolov of King's College. Mr Durov has encouraged speculation that the American government might be interested in what happens on his platform. In April he gave a rare interview to Tucker Carlson, a right-wing American journalist, in which he complained of receiving "too much attention from the FBI", which he said had tried to recruit one of his engineers to install a back door into Telegram.

Whatever happens to Mr Durov, the episode is likely to be cited in future by governments seeking to defend their own crackdowns on social-media platforms, justified or not. Countries such as Turkey have demanded that social networks have local executives based in-country, in what some have called "hostage laws". On August 17th X said that it would close its office in Brazil, after a judge there threatened an executive with arrest if the company did not comply with an order to take down content that the Brazilian courts considered misinformation and hate speech. The case against Mr Durov is set to have a lasting impact. ■

Aviation

Hard landing

What Southwest's tailspin says about the future of low-cost carriers

WHEN SOUTHWEST Airlines launched in 1971, flying three Boeing 737 jets between Dallas, Houston and San Antonio, few imagined the impact its business model would have on the aviation industry in America and beyond. In the decades that followed, low-cost carriers (LCCs) pummelled incumbents by offering cheap, no-frills fares to keep costs down and planes full, flying point-to-point rather than connecting through big hubs.

Today Southwest is America's biggest domestic carrier and the world's fourth-largest airline. It turned an annual profit every year from 1973 to 2019, before the covid-19 pandemic struck, with a net margin often exceeding 20%—a striking feat in an industry known for its abysmal returns. Its success has been imitated across the globe. In 2001 budget carriers accounted for less than a tenth of global flight capacity. That figure is now a third, according to OAG, a consultancy.

Yet lately the original LCC has found itself in a tailspin. Southwest's sales of $26bn in 2023 exceeded their pre-pandemic level. Net profits, though, have crumbled, from $2.3bn in 2019 to barely $500m last year. Its net margin was less than 2%. Southwest's troubles have caught the attention of Elliott Management, a fearsome activist investor that has amassed a 9.7% stake in the company and is agitating for change. On August 26th it sent a letter to the company's shareholders arguing that, among other things, the airline should sack its chief executive and chairman.

Southwest's low-cost rivals in America can hardly gloat. Spirit and JetBlue, two ultra-cheap airlines, were blocked in January from merging on competition grounds. Neither has turned an annual profit since the pandemic; Spirit is reportedly trying to restructure its debts. Frontier, another rival whose own attempt to merge with Spirit fell apart in 2022 after JetBlue muscled in, is also bleeding cash. The share prices of America's four biggest LCCs have nosedived by nearly 50%, on average, since the start of 2023; those of America's three legacy carriers, American, Delta and United, are up by 5%.

What has gone wrong for America's LCCs? Rising fuel prices and labour costs have crimped profits—but no more so than for full-service airlines. The bigger problem for Southwest and its kind is that competition is growing from once-sleepy legacy carriers.

Full-service airlines, offering a plusher in-flight experience alongside lounges and loyalty programmes, have long attracted passengers who are unwilling to be treated like cattle. Lately, however, they have also

Which way from here?

begun to offer cheap fares of their own in a bid to claw back market share from LCCs. According to Keith McMullan of Aviation Strategy, a consultancy, legacy carriers are "filling up the empty seats at the back with no-frills fares". David Vernon of Bernstein, a broker, notes that the number of basic-economy fares added by the big three legacy carriers is roughly equivalent to the entire capacity of Spirit. "The LCC's unique position in the market is gone," he says.

At the same time, consolidation has improved the profitability and widened the reach of America's legacy carriers. Over the past 15 or so years six have merged into three. Their hubs, which can serve as destinations or stopping-off points, offer passengers many more options for getting from one city to another compared with a carrier flying point to point. The failed tie-up between Spirit and JetBlue, however, suggests regulators are in no mood to let budget airlines consolidate in response. (The merger of Alaska and Hawaiian, two smaller full-service airlines, looks as if it may be approved, but only because the two have few overlapping routes.)

Changing travel patterns are an additional headache for low-cost carriers that rely on keeping planes full to turn a profit. Day trips for business meetings have grown less common since the pandemic. Southwest once flew 12 flights a day between Oakland and Burbank in California; it now runs eight. The 101 destinations it served pre-covid has swollen to 117 as it has reassigned planes in response to lower demand on certain routes. The upshot has been more empty seats.

America's budget carriers are responding to the growing pressure in different ways. Southwest recently announced it would start charging for assigned seats, ending its long-standing policy of letting passengers choose a spot once they have boarded the plane. It is also said to be reconsidering its policy of allowing two free bags per passenger. Frontier and Spirit, by contrast, are attempting to move upmarket. In May Frontier introduced four new fares including a business class. Spirit is waiving fees for changing or cancelling flights and offering more generous baggage allowances.

Budget airlines elsewhere will be keeping a close watch. For now, Europe's LCCs are flying high. Last year Ryanair, Europe's biggest airline by passenger volume, notched up a record profit. John Grant of OAG says that European LCCs have been more adept than American ones at charging customers for add-ons; Ryanair has made an art of it. It helps that Europe, where populations are more densely packed and flight destinations more numerous, is well-suited to LCCs. Although Ryanair serves busy routes, such as those between European capitals, much of its traffic is between smaller destinations where it is the sole carrier. Europe also has more secondary airports that are near big cities but cheaper to operate from.

America's budget carriers, by contrast, more often go head-to-head with legacy carriers on congested routes. Those American LCCs which are faring far better, such as Allegiant, Breeze, Avelo and Sun Country, have focused on flying from small cities to holiday destinations, thus serving a more limited market.

Budget airlines are also soaring in the developing world. Last year IndiGo, an Indian LCC that dominates the country's aviation industry, put in an order for 500 planes from Airbus, the largest ever by an airline, amid sky-high demand.

Ryanair and IndiGo currently face weaker incumbent competition, notes Mr McMullan of Aviation Strategy. In time that may change. Europe's legacy airlines have been steadily consolidating into three big groups—Lufthansa, Air France-KLM, and IAG, which owns British Airways. Likewise, IndiGo will have to contend with a revitalised Air India, the national carrier which is now in the hands of the Tata Group, one of the country's biggest conglomerates. Budget airlines everywhere should be prepared for turbulence. ■

Fashion

Back in style

NEW YORK

How Abercrombie & Fitch got hot again

FOR MANY, 2023 was the year of the chip. Just ask anyone holding shares in Nvidia, whose stock rose by 246%. But it was also the year of the Sloane Pant. The popular tailored trouser helped send the shares of Abercrombie & Fitch, a 132-year-old clothing firm, up by 274% (see chart).

A decade ago Abercrombie's brand was toxic. Now it is all the rage. The company has been through one of the fashion industry's most remarkable glow-ups. Gone are the sexualised black-and-white catalogues and snooty staff. It still sells its famous "Fierce" cologne, but no longer pumps it through the air ducts. On August 28th the company lifted its forecast for revenue growth for the year to 13%. Although the market had hoped for more—its shares fell on the news—that growth would far outpace the 0-2% that McKinsey, a consulting firm, predicts for America's fashion industry. Even after the stumble, Abercrombie's shares are up by around 50% this year.

This is not Abercrombie's first reinvention. In 1992 Mike Jeffries, a retail executive, was tasked with turning around what was then a faded sporting-goods seller, which he did by targeting teenagers with preppy, tight and low-cut clothing. In 1996 Mr Jeffries summed up its strategy in an interview: "Candidly, we go after the cool kids...Are we exclusionary? Absolutely."

That attitude gradually came to grate on shoppers. Mr Jeffries refused to stock women's sizes beyond a ten (a British 14)—and anything in black or purple. He also wrote a 29-page "Look Book" for employees. His obsession with policing appearance led to discrimination lawsuits from employees. The company fought one claim, by a Muslim employee whose hijab violated the company's policy, all the way to America's Supreme Court, where it lost.

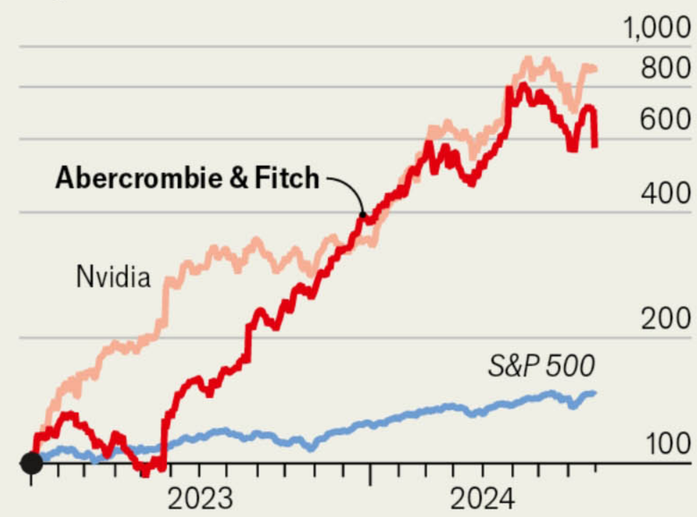
Mr Jeffries also made the brand rigid. He crafted intricate back stories for its product lines: RUEHL was all about "the great American kid who moves to New York to be successful"; Gilly Hicks, a lingerie line, was named for a character who lived in an Australian manor house.

Whereas Mr Jeffries told consumers what they wanted, Fran Horowitz, who took over as chief executive in 2017 after 15 consecutive quarters of shrinking sales, is listening instead. She talks up Abercrombie's "chase capabilities"—industry-speak for keeping inventory low and pouncing on trends. On her watch the company has made better use of data to understand what products to offer and which customers to target, notes Dana Tesley of Tesley Advisory Group, a consultancy.

Instead of going after teens, Abercrombie now targets 25- to 40-year-olds—many of whom might once have spent their babysitting money on its camisoles. But gen-Z customers love it, too, says Casey Lewis, who blogs about youth culture. "It's just seen as...an 'it' brand," she says. Young consumers may turn to fast-fashion firms such as Shein for the cheapest wares, but they look to Abercrombie for stylish clothes at reasonable prices. And leopard print—as seen on TikTok. Abercrombie's spotted cardigan is selling fast. ■

Fierce performance

Share prices, January 3rd 2023=100
Log scale



Source: LSEG Workspace

Carmaking

French correction

PARIS

Renault has readied itself to take on Chinese rivals

PARKED OUTSIDE the front doors of a handsome 1920s brick building in a Parisian suburb is a bright yellow Renault 5, a new electric vehicle (EV) unveiled by the French carmaker in February. It is permitted this enviable spot because it belongs to Luca de Meo, the boss of the company, whose top brass occupy the building. Mr de Meo has brought a renewed confidence to Renault since taking over as its chief executive four years ago. He has turned the business around—and readied it to take on the Chinese carmakers that are looking to expand in the European market.

When Mr de Meo took over at Renault in 2020 the situation was "bleak", says David Lesne of UBS, a bank. It sold 2.9m cars that year, down from 3.7m in 2017, and made a net loss of €8bn ($8.7bn). Debts were ballooning. Wobbles in its alliance with Nissan, a Japanese carmaker, and an aborted attempt to merge with Fiat Chrysler, an Italian-American one, had left the firm in a parlous state.

Mr de Meo has since steered Renault through a brutal restructuring. He has ripped out costs and is cutting capacity from around 4m vehicles in 2019 to a target of 3.1m in 2025. Sales are down on his watch, to 2.2m vehicles last year, but profits are up. Last year Renault made a net profit of €2.3bn (see chart).

The company has been drawing lessons from Dacia, its Romania-based sub-brand that makes inexpensive vehicles with margins that far exceed those of premium German carmakers. Dacia's cost-saving measures range from standardising engines and other parts to turning off the lights at stations on its production line that are manned only by robots.

To improve focus, Mr de Meo has reorganised Renault into three parts: Ampere, an electric-vehicle and software division; Power, a legacy internal combustion engine (ICE) business; and Horse, which will continue to develop ICEs in partnership with Geely, a Chinese carmaker, and Aramco, Saudi Arabia's state-owned oil giant. (A plan to spin off Ampere was dropped in January after growth began to slow in Europe's EV market.)

Unlike many of its rivals, Renault is willing to admit that it cannot do everything itself. Carmakers such as Volkswagen have kept software development mostly in-house, with disappointing results. Renault, by contrast, has formed partnerships with the likes of Google, a software giant, and Qualcomm, a chipmaker, which has kept costs down without ceding too much control to a third party.

Stephen Reitman of Bernstein, a broker, describes Renault as a card player that has not been dealt the strongest hand but is squeezing every point out of it. Its turnaround has positioned it well to take on the Chinese carmakers that are starting to export cheap EVs to Europe, despite its costlier French labour. When the Renault 5 goes on sale later this year it will have a starting price of €25,000, making it competitive with Chinese imports. The Twingo, a smaller EV Renault plans to release in 2025, will sell for under €20,000.

All this may explain why Mr de Meo seems unruffled by the threat from Chinese carmakers. They are "not unbeatable", he says, adding that "it is not a time to panic." The carmaker has partnered with a Chinese engineering company to develop the new Twingo. It hopes to replicate the dynamism of Chinese carmakers by slashing development times for new models. Tariffs on Chinese EVs imposed from July will buy carmakers such as Renault some time. It does not intend to waste it.

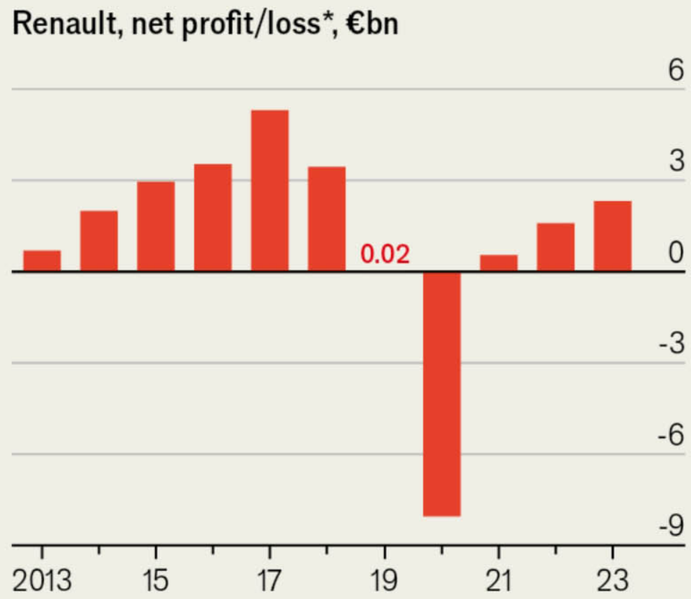
Plenty could still go wrong for Renault. A plan for Horse to sell engines to other carmakers relies on it finding customers that are willing to give up on manufacturing their own ICEs. Few so far seem interested in doing so. Hopes of cutting manufacturing costs for Renault's next generation of EVs by 40% will depend largely on batteries getting cheaper and more energy-dense. That, notes Mr Lesne of UBS, is in the hands of battery suppliers and mostly beyond the carmaker's control.

Another worry for the firm, and European carmakers more generally, is the European Union's emission targets, which tighten considerably next year. To comply, around 16% of the cars Renault sells in Europe will have to be fully electric, by UBS's calculations, up from nearly 12% in the first half of this year. Although the Renault 5 will boost that figure, it may not be enough to avoid fines. The firm could be forced to sell fewer ICE cars, which are more profitable, to meet the targets.

Mr de Meo notes that, for 125 years, Renault has "survived everything". He deserves credit for successfully steering the French carmaker away from disaster. But his job is far from done. ■

Revved up

Renault, net profit/loss*, €bn



Source: Bloomberg *Before extraordinary gains/losses

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Pinduoduo

Rise and fall

China's e-commerce star plunges

TRIUMPHS ARE fleeting in China's fast-changing economy. Earlier this month Colin Huang, the founder of Pinduoduo, a Chinese e-commerce darling, became the country's richest man. The company, founded in 2015, rose to success by offering a gamified shopping experience where users can buy in groups to secure lower prices. Today it is China's third-largest e-commerce firm by sales, behind only JD.com and Alibaba.

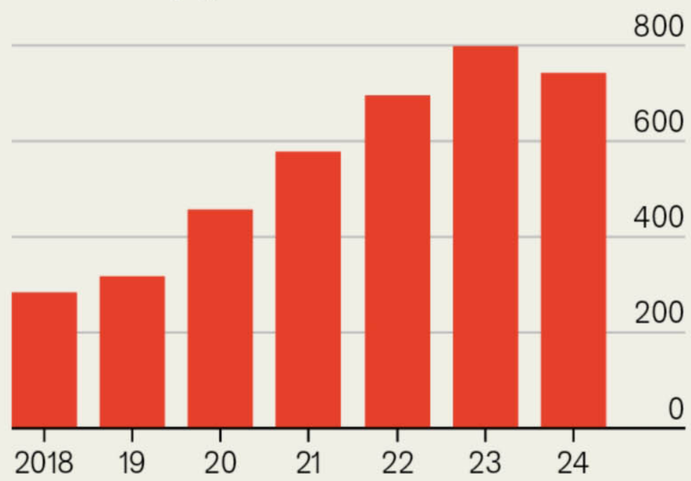
Mr Huang's time atop China's rich list was, however, brief. On August 26th Pinduoduo's share price cratered by nearly 30% after it reported sales for the quarter from April to June that fell short of the market's lofty expectations and gave warning that a long-run decline in profitability was "inevitable". Mr Huang's net worth plunged by $14bn, to a meagre $35bn; he is now only China's fourth-richest person.

Pinduoduo's woes are set against a backdrop of weakening consumer spending in China. In June sales from the "618" shopping festival fell for the first time since the annual e-commerce event began in 2010, despite a number of platforms extending their sales periods this year (see chart). Industry analysts expect e-commerce sales in China to continue slowing. eMarketer, a research firm, forecasts that annual revenue growth will fall from 8.3% this year to 6.5% in 2028.

Tumble from the top

Shop 'til you drop

China, e-commerce sales during "618" holiday*, yuan bn



Source: Syntun

*Approximately May 20th-June 20th. Slight variations among different sellers

A vicious price war is adding to the trouble. Visit any Chinese e-commerce site and you will be battered by signs advertising huge discounts and promising the cheapest deals online. Algorithms promote sellers with the lowest prices. Competition has grown more intense because of forays into e-commerce by short-video apps such as Douyin (TikTok's Chinese sister company) and Xiaohongshu (China's answer to Instagram).

Mutinous merchants are piling yet more pressure on the industry. Some Chinese e-commerce companies juice their sales by fining merchants for late deliveries or product mismatches. Last month hundreds of suppliers surrounded the offices of Temu, Pinduoduo's foreign offshoot, in the southern city of Guangzhou to protest against such penalties. Dozens broke into the building. In response, Pinduoduo said on its earnings call that it would invest 10bn yuan ($1.4bn) to reduce fees for merchants and create "a healthy and sustainable platform ecosystem".

Pinduoduo may be hoping that international expansion will rescue it from deteriorating conditions at home. That will not be straightforward. Although the number of people perusing Temu, which launched in America in 2022, has rocketed, owing in no small part to the vast amounts it has spent on advertising, turning that into revenue has proved trickier. eMarketer reckons Temu will capture less than 2% of e-commerce sales in America this year, compared with more than 40% for Amazon.

What is more, America's e-commerce titan is fighting back against the Chinese upstart. During its Prime Day sale in July it offered discounts of up to 70% on some products. It is also reportedly planning to launch a discount section on its site which will feature cheap items shipped directly from factories in China. Cash-strapped consumers may celebrate the growing range of cheap goods on offer. For China's e-commerce star, however, the future no longer looks as bright. ■

Artificial intelligence

The Zuckerberg mankini

LOS ANGELES

Meta wants to define what counts as open-source AI. Purists object

IMAGINE A BEACH where for decades people have enjoyed sunbathing in the buff. Suddenly one of the world's biggest corporations takes it over and invites anyone in, declaring that thongs and mankinis are the new nudity. The naturists object, but sun-worshippers flock in anyway. That, by and large, is the situation in the world's open-source community, where bare-it-all purists are confronting Meta, the social-media giant controlled by a mankini-clad Mark Zuckerberg.

On August 22nd the Open Source Initiative (OSI), an industry body, issued a draft set of standards defining what counts as open-source artificial intelligence (AI). It said that, to qualify, developers of AI models must make available sufficient information about the data they are trained on, as well as the source code and the "weights" of the internal connections within them, to make them copyable by others. Meta, which releases the weights but not the data behind its popular Llama models (and imposes various licensing restrictions), does not meet the definition. Meta, meanwhile, continues to insist its models are open-source, setting the scene for a clash with the community's purists.

Meta objects to what it sees as the OSI's binary approach, and appears to believe that the cost and complexity of developing large language models (LLMs) mean a spectrum of openness is more appropriate. It argues that only a few models comply with the OSI's definition, none of which is state of the art.

Mr Zuckerberg's eagerness to shape what is meant by open-source AI is understandable. Llama sets itself apart from proprietary LLMs produced by the likes of OpenAI and Google on the openness of its architecture, rather as Apple, the iPhone-maker, uses privacy as a selling point. Since early 2023 Meta's Llama models have been downloaded more than 300m times. As customers begin to scrutinise the cost of AI more closely, interest in open-source models is likely to grow.

Purists are pushing back against Meta's efforts to set its own standard on the definition of open-source AI. Stefano Maffulli, head of the OSI, says Mr Zuckerberg "is really bullying the industry to follow his lead". OLMo, a model created by the Allen Institute for AI, a non-profit based in Seattle, divulges far more than Llama. Its boss, Ali Farhadi, says of Llama models: "We ▸▸

love them, we celebrate them, we cherish them. They are stepping in the right direction. But they are just not open source."

The definition of open-source AI is doubly important at a time when regulation is in flux. Mr Maffulli alleges that Meta may be "abusing" the term to take advantage of AI regulations that put a lighter burden on open-source models. Take the EU's AI Act, which became law this month with the aim of imposing safeguards on the most powerful LLMs. It offers "exceptions" for open-source models (the bloc has many open-source developers), albeit with conflicting definitions of what that means, notes Kai Zenner, a policy adviser at the European Parliament who worked on the legislation. Or consider California's SB 1047, a bill that aims for responsible AI development in Silicon Valley's home state. In a letter this month, Mozilla, an open-source software group, Hugging Face, a library for LLMs, and EleutherAI, a non-profit AI research outfit, urged Senator Scott Wiener, the bill's sponsor, to work with OSI on a precise definition of open-source AI.

Imprecision could lead to "open-washing", says Mark Surman, head of the Mozilla Foundation. In contrast, a watertight definition would give developers confidence that they can use, copy and modify open-source models like Llama without being "at the whim" of Mr Zuckerberg's goodwill. Which raises the tantalising question: will Zuck ever have the pluck to bare it all? ■

BARTLEBY

Prompts for bosses

Four questions for every manager to ask themselves

THE ONE thing that managers reliably lack is time. They will often be doing their existing jobs as well as supervising others. They have bureaucracies to navigate—expenses to authorise, hiring requests to make—and mini-crises to solve. It is all too easy for the weeks to whizz past; suddenly it is September and the northern-hemisphere nights are drawing in again. But it is possible for even harried managers to ask themselves questions that force useful moments of reflection. For example:

"Would I hire this person again?" There is a whole category of questions that executives should ask themselves which are basically about regret. Peter Drucker, a management guru, urged bosses to reallocate scarce resources to more useful pursuits by asking of various activities: "If we did not do this already, would we go into it now knowing what we now know?" To avoid meeting overload, it helps to routinely query whether get-togethers are really needed; some firms do a meeting detox by wiping calendars clean and forcing people to repopulate them.

The version of the regret question that is useful to every manager is whether they would choose to hire each member of their team into the same position. If the answer is a genuine "yes", pat yourself on the back and reflect on why these people are successful. If the answer is "no", you don't have to get the axe out and start swinging. But you almost certainly owe them some awkward feedback, and should ask yourself why you hired them and whether there is a way to get more out of them.

"How often am I hearing dissent?" This handy question comes from Amy Edmondson, a professor at Harvard Business School best known for her work on psychological safety. Most managers can recite the arguments for creating an environment in which team members feel comfortable disagreeing; some may even believe them.

If you do subscribe to this idea, Dr Edmondson's question offers a useful way of working out whether the reality matches the ambition. If you say you want robust debate and cannot remember recent instances of people below you in the hierarchy saying why they think you are wrong, then it is possible you are actually a fan of psychological danger. (Do not include the office contrarian in your answer: they are incapable of agreeing with people and do not count for the purposes of this exercise.)

"What should we automate?" There is an obvious reason to ask this question now, when artificial intelligence offers new ways to rethink white-collar work. But it is one that managers should be putting to their teams routinely. The amount of time that people spend on needlessly repetitive activities, from filling out holiday-request forms to juggling calendar invites, saps productivity and morale. Spotting these sources of boredom and frustration can lead to more engaged staff and greater efficiency.

When different teams automate processes unilaterally and tech platforms proliferate within an organisation, overall workloads can rise rather than fall. It is hard to argue that more toggling is a big step forward for mankind. So if automation is needed, it should generally be done under the auspices of a central team. And even if you don't end up handing things over to machines, you are likely to spot opportunities to improve the way things work.

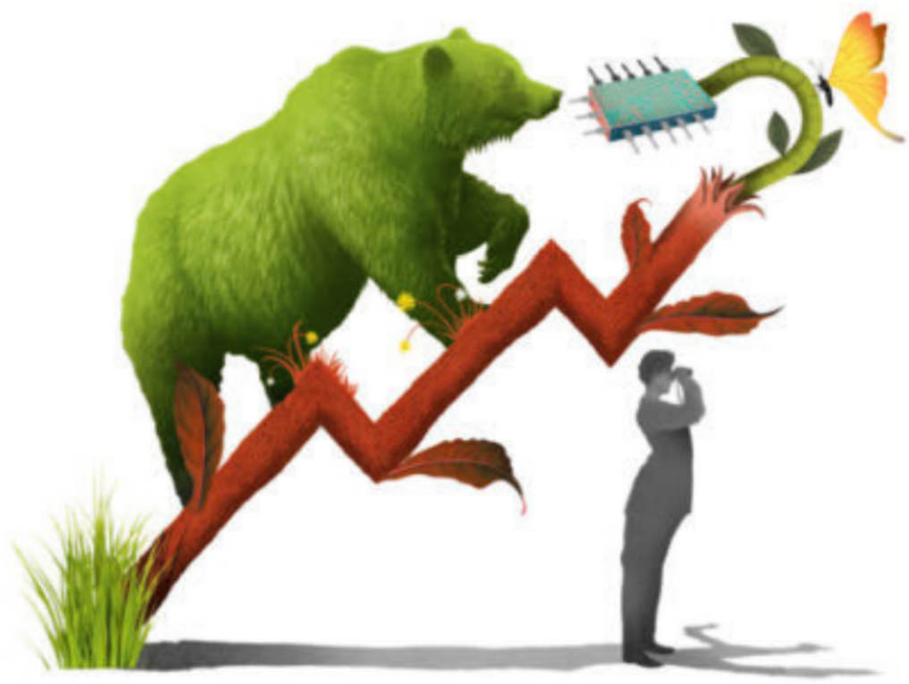
"How many people are leaving my team?" "Everyone, as soon as they can" is not the right answer to this question. But "none" is not necessarily a good one either. That's because one of the more malign diseases afflicting organisations is managers who hoard talent for themselves. Such behaviour is not just harmful to employees, whose opportunities for advancement are curtailed, and to firms, who may lose good people as a result. It also harms managers themselves.

A recent study by J.R. Keller of Cornell University and Kathryn Dlugos of Pennsylvania State University looked at almost 100,000 internal applications over a five-year period at a large American health-care organisation. They found that bosses whose subordinates were more likely to be promoted attracted more and higher-quality applicants for open positions on their teams.

This is not an exhaustive list; another obvious candidate is whether your team has clear goals. Some issues may not be in the gift of individual bosses to solve. But as a way for time-pressed managers to pause and take stock, questions like these are not a big ask.

SCHUMPETER
Bear necessities

What could stop the Nvidia frenzy?



IF TODAY'S STOCKMARKETS have their version of the great wildebeest migration, it is the stampede of the Nvidia bulls. Wall Street is no Serengeti, and Jim Cramer's high-pitched narration no match for the dulcet tones of Sir David Attenborough. But in other respects investors' headlong rush into the American chipmaker's shares has been every bit as enthralling a spectacle.

Galloping sales of Nvidia's artificial-intelligence (AI) processors have lifted its market capitalisation from $350bn at the start of 2023 to $1trn, then $2trn, and then, this summer, $3trn. In June it overtook Microsoft, an AI-zealous software giant believed to be the biggest buyer of its chips, as the world's most valuable firm. It proceeded to lose that title—and $900bn in value—amid the recent stockmarket panic, only to claw back most of its losses in the past few weeks. "How much money have you made over the years betting against Jensen Huang?" Mr Cramer asked rhetorically on his CNBC show recently, referring to Nvidia's boss. These days the Nvidia bear appears to be an endangered species. Or, as Sir David might whisper, "Not an *Ursus nvidiaensis* in sight."

For every hedge fund that trims its stake in the company, another seems to do the opposite. Among the 74 Wall Street analysts who cover Nvidia and are tracked by Bloomberg, 66 advised buying more of its shares as of late August; none suggested selling. Their average price target for the stock one year from now implied a market value of around $3.5trn. James Anderson, a veteran tech investor who was an early backer, teases that Nvidia could be worth $49trn in a decade, a shade more than the total value today of the S&P 500 index of large American firms. All it would take is consistent annual sales growth of 60% at current operating margins of 60% or so, plus some plausible assumptions about cash-flow. (Mr Anderson's current employer, Lingotto, is owned by Exor, the biggest shareholder of *The Economist*'s parent company.)

On August 28th Nvidia reported another blow-out quarter. Revenue shot up by 122%, year on year, to $30bn, an all-time high and above market projections. Investment bankers project that Nvidia's yearly sales will double this year, to over $100bn, grow by as much as half in 2025 and by double digits until at least 2027. By then its operating profit could exceed $150bn—a third more than Apple, tech's most successful money-spinner, managed last year.

In a sign of exalted expectations, Nvidia's share price slumped after its results were published, possibly because they beat forecasts by less than in previous quarters. As the bulls pause to catch their breath, they might wish to ruminate on two deeper contradictions lurking in Nvidia's long-term growth story.

The first concerns its main supplier. Nvidia designs chips but does not produce them. That falls to TSMC, a Taiwanese contract chipmaker that dominates the market for the cutting-edge silicon that goes into AI servers. As demand for these has rocketed, Nvidia has gone from one among many of TSMC's clients to probably its second-biggest behind Apple. If it is indeed "customer B", one of two that represent at least 10% of TSMC's revenues and so must be disclosed in regulatory filings, it spent $7.7bn with TSMC last year, up from $5.5bn two years earlier. Given that most of Nvidia's purchase commitments of $19bn for 2025 are likely to end up with TSMC, it could soon eclipse the current "customer A", which handed the Taiwanese firm just shy of $18bn in 2023.

Even as Nvidia's and TSMC's fates become more entwined, however, their product cycles are diverging. Earlier this year Mr Huang vowed to launch a new AI chip every year, rather than every couple of years. TSMC is thus in a mad rush to expand capacity, investing up to $32bn this year and possibly more in 2025. But it still takes at least 18 months to erect a new factory. And since these can cost $20bn a pop, careful discussions with clients start a year or two in advance. It is unclear how Nvidia's accelerated timeline fits in with TSMC's more measured pace of decision-making. In an early sign of trouble, Nvidia has delayed shipments of its latest chips, called Blackwell, by a couple of months owing to technical kinks.

Nvidia's reliance on TSMC also highlights the second tension in the bulls' case. Because the manufacturer controls the volume and efficiency of production, the only way for Nvidia to ensure that it meets investors' bullish expectations for sales is to raise prices. A Blackwell chip will cost 20-25% more than the earlier generation, which was twice the price of the one before. Each chip is more powerful than the last, so the cost per unit of computing power is probably declining. But not fast enough for customers.

In August Andy Jassy, chief executive of Amazon, whose cloud-computing arm is a big user of Nvidia chips, acknowledged that he had "heard loud and clear from customers that they relish better price performance". His company is investing in its own designs. So are Google, Meta, Microsoft and Tesla. AMD, a rival chip-designer, has gone from almost no AI-chip sales in 2022 to a forecast $5bn this year. On August 19th it said it would buy ZT Systems, a server maker, helping it to compete with Nvidia's end-to-end offering. Chinese tech champions such as Huawei, barred by American sanctions from procuring top-end Nvidia gear, may forge breakthroughs that could do to Nvidia's market share what Chinese competitors like BYD did to Tesla's in electric cars.

Exit, pursued by a bear

Even assuming a killer app eventually emerges—which it hasn't yet—generative AI is unlikely to become widely used unless it gets much cheaper; a ChatGPT query can cost seven times more to answer than a Google search. Nvidia may soon have to choose between lowering prices to support its growth or maintaining prices to protect its profit margin. For now Nvidia bulls think they can have it both ways. The whiff of irrational exuberance may become too overwhelming for *U. nvidiaensis* to resist. ■

Finance & economics

Economic policymaking

A heavy blow, cushioned

SAN FRANCISCO

Inflation is almost vanquished and a recession looks unlikely. What went right?

NOT LONG ago central bankers everywhere were jacking up interest rates. No longer. In June the European Central Bank reduced rates for the first time since before the covid-19 pandemic. In July policymakers at the Bank of England voted to cut rates. Other central banks, ranging from those in Canada and Chile to Denmark, are also in on the action. Before long America will follow. On August 23rd Jerome Powell, chair of the Federal Reserve, noted that "the time has come for policy to adjust". And as central bankers loosen policy, they are daring to dream, for a "soft landing" is within reach.

The aeronautical metaphor has two components: bringing down inflation to 2%, and avoiding a recession. Many economists had once believed that this would prove impossible. History showed that when central banks raised interest rates quickly, economic misery soon followed as people struggled to repay their debts and it became too expensive for companies to borrow in order to invest. The biggest ever co-ordinated global monetary tightening, which began in the late 1970s, provoked a big downturn in the early 1980s. From late 2021 to early 2024 the rich world's average policy rate rose by five percentage points—not by quite as much as in the late 1970s, but still one of the fastest increases on record (see chart 1 on next page).

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Higher borrowing costs have helped contain inflation. In the median OECD country consumer-price growth peaked at 9.5% year on year in mid-2022. By the second quarter of this year, inflation was just 2.7%, and it has continued falling since then. Price rises in many rich countries are now practically at target, or even below. Inflation in Italy was just 1.6% in July; Canadian inflation was 2.5% in the same month. There is little sign that prices are going to accelerate again, meaning central bankers feel comfortable loosening the monetary strings. Across the G10 group of countries, nominal wages are growing by 4% year on year, a bit higher than before the pandemic (see chart 2). That is still too elevated for on-target inflation but wage growth is falling and is likely to continue to do so.

As inflation has declined, the rate of economic growth has remained surprisingly steady. In the second quarter of this year the combined real GDP of the OECD grew by 1.8% year on year, the fastest since the end of lockdowns. True, about half the countries in the club, including Britain, New Zealand and Sweden, have at some point in the past two years seen their GDP fall for two consecutive quarters. So did America in early 2022. Although consecutive falls in national income represent one definition of recession, as any economist ▸▸

Furious feather-plucking

Sources: BIS; Goldman Sachs; *The Economist*

*Median of 27 †Estimate for Q2

will tell you, a proper recession is like pornography: you know it when you see it. People lose their jobs by the million, corporate earnings plummet and firms close. None of this has happened.

Unemployment in the OECD remains around 5%. It has edged up from earlier in the year, but this is hardly a reason to panic. Job growth across the rich world remains reasonably strong. In many countries, including Britain, France and Germany, the number of unfilled vacancies is still higher than its pre-pandemic norm, suggesting that demand for labour remains high. This has brought in people who had once been on the economic sidelines by encouraging them to look for work. The OECD's working-age labour-force-participation rate is at an all-time high. In the short run, at least, an influx of job-seekers can raise the unemployment rate.

Extra padding

Businesses, meanwhile, are doing fine. In a normal recession company profits plunge: customers vanish and firms have to offer steep discounts. In the second quarter of 2024, though, global corporate earnings grew by more than 10% year on year, according to Deutsche Bank—their biggest rise in two years. Although business confidence across the OECD remains depressed, it is at least higher than it was last year. Nervous nellies point to a rise in company bankruptcies since 2020-21. But this trend reflects a return to normality from the strikingly low rate of failure during the pandemic, when a plethora of government programmes made it practically impossible for a business to go under. In absolute terms, bankruptcies remain low.

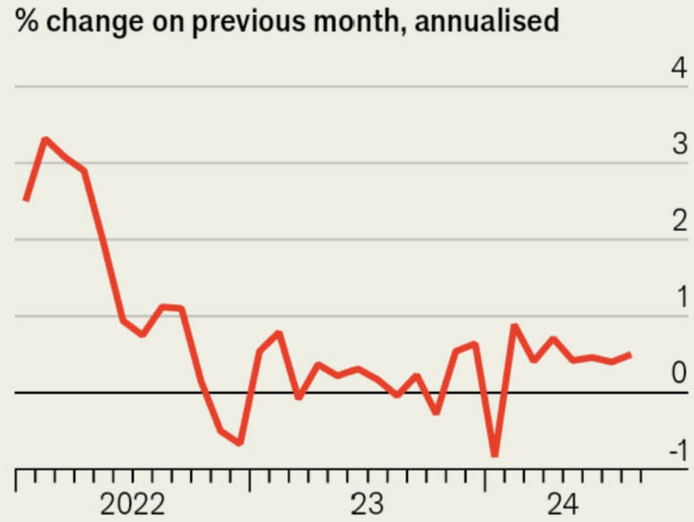
How has the rich world done it? One possibility is that modern economies are less sensitive to interest-rate changes, owing to a decline in capital-intensive industries such as housebuilding and manufacturing, which require businesses to borrow large sums in order to invest. Borrowers are behaving differently, too. In the low-interest-rate years, mortgage-holders in the rich world loaded up on fixed-rate products, shielding themselves from today's higher rates. This has left them in an odd position where higher rates are actually good for their pocketbooks, since they benefit from better returns on their savings and do not have to pay more to service their debts. We estimate that across the European Union, higher interest rates have raised households' earnings from their savings accounts by 40% more than the increase in their debt repayments—and find similar results for rich countries elsewhere.

Fiscal policy is also playing a role. In 2020-21 rich-world governments handed out vast amounts of stimulus. Huge savings that were accumulated by businesses and households during these years have since cushioned the blow of higher rates. Politicians have also continued the fiscal largesse. This year rich-world governments will run a deficit of 4.4% of GDP. America is running a deficit of 7% of GDP, which represents bizarre economic management at a time of such low unemployment. The approach has, though, helped channel money towards the real economy, even as central banks tighten financial conditions.

Perhaps the business cycle is now on the cusp of turning. Mr Powell hinted that worries about a weakening economy had motivated his decision to signal rate cuts, noting he and his colleagues at the Fed "do not seek or welcome further cooling in labour-market conditions". Yet there is little indication that the economy is about to hit turbulence. Credit-card spending remains strong. A high-frequency measure of economic activity across rich countries, produced by Goldman Sachs, a bank, is remarkably steady (see chart 3). A widely watched measure produced by the Atlanta Fed suggests that America's GDP is growing at an annualised rate of 2%.

Even if their judgment on the state of the economy proves incorrect, central bankers could still be right to want to cut rates. Borrowing costs at their current level may be unnecessarily high, pressing down too much on economic activity and inflation. Policymakers may have to increase the pace of cuts if evidence emerges of a genuine economic slowdown. It is still too early to celebrate a soft landing, especially with fiscal policy still so generous. But the runway is now clearly in view. ■

What anvil?



*High-frequency measure of economic activity
Source: Goldman Sachs

Trustbusting

Computers can collude, too

WASHINGTON, DC

American officials say rents are rigged

IMAGINE THAT you are about to enter a room with a group of nine other people. You will display a number—any between, say, 2,500 and 3,000. Once the group enters the room other players will start to come in. Each will choose one of your group, picking the lowest number. You do not know how quickly or slowly the other players will trickle in to pick from the group. What is the highest number you can display while still getting picked quickly?

Now imagine that before entering the room eight of you submit your proposed numbers into a computer. It thinks for a moment, then tells you a number to pick: 2,850. You can choose a different one if you really want, but you will need to enter a reason for your decision in a text box.

In which scenario might the average number displayed by the group be higher? If you think it would be in the second then you are joined by the Department of Justice, which on August 23rd filed an antitrust complaint against RealPage, a property-software platform that landlords use to help them set rents for flats. According to the DOJ's lawsuit, RealPage enables landlords to collude, pushing up rents on properties across America. RealPage says that its software is "built to be legally compliant" and notes it has worked with the DOJ to ensure this is the case.

Now is a fruitful time to be attacking firms for raising prices or keeping them high. Both Kamala Harris and Donald Trump, America's presidential candidates, have alighted on the rising cost of living—of which rents and housing are perhaps the most important slice—as a crucial issue in the forthcoming election. Ms Harris wants to take aim at companies for price gouging. The DoJ has filed briefs and motions in a handful of class-action lawsuits brought by homeowners against estate agents (or realtors, as they are known in America) alleging anti-competitive behaviour.

The RealPage case is interesting because it targets a pricing algorithm, rather than landlords gathering in a smoke-filled room. RealPage's commercial-revenue-management software has an 80% market share for multifamily housing rentals, which include apartment blocks and condo buildings. Landlords submit private information about their properties and the rents they command. The firm's software then makes suggestions for rents.

In the gamified version, it seems like competitive forces might still be able to work (surely the incentive is to undercut the suggestion made by the computer, even by a little?). But prosecutors at the DoJ argue that the company makes it cumbersome to do this. Although landlords are not bound to do as the software says, the system makes it much easier to accept suggested rents than reject them. If a property manager is dealing with several properties she can accept all suggestions in bulk, but rejecting or overriding must be done one by one. If she chooses to override a suggested rent, the software generates a text box, asking for an explanation. That explanation is sent to a rep at RealPage. If he deems it insufficient, it can be escalated to the property manager's supervisor.

This design, which the DoJ says gives RealPage the power to influence rents for most of the market, could mean that landlords are in effect banding together and keeping prices high, rather than competing. Perhaps the most compelling evidence of this is how the company and its users describe what is going on. RealPage has described itself as a tool that "helps curb [landlords'] instincts to respond to downmarket conditions by either dramatically lowering price or by holding price when they are losing velocity and/or occupancy". According to the DoJ, a RealPage executive said that if enough landlords used the firm's software, they would "likely move in unison versus against each other". A landlord even described one of RealPage's products as "classic price fixing".

The firm's lawyer has said that the DoJ is cherry-picking quotes. It does not take a sophisticated algorithm to work out whether such comments will be good or bad for the firm's case. ■

Paying for pints

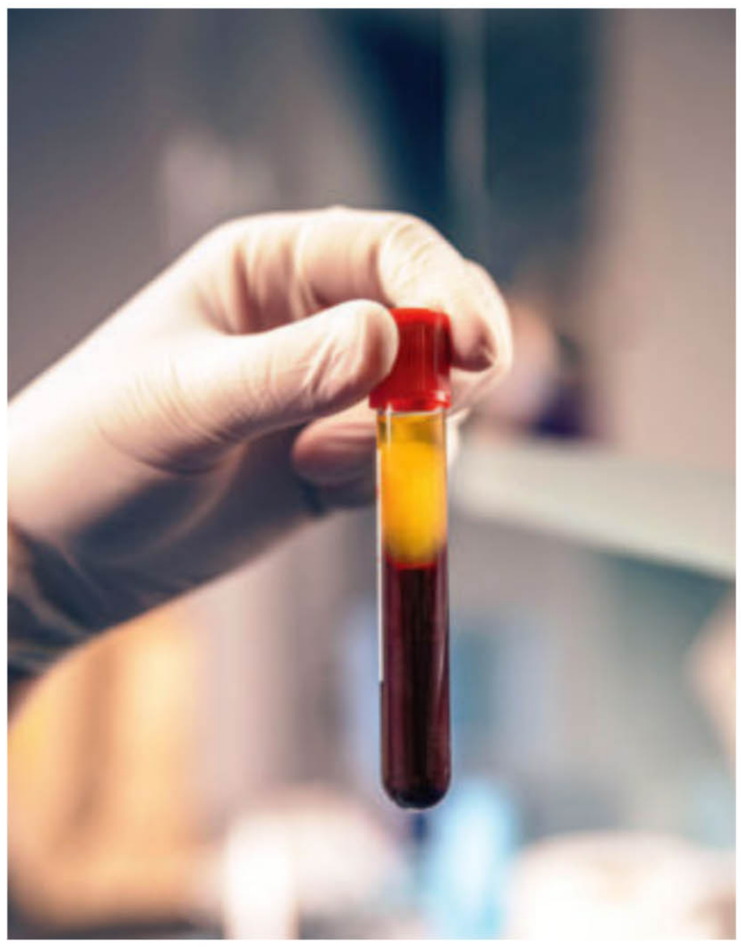
Blood boom

Reliance on America's plasma grows, as other countries castigate its practices

An unusual sort of business will soon open in Shelby, North Carolina. It will take over premises previously run by a flooring company, tucked in beside shops selling clothes, paint and fast food. But it will not sell anything itself. Instead, willing donors, paid around $40 a pop, will sit connected to an apheresis machine. Over the course of an hour, the machine will extract their blood, siphon out plasma and recirculate the remaining fluid. The plasma will then be made into medicines, such as clotting factors for haemophiliacs and intravenous immunoglobulins for those suffering from autoimmune diseases.

Shelby's latest arrival will be one of 400 or so plasma-collection centres to have opened in America since the start of 2020, as pharmaceutical firms respond to growing demand. Last year American blood-product exports accounted for 1.8% of the country's total goods exports, up from just 0.5% a decade ago—and were worth $37bn. That makes blood the country's ninth-largest goods export, ahead of coal and gold. All told, America now supplies 70% or so of the plasma used to make medicine.

America's booming blood trade is not an unmitigated success story, however, since it reflects problems elsewhere. The trade is mostly driven by two factors. The first is greater demand for plasma products: doctors have found ever more uses for the medicines, especially intravenous immunoglobulin. According to Marketing Research Bureau, a data firm, the market for immunoglobulin has grown by 5-7% a year for the past quarter of a century.



Two-tier market

The second reason is restrictions on plasma collection in other countries, owing to a combination of misplaced worries about safety and concerns about the morality of rewarding people for their bodily fluids. It is, for instance, illegal to pay for plasma donation in Britain, although the National Health Service does offer gifts and acknowledgments when donors reach certain milestones. In June the European Parliament approved new regulations that allow compensation to be offered for donations, but ban it from being mentioned in advertising and cap payments to an amount proportionate to the value of time spent donating. Whereas Americans can donate 104 times a year, many Europeans are limited to less than 30 times.

Such qualms do not stop countries from importing American blood. Britain and Canada are almost entirely dependent on the country's plasma; Europe brings in lots, too. China, a great rival of America in other areas of trade, is also more than happy to take advantage of America's supply. Some 43% of Chinese imports of blood products now come from its geopolitical rival, up from just 14% a decade ago, according to figures from the UN. Chinese policymakers ban imports of plasma—a legacy of an attempt to prevent the spread of HIV in the 1980s—with the exception of a single protein, known as albumin. That alone is driving the trade.

Some countries are even more flagrant in their double standards. France lobbied against the European Union's recent regulatory changes, arguing that they risked making the human body a commodity, as is "already a reality in the United States". At the same time, the French government is the sole shareholder in a company that owns six plasma centres in America, which pay donors, with the fluid collected available for use in France.

Yet hypocrisy is far from the worst problem in the blood trade. According to Albert Farrugia of the University of Western Australia and colleagues, consumption of plasma medicine would be greater still if more was available. They find that outside America, Australia and Canada, use of immunoglobulin is lower than studies estimating demand suggest it ought to be, indicating that people who would benefit from treatment are missing out. Poorer countries are priced out of the market altogether and use almost no plasma-derived medicines. Meanwhile, suitable synthetic plasma alternatives are thought to be some way off. It can take hundreds of donations' worth of plasma to treat a single patient suffering from an autoimmune condition for a year. So until other countries get their act together—bleed, America, bleed. ■

China, India and more

Eastern promise

How Vladimir Putin hopes to transform Russian trade

VLADIMIR PUTIN is spending big on his war in Ukraine. The Russian president has disbursed over $200bn, or 10% of GDP, on the invasion, according to America's Department of Defence. He now plans to invest heavily in infrastructure that will enable his country's economy to flourish even while cut off from the West. Over the next decade, the Russian state expects to funnel $70bn into the construction of transport routes to connect the country to trade partners in Asia and the Middle East. Russia's far east and high north will receive the lion's share; a smaller sum will go on the International North-South Transport Corridor (INSTC), a project designed to link Russia and the Indian Ocean via Iran. Officials promise growth in traffic along all non-Western trade routes.

The war in Ukraine has already diverted Russian goods. Countries that have not signed up to sanctions, led by China and India, have replaced lost trade with the West. As patchy infrastructure in Russia's east limits exports to Asia, goods often have to go by a circuitous route, through Black Sea and Baltic ports, and via the Suez Canal. Russian officials worry about blockages on the route, and that NATO's sway over crucial arteries, such as the Bosporus, could permit extra trade restrictions. In a bid to boost exports and shield commercial ties from interference, Russia is therefore investing in connections with friendlier countries. New links "should become an example of the broadest international co-operation", Mr Putin proclaims.

This represents a striking change of approach. Russia once shied away from building infrastructure links with China and Iran, as European commerce was lucrative enough. The war has changed its calculations. Trade between Russia and China—boosted by Chinese demand for Russian oil—reached a record of $240bn last year, up by two-thirds since 2021. The first rail bridge across the Amur River, Russia's natural border with China, opened in 2022. Another was given the go-ahead last year. Russia wants to lift cargo volumes on the Northern Sea Route, a shipping lane that runs along its Arctic shore to eastern China, from 36m to 200m tonnes by 2030.

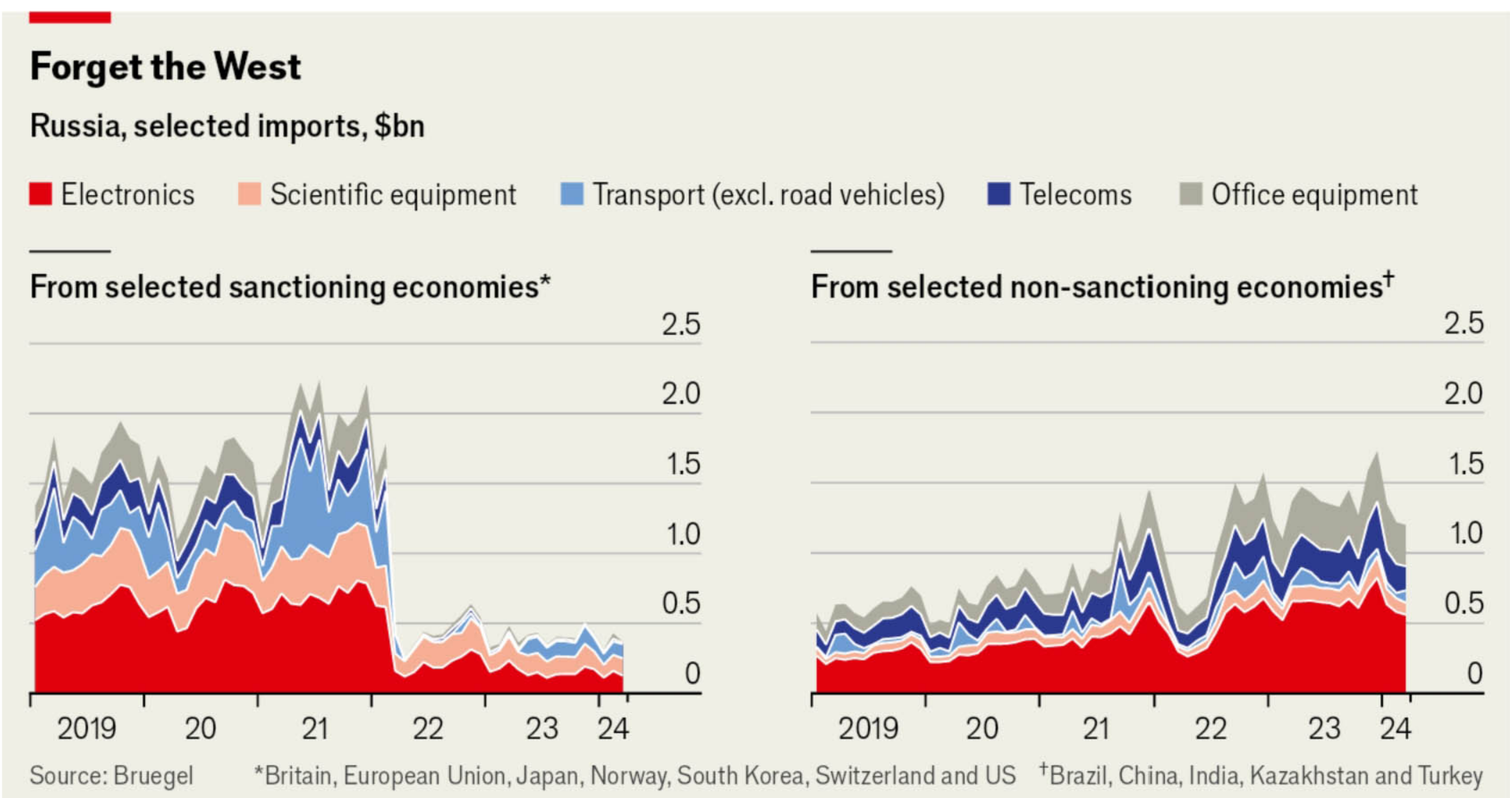
Working in the shadows

Until a couple of years ago, Russian firms also eschewed Iran for fear of Western sanctions. Now the two outcasts are pursuing the INSTC with renewed vigour. Last year Russia agreed to finance Iran's Rasht-Astara railway, a missing 162km leg of the corridor's western prong, construction of which had stalled despite having been approved almost two decades ago. Mr Putin says that, once complete, the INSTC will "significantly diversify global traffic flows" by transforming Iran into an outlet for Russian goods heading for the Middle East, Asia and farther afield. India is the ultimate prize. Unlike China, its demand for coal and oil is projected to remain strong until at least 2030.

Yet Mr Putin's plans face considerable obstacles. For a start, although trade along the new routes is growing, it is still meagre. Ice cover will limit year-round use of the Northern Sea Route until at least mid-century, when scientists expect the first ice-free summer. Just 8m tonnes of goods were transported along the INSTC by rail in 2022, well below its overall capacity of 14m tonnes. The route depends on trucks, which limits throughput. Despite surging trade with China, Russia's eastern railways handled 13% less goods than their stated capacity last year. One of them, the Baikal-Amur railway, is mostly single-track and only partly electrified. Decades of neglect have left ports and railways in eastern Russia in desperate need of repair.

Will there be sufficient funding for the job? More from elsewhere would help. In May India signed a ten-year contract, worth $370m, to extend its control over Iran's Chabahar Port. Azerbaijan, Kazakhstan and Uzbekistan are upgrading domestic rail and road infrastructure to help the INSTC. But Russia and Iran remain the corridor's main funders. In 2022 they accounted for 68% of investment in the route—and cash-strapped Iran relies on Russian loans for its share. Mr Putin plans to spend heavily on infrastructure, yet his ambitions may be frustrated by the private sector's reluctance. Sherpa Group, a Russian analytics firm, expects that private investment in Russia's state transport programme will fall from 927bn roubles ($10bn) in 2022 to 180bn roubles in 2026.

Even under the best conditions, Russia's infrastructure track record is poor. In the far east, where long distances and bad weather complicate planning, it is worse. Mismanagement is routine. The transport industry is dominated by only a handful of companies. In 2019 Igor Pushkaryov, a former mayor of Vladivostok, Russia's eastern business capital, was jailed for corruption on a road project. In the midst of a war, Russia will struggle to summon the labour and expertise it needs to upgrade its railways. Many countries involved in the INSTC are also at odds with one another, which will make planning other parts of the project supremely difficult.



Source: Bruegel *Britain, European Union, Japan, Norway, South Korea, Switzerland and US †Brazil, China, India, Kazakhstan and Turkey

Sanctions are also delaying progress on sanctions-defying routes. Europe once sought to connect with China via the Russian Arctic; no more. Extra capacity depends on Arctic oil-and-gas projects coming to fruition, but the withdrawal of Western firms makes that tough. In April Novatek, Russia's largest producer of liquefied natural gas (LNG), was forced to suspend production at its Arctic LNG 2 project owing to a lack of tanker components. Russian Railways (RZD), a state-owned firm, will struggle to replace lost suppliers. The only makers of cassette bearings, which some cargo trains use in wagons, were joint ventures with foreign companies. Last year RZD suspended the use of 50,000 trains owing to parts and staff shortages.

Even if Russian officials do raise capacity on the new routes, demand for goods is not certain. Roughly 150,000 containers have piled up in Russia's far east due to an imbalance in trade with China. The INSTC could increase competition between Russia and Iran, which currently export similar products to separate markets. Countries not imposing sanctions will be able to drive hard bargains, taking advantage of Russia's limited alternatives. Negotiations on the Power of Siberia 2 project, a proposed pipeline between Siberia and northeast China, have stalled over Chinese demands for subsidies. Ultimately, China and India will power Russian economic growth only if the price is right—and that is a problem for Mr Putin. ■

BUTTONWOOD
Groaning traders

Can Japan's zombie bond market be brought back to life?

VISITORS TO TOKYO in the 1990s arrived in a city that looked like the future. A megalopolis of high-rise buildings, neon lights and new technology left a mark on those who witnessed it. But the city has not changed all that much since. Today some travellers joke that Tokyo still looks like a vision of the future—just one planned in 1990.

Something similar is going on with Japan's monetary policy. The country's central bank experimented with zero interest rates and asset purchases a full decade before its peers in the West got in on the act after the global financial crisis of 2007-09. Today, however, Japan looks like a vision of the monetary past. Central banks elsewhere have begun to reduce their asset piles. The Bank of Japan's hoard still sits at record levels.

Ueda Kazuo, its governor, says that he wants to allow financial markets to set long-term interest rates again, after the BoJ tried for years to control yields on Japan's ten-year government bonds. This will not happen anytime soon. According to plans announced in July, the bank will still be purchasing assets worth ¥2.9trn ($20bn) a month by March 2026, four years after the Federal Reserve's purchases came to an end. On August 23rd Mr Ueda was forced to reiterate to Japanese parliamentarians that the central bank does indeed plan to sell its holdings, eventually.

The achingly slow pace of change reflects the profound risks, both to Japan's financial institutions and to the government's fiscal health. Over the past dozen years the BoJ's bond-buying campaign, which was introduced in an attempt to reverse two decades of economic stagnation, has outstripped those of other central banks by a mile. All told, the bank's assets now run to 126% of Japan's GDP, more than five times those of the Fed as a share of America's output. The BoJ owns more than half of outstanding Japanese government bonds.

This has had the effect of putting the private sector to sleep. Before the BoJ's more aggressive bond purchases began in 2013, depository institutions (mostly commercial banks) owned 40% of Japan's government bonds. Today they own less than 10%. In a regular survey by the central bank, bond traders moan about market liquidity and the scarcity of particular securities. Over the past decade a large majority of respondents has continued to report that the market functions poorly.

Yet despite investors' complaints about the scarcity of bonds, enticing them to replace the BoJ will be tough. The maths of the bond market means that when yields are very low, long-term securities are vulnerable to large price moves even if yields rise by just a little—something known as "duration risk". For this reason, banks face regulatory limits on how much long-dated debt they can buy, so as to avoid blow-ups like the one that last year brought down America's Silicon Valley Bank. A study by the Japan Centre for Economic Research, a think-tank, suggests that these rules would limit private-sector bond purchases to ¥100trn, or less than a fifth of the BoJ's holdings.

More attractive prices would help bring back buyers. Japan's ten-year bonds currently offer yields of around 0.9%. By the BoJ's own estimate, its bond holdings depress yields on long-term government bonds by just under a percentage point. A return of more like 2% would certainly appeal to a far greater pool of potential investors. Rising yields would also increase the number of bonds that Japanese banks could buy under the same interest-rate regulations, because violent price moves would be less likely.

But such an increase in yields would introduce another threat. Japan's vast bond market reflects the government's huge debt, which was accumulated while interest rates were low and falling. A doubling of the average interest rate on government bonds, from 0.8% to just 1.6%, would raise interest payments to 17% of Japan's government budget. That would be up from less than 9% today and an amount equivalent to half the state's social-security spending.

Any attempt to bring the bond market back to life at a faster pace would, therefore, become a political nightmare, necessitating swingeing spending cuts or hefty tax rises. At the same time, however, proceeding at a glacial pace carries its own costs, not least that it leaves the BoJ incapacitated in the event of another downturn, because officials would struggle to launch an aggressive bond-buying campaign. There are, in short, no good options for Japan's central bankers. The country represents a cautionary tale from the monetary past.

FREE EXCHANGE
Storm-proofing

Vast government debts are riskier than they appear

AT THE ANNUAL gathering of central bankers in Jackson Hole, Wyoming, attendees enjoy R&R: research and recreation. The latter usually involves a pleasant hike by the lake, but last year a rainstorm soaked the assembled economists. When they returned on August 23rd a remarkably accurate weather forecast helped them dodge a shower and enjoy some sun. This was apt. A year ago inflation was still too high and investors were placing bets that interest rates would have to stay "higher for longer", the economic equivalent of a drenching. This year inflation looks all but subdued and central bankers—whose optimistic prognostications have also come to pass—have started cutting interest rates.

And so they took something close to a victory lap. Jerome Powell, chair of the Federal Reserve, used his speech to say that America's labour market was no longer overheated and that the Fed would probably soon join the rate-cutting club. "You're not supposed to say that in public," joked Andrew Bailey, governor of the Bank of England, when Kristin Forbes of the Massachusetts Institute of Technology suggested the decline of inflation had been a great success. One paper, presented by Carolin Pflueger of the University of Chicago, showed how, contrary to the claims of some commentators, the Fed's rate rises had been crucial to keeping inflation expectations under control. Before inflation took off, even forecasters going against the grain and expecting prices to surge thought the Fed would fail to react—an expectation that could have caused the inflation problem to become entrenched.

Attendees liked the idea. It is, after all, evidence that central bankers helped the sun break through the clouds. Yet the paper that stirred the most debate at the get-together told a more circumspect story. Hanno Lustig of Stanford University presented evidence that during the covid-19 pandemic American Treasuries, which are supposed to be the world's safest asset, had become risky. The public has been vexed by the 18% rise in consumer prices since 2020 and the interest-rate rises that were later required. But at least real wages have risen. Consider, by contrast, the plight of bondholders. Between January 2020 and October 2023 the mix of higher inflation and higher rates, which depress bond prices, caused the real value of outstanding Treasuries to fall by 26%.

This, Mr Lustig argued, was indicative of a "risky debt regime". At the onset of the pandemic, the Treasury market was struck by extreme volatility. Analysis of the turmoil usually emphasises blocked plumbing in financial markets: the dealers who intermediate markets ran out of space on their balance-sheets. Mr Lustig, though, presented evidence that investors were in fact reacting to fiscal developments, selling more on days when news broke that the American government would be throwing cash at the crisis. Moreover, investors who sold Treasuries did better than those who did not—the opposite of what you might expect if plumbing problems were forcing them to offload securities at fire-sale prices.

Things look better in bond markets today. Thirty-year Treasuries yield only an annual 4.1%, with little sign of a risk premium. But even if America's "risky debt regime" was temporary, it might be included alongside the panic that struck British gilt markets when the short-lived government of Liz Truss announced unfunded tax cuts in late 2022, and the sell-off in French markets when investors feared that the hard right would gain power.

Such events should be disquieting to central banks for several reasons. One is that they cast quantitative easing (QE), the buying of bonds using freshly created money, in a new light. It is textbook central banking to stop a panic by buying bonds, so as to unblock the plumbing. Buying government debt because investors fear fiscal profligacy is much dicier territory. And QE has a fiscal consequence: some of the losses that bondholders might have borne were shifted to central banks, and hence back to the taxpayer. Mr Bailey seemed burned by the experience: "I'm not saying we'd never do it, but I think it's tarnished," he said of using QE in future, while also complaining that no journalist had written about the fiscal consequences of QE when it was profitable. (His copies of *The Economist* must have been lost in the post.)

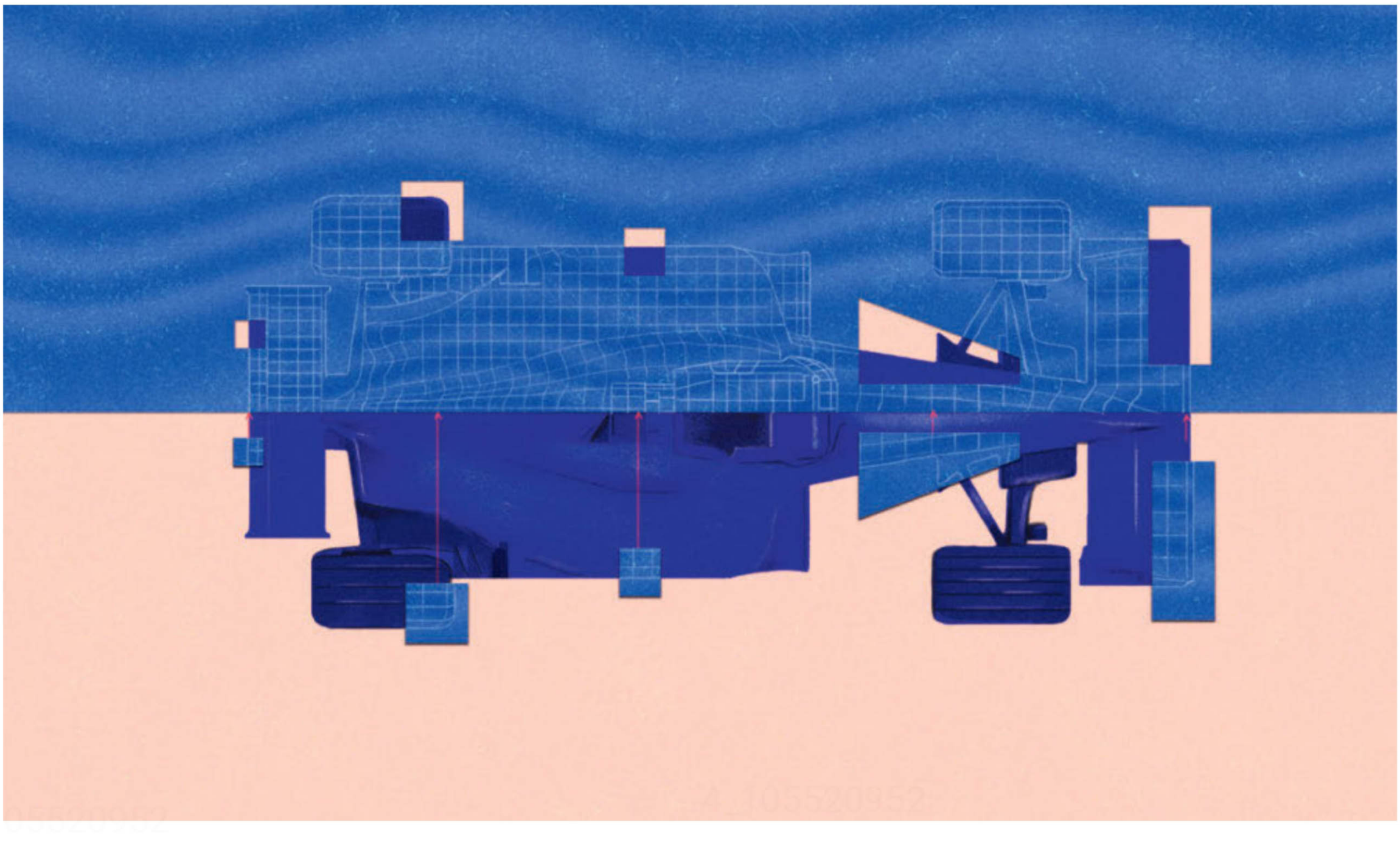
A more profound reason that central bankers might worry about a risky debt regime is that—although they do not like to talk about tax and spending—they are able to control inflation only if politicians keep debts under control. It is possible that amid a fiscal blowout there is no interest rate which central bankers can set to prevent inflation. High interest rates can induce still-bigger deficits as governments borrow more to pay the debt-interest bills. Brazil is familiar with this problem, and the country's central-bank governor warned on stage that other rate-setters might be forced to pay greater attention to fiscal policy. If America continues on its current trajectory, running a deficit of 7% of GDP even while not in recession, that seems certain.

Rain forecast

Therefore today's bond-market optimism, as indicated by pricing, is a little curious. As Mr Lustig notes, the experience of recent years was not unique. Bondholders often take soakings after wars and crises, which usually create a surge in inflation. Deflation of a comparable magnitude is rarer—even the slump after the global financial crisis of 2007-09 did not produce it. Covid will not be the last virus to cause a pandemic; fraught geopolitics could bring about more wars, or worsen existing ones. Governments these days seem more likely to respond with big stimulus to reflate the economy than they were a generation ago.

Central bankers cannot do much about these risks, and deserve a moment of celebration. Bondholders who live for the long run, though, should consider the chance that history will repeat itself, and that they will once again be caught in a storm. ■

Science & technology



Digital twins (1)

Off to the races

MILTON KEYNES

This special section explores the use of digital twins in fields ranging from health care to industry. First, how they are speeding up manufacturing

WHEN A FACTORY has secrets to protect it is not unusual for security staff to ask that no photos be taken. This industrial campus in Milton Keynes, northwest of London, however, is particularly cautious. It is the home of Oracle Red Bull Racing, a Formula 1 team involved in a competitive contest that relies on levels of engineering so advanced they would leave most manufacturers in the dust.

Red Bull employs some 1,500 people building racing cars. Their principal mission is to keep two of those cars at the peak of their performance for the team's drivers—Max Verstappen (the winner of three world championships since 2021) and Sergio Pérez—to deliver more race victories during the 2024 Grand Prix. Out on the track, they race in a world where mere fractions of a second over a minimum of 305km separates winners from losers. But there is another world in which the F1 teams battle it out: a virtual one.

During a season Red Bull's cars will be subject to several thousand design changes and tweaks. These have to be done at breakneck speed, with components designed, tested, shipped and fitted in a matter of days between races. There is no room for error. Like its F1 rivals, the only way Red Bull can maintain such a pace is by using software that simulates the entire production process, so that any problems are ironed out before they emerge. That simulation is done using what is called a "digital twin". The advantages such twins offer in speed, reliability and cost together represent the future of manufacturing.

A digital twin is a virtual representation of something. It could be an object, like a car or an aircraft. Or, as we consider in the next two stories, it could be more complex systems, such as industrial processes or bodily organs. Even in the case of a humble car part, it encompasses more than physical attributes, from details about how the object was built and how it ages to how it breaks and the way it can be recycled.

To work, a digital twin needs to be constantly updated by its physical counterpart. This is done using real-time information gleaned from sensors that measure just about anything that can be measured. In the case of Red Bull, each of its cars' digital twins is updated by more than 250 sensors constantly checking things like engine performance, tyre temperatures and suspension movements. By the end of a race, the amount of wireless data relayed by each car back to a team's engineers can be in the terabytes.

The race track serves as a laboratory for the transfer of digital twins to the broader motor industry, says Ignazio Dentici, head of the automotive division of Hexagon, a Swedish company which supplies twinning technology. This includes laser scanners, which Red Bull uses to check the dimensions of components down to an accuracy of two millionths of a metre. That might seem extreme, but F1 is an extreme sport. Not only does such accuracy ensure that parts match the design specs, it also ensures that they do not stray outside the strict dimensions laid down by F1 rules, which can lead to disqualification.

→ ALSO IN THIS SECTION

64 Digital twins are shaking up science...

65 ...and how businesses operate

The digitisation of car design and the virtual testing of prototype vehicles in a simulator has helped shrink the process of taking a new model of a regular vehicle from conception to mass production from around five years to about two, adds Mr Dentici. Carmakers are now trying to create digital twins of their factories and supply chains to plan production more efficiently. As the volume of data grows, artificial intelligence (AI) will help analyse the twins and suggest improvements.

Surprise! It's twins

All this is a long way from where digital twins began. That is usually pegged to the Apollo space programme and, in particular, April 13th 1970. On that day the (often misquoted) words "Houston, we've had a problem," were uttered, as the three astronauts on Apollo 13 reported that an oxygen tank had ruptured, disabling some of the spacecraft's critical systems. To help bring them back to Earth safely, NASA's engineers used the simulators on which the crew had been trained to work out new manoeuvring procedures. The simulators were largely physical models, as computerisation was limited. But it was possible to use data transmitted from the damaged spacecraft to recreate the problems, and thus explore ways around them.

The idea of using a purely digital model for engineering spread as computer power increased and sophisticated design and manufacturing programs emerged. Specialised software has also been developed for things like structural analysis and computational fluid dynamics, which can be used to explore aerodynamics without the need for an expensive wind tunnel. At the same time, powerful computer graphics allow results to be displayed in more elaborate ways, including virtual-reality systems that let engineers peer inside things like aircraft wings, as well as driving virtual cars on virtual roads and race tracks.

These tools are now being used on the grandest scales. At the Tinker Air Force Base in Oklahoma, all 76 of America's fleet of giant B-52 bombers need their engines replaced. These cold-war aircraft date from the 1950s and each has eight jet engines, configured as pairs of jets contained in four pods, hanging under their wings. The work, and the way the updated bombers will fly, is already well understood. This is because the entire process has been extensively explored using a digital twin.

When the engine-replacement programme was put out to tender, the US Air Force made digital models a requirement, ruling out any paper plans. This virtual "fly-off", potentially worth $2.6bn, was won by Rolls-Royce, a British engineering group, using a digital twin that replicated its F130 military engines installed in a B-52. These engines will be manufactured at a Rolls-Royce factory in Indianapolis.

Rolls-Royce, along with its two big American rivals, General Electric and Pratt & Whitney, which also competed for the contract, were among the first to start using digital twins to monitor the performance of their engines. Airlines used to buy engines for their aircraft, maintain them and carry their own stock of spares. Now they mostly rent their engines using a subscription model known as "power by the hour", which means manufacturers are paid only when their engines are working.

As a result, "we are heavily incentivised to understand how our fleets of civil engines are behaving," explains Steve Gregson, a senior Rolls-Royce engineer. Each engine, therefore, has a digital twin. Whenever the real engines are airborne, sensors relay data to an open-all-hours monitoring centre where the twins are updated and checked for anything that looks amiss. Automated algorithms, using a form of AI, then look for patterns and anomalies that may not be readily apparent.

To illustrate how this works in practice, Mr Gregson describes a recent flight from Singapore to Los Angeles. A couple of hours after departure, the health monitoring detected a potential engine problem and suggested a likely cause. Engineers liaised with the airline and pilots, concluding it was safe for the flight to continue. Meanwhile, a team of technicians were summoned from Indianapolis, spare parts were put on a plane from France, and a replacement engine sourced. By the time the flight landed, a team was ready to make repairs and get the aircraft back into the air as quickly as possible.

Spotting problems before they occur has both safety and financial benefits. It also makes routine servicing more effective. Aircraft used to require their engines be serviced at set intervals, even though some journeys cause more wear and tear than others. Planes flying out of an airport in a desert region, like the Middle East, can ingest gritty dust particles, which abrade components faster. Certain flights are more heavily laden, which adds stress. And some pilots push the throttles harder than others. As the digital twin takes such things into account, maintenance schedules can be tailored to how each engine is actually wearing. This means some engines can stay on the wing as much as 30% longer, says Rob Fox, a senior design manager with Rolls-Royce.

Although many cars inform their owners when they need servicing, most do not have sophisticated digital twins keeping tabs on them the way jet engines and F1 cars do. But as sensors get cheaper and model-building becomes easier, that could change. Other products may follow, from phones to washing machines. The technology is yet to enter its highest gear. ■

Digital twins (2)

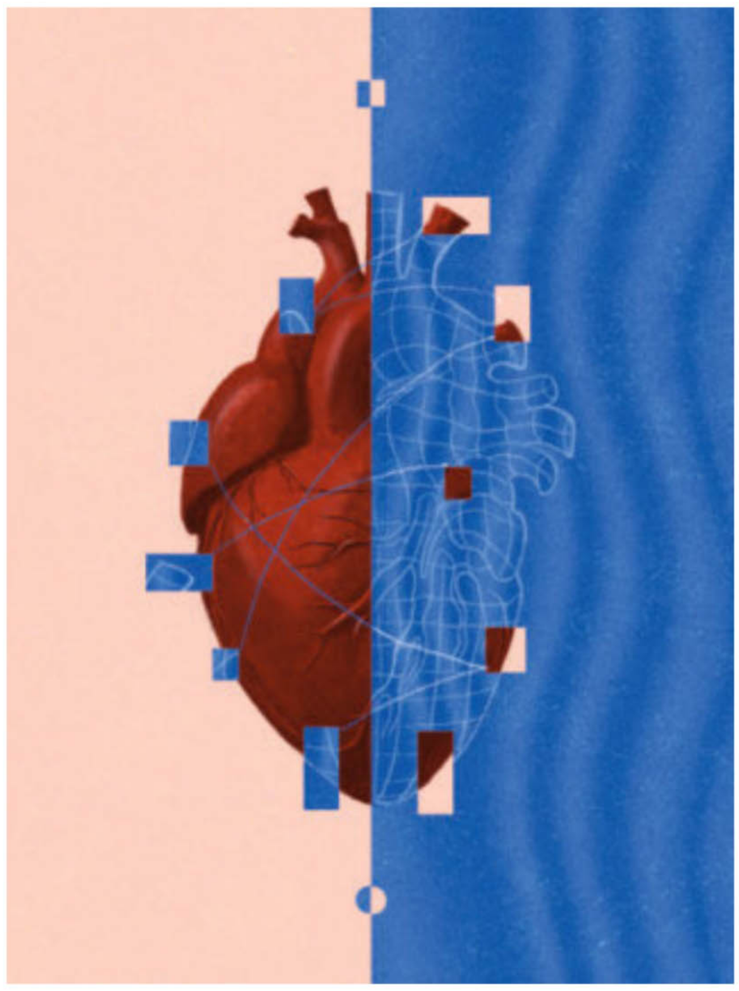
The heart of the matter

Scientists hope to simulate everything from human organs to the planet itself

SCIENTISTS ARE no strangers to computer models. Some of the very first uses of computers to simulate reality, in fact, were built by physicists keen to understand the behaviour of subatomic particles, and meteorologists hoping to predict the weather. Over the 75 or so intervening years, computer modelling has become an integral part of scientific practice, informing everything from predictions of climate change to the monitoring of pandemics.

It is only recently, though, that such models have become sophisticated enough to be dubbed digital twins—in-silico replicas, in other words, of their real-world counterparts, capable of modelling their behaviour in real time. Key to this transformation has been the improvement of sensor and imaging technologies, along with ways to collect, transfer and analyse vast quantities of data. Digital twins are now yielding new insights into the human body and the planet, as well as shaping the design of cutting-edge experiments.

Nowhere is this transformation more obvious than in health care, a field where digital twins have "exploded" in recent years, says Michelle Oyen, a health engineer at Washington University in St Louis. She attributes much of that growth to the drive towards personalised medicine. If an individual can have an entire organ reliably simulated, goes the thinking, then the effects of a disease and the likely impact of drugs can also be modelled in detail.



Dr Oyen herself uses the technique to model the development of the placenta during pregnancy, and how that can influence the risk of stillbirth. Similar efforts are under way for other organs, including the lungs and kidneys. Researchers have even made progress on simulating the complex interconnections of neurons within the human brain, in order to model and study epileptic seizures.

The organ most relevant to engineers, though, is the heart, a system of valves and chambers that squeeze and relax up to a hundred times a minute to send blood around the body. And whereas hearts all follow the same laws of physics, each does so in different ways. Everything from diet and lifestyle to age and physique can alter how cardiac tissue contracts in response to electrical signals, as well as how smoothly blood flows through the heart's chambers. Understanding the impact of such changes on bodily health is key to helping patients recover from heart disease.

A digital twin could help. At Queen Mary University of London, Caroline Roney is using virtual models to find better ways to treat atrial fibrillation. Driven by haphazard electrical signals in the upper heart, atrial fibrillation is the most common form of cardiac arrhythmia, affecting about 1.4m people in Britain. If not treated, it can lead to stroke or heart failure. At present, that treatment often involves ablation: heating or freezing small diseased regions of the heart to form tiny scars that block errant electrical signals.

Patients respond to ablation in widely different ways, in large part, says Dr Roney, because of differences in cardiac tissue. She is, therefore, working to customise treatment, using digital twins to recreate the particulars of individual hearts and predict how they will react to ablation.

The first step is to make such a twin. Thanks to advances in scanning technology, the structure and composition of the heart can be replicated to within less than a millimetre. Crucially, such a computer simulation can also be programmed to replicate patterns of electrical conductivity in different regions of the heart, using information obtained from electrocardiograms (ECGs). By recreating these patterns in the modelled heart, the digital twin can be used to simulate ablation, as well as the probable patient response, before any surgery occurs. What's more, such digital twins could theoretically predict changes in the heart structure brought on by age, without the need for further scans.

And, in principle, twins of different organs can be developed separately and then combined, with the outputs from one used as inputs to the others. Dr Roney is part of a European consortium called the Ecosystem for Digital Twins in Healthcare, which works on ways to integrate twins of different organs, with the ultimate goal of creating a virtual human body. This would allow for more reliable modelling of everything from the effects of medication to the consequences of surgery. The project is due to publish a plan in September that sets out how exactly this could be achieved.

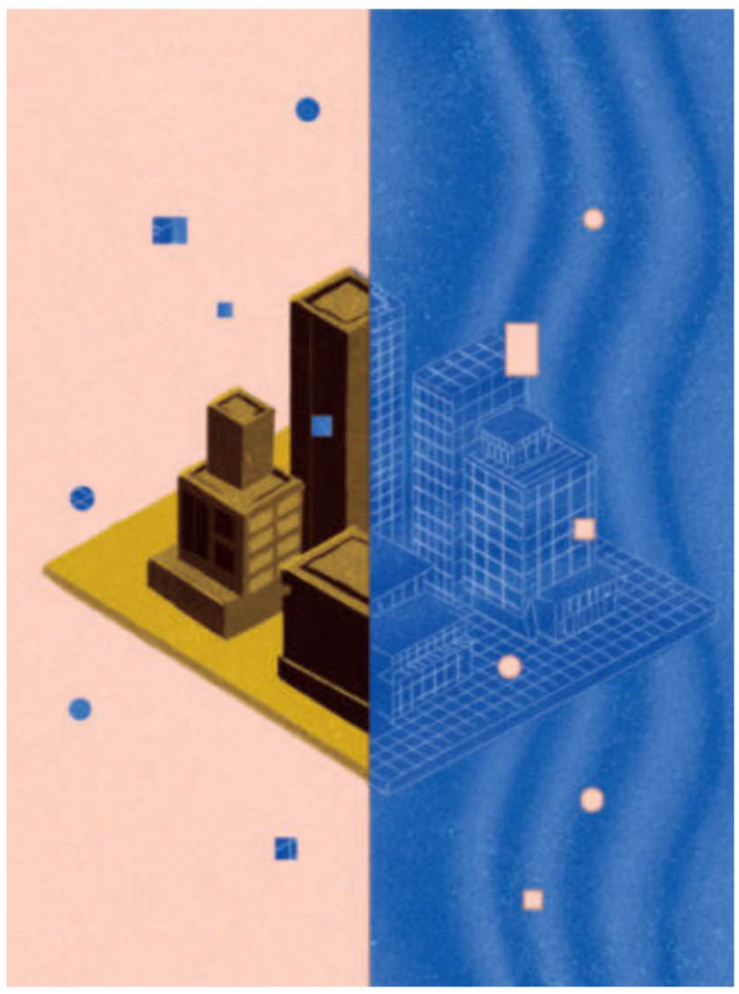
Some researchers dream of doing something similar with Earth, by combining digital twins of specific planetary processes. This would have real-world benefits. Thomas Coulthard, a physical geographer at the University of Hull, is building a digital twin of the local area to help authorities respond to heavy rainfall and storms. By modelling what happens to surface water when sluice gates and barriers are opened and closed, the twin lets everyone from water companies to individual landowners test the possible consequences of action and inaction.

Threading millions of such small-scale systems into a global patchwork will take time. Others are therefore jumping directly to the largest scales. Thomas Huang, a data scientist at NASA's Jet Propulsion Laboratory, is building a digital twin of the planet's climate. His goal is to use real-time data to improve predictions of how global warming will affect the weather.

His biggest challenge, though, is not finding the data: this exists, often in very high quality, covering everything from temperature records to predictions of how rainfall will change over time. The real difficulty is connecting everything. Even adding something as apparently straightforward as surface temperature measurements relies on integrating information in a range of formats originating from sensors on satellites, ground stations and floats bobbing atop the deep ocean.

It is perhaps when scientists are in full control of the data that digital twins can be most useful. Nowhere is this control more absolute than during the design of large-scale experiments. CERN, for example, runs virtual simulations of how the Large Hadron Collider, a massive particle-smasher, collects data, and uses them to test how small alterations can increase its efficiency. And a digital twin of the orbiting James Webb Space Telescope, perhaps the most complex instrument of its kind ever built, helps scientists on the ground plan changes and maintenance.

In all these cases, the twin not only produces real-time predictions, but relies on a stream of real-world data to keep its predictions relevant. Such two-way modelling helps science itself proceed much faster, says David Wagg, an expert on digital twins at the Alan Turing Institute in London. With a plugged-in virtual twin, forecasts can be tested—and updated—all the time. With so much to recommend them, digital twins are likely to become ever more integral to how science is done. ■



Digital twins (3)

Smart moves

SAN FRANCISCO AND SEATTLE

Corporate twins will make it easier for firms to feel the benefits of AI

When a passenger in search of a taxi orders an Uber, all it takes is a few taps on a smartphone to make a car appear, as if by magic. Traffic permitting, they are soon whisked to their final destination. But the magic tricks do not end there. As soon as that screen is pressed, the passenger—along with all of Uber's other riders, drivers and the systems that connect them—becomes part of a comprehensive digital replica of the firm's inner workings.

This digital twin, one of the most sophisticated of its kind, allows Uber to adjust its operations in real time. Annoyed passengers may think that this enables the firm's "surge pricing", when fares suddenly spike to balance ride demand and driver supply. This is partly true. But the more immediate and more positive effect is that the digital twin allows for up-to-the-minute route optimisations through ever-changing city traffic.

If current technology trends hold, such end-to-end digital representations of a company's inner workings—and, increasingly, its ecosystem of customers and suppliers—will no longer be the speciality of tech firms such as Uber. Artificial intelligence (AI), in particular, will make it much easier for all sorts of businesses to build virtual replicas and oversee them on a scale managers alone never could.

As a result, digital twins will redefine what it means to run a company. Instead of co-ordinating disparate islands of automa- ▸▸

tion, as is the case today, bosses will manage a constantly churning "flywheel" fuelled by data. With access to information from all over the company's operations, as well as from its customers and suppliers, a corporate twin will not just help managers make better plans. It will also implement them, learn from the outcomes and optimise itself to achieve certain corporate objectives—over and over again.

Companies have long tried to model and automate key parts of their business. Even before the global financial crisis hit in 2007, Goldman Sachs, a bank, built a system called SecDB which, among other things, regularly calculated the different types of risk facing its different financial assets. When Lehman Brothers, another bank, went bankrupt in 2008, this system allowed Goldman quickly to understand its exposure to the failing firm.

As such systems multiply and interconnect, companies are in effect building digital twins of themselves—equivalent to recreating a human one organ at a time. What distinguishes these models from their predecessors is their ability to continuously monitor (and influence) their real-world equivalents. Amazon, a big online retailer, is considered to have pushed this process the furthest. After dominating e-commerce for nearly 20 years, the company has amassed vast amounts of sales data, enabling it to build a single model that can forecast demand for 400m items two years into the future. It can even anticipate how a new book by a famous author such as Michelle Obama will fare and how a Taylor Swift concert will impact local demand.

But this model is only part of Amazon's supply-chain optimisation. "Once we have a reliably accurate sales forecast, we can use this as the basis for all planning," explains Ping Xu, who leads forecasting. She oversees a "gym" in which models that optimise different parts of Amazon's supply chain—from how many of a certain item to keep in stock to where to build new warehouses—train together to learn how to act as one coherent model.

What took Amazon years to put together is now becoming much easier to build. Cloud-based databases have helped, allowing companies to store their data in one place for large-scale analysis. So have data-harmonisation techniques, designed to ensure different bits of information are mutually compatible. Molham Aref, the founder of RelationalAI, a startup, aims to turn business processes into what he calls "Lego blocks of digital twins" that can together produce a replica of any company.

The greatest impact on the development of corporate digital twins, however, will come from AI and machine learning. For one, these tools make it easier to grasp the internal processes in need of modelling. Celonis, another startup, currently designs software that trawls a company's internal data for useful insights. In due course AI will be able to perform this discovery process more flexibly and with minimal prior instruction. Just as large language models (LLMs), which power services like ChatGPT, can extract patterns from vast amounts of text, corporate models fed on business data could discover what makes a firm tick, predicts Dario Gil, head of research at IBM.

LLMs will also allow digital twins to adapt. Enterprise software used to involve rigid rules, which made finding workarounds tricky. If a customer wanted to return a product, for example, that would have to be handled in the software-approved manner. Large Action Models, as some call such LLMs, could change that. Trained on complaint messages and other unstructured data, they may be able to offer customer-support workers flexibility, or even perform tasks themselves. "Enterprise software will become more generated-on-demand and self-assembled," says Charles Lamanna, who leads the development of such software at Microsoft.

On the double

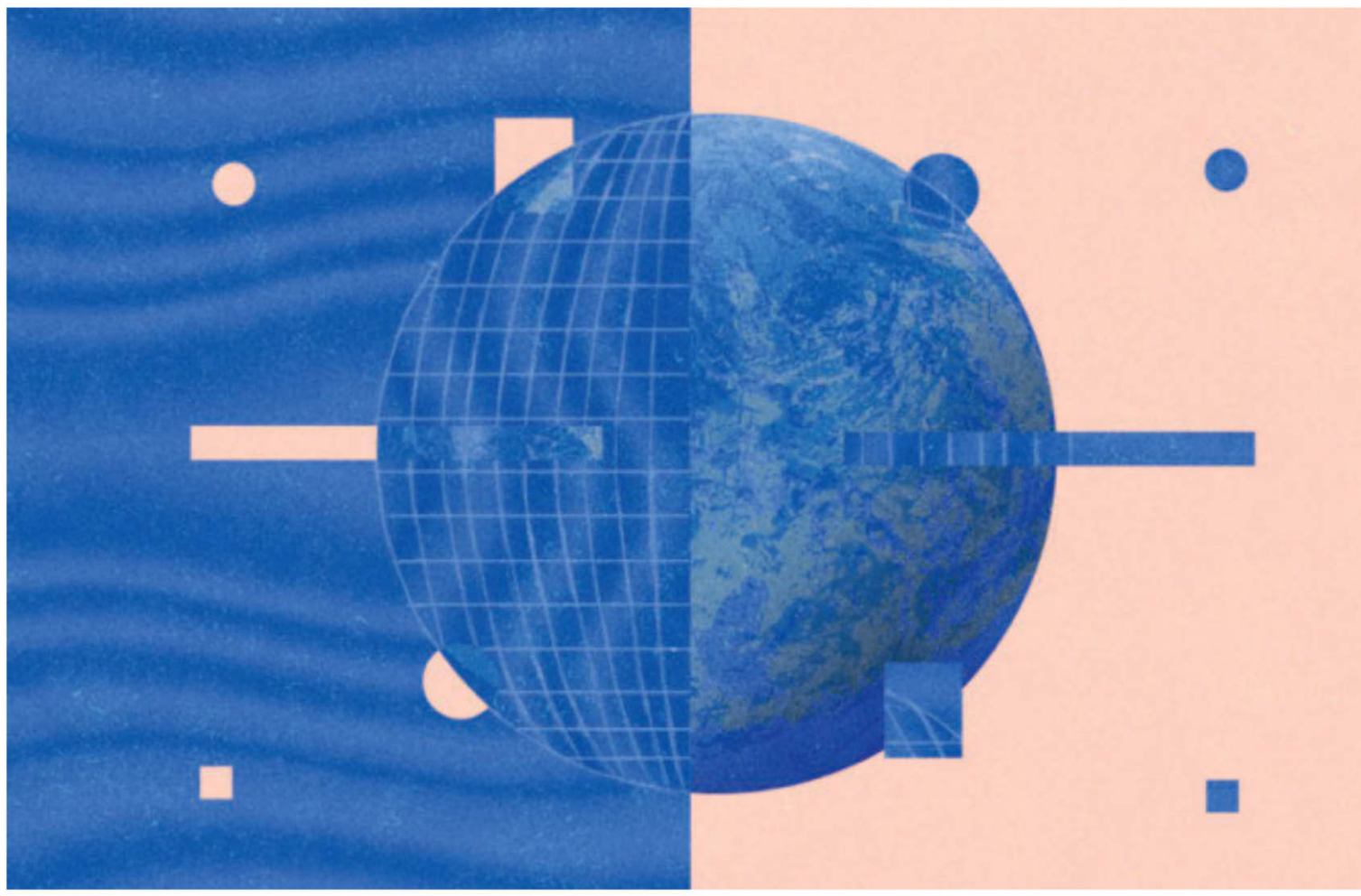
Most important, however, AI and digital twins will each enable the other to flourish. Just as fragmented computer systems hamper data analysis, they also constrain what task-performing algorithms known as agents can do. Digital twins offer, in effect, a level playing-field for agents to move on. Such tools will only become more important as agents become easier to build.

What's more, as AI becomes better at capturing what happens inside companies, an ever-bigger part of their internal processes could be turned into software. This could launch a virtuous virtual cycle, in which new enterprise software generates more data, enabling yet deeper AI insights and creating an ever-more detailed digital twin. Firms that jump on such a bandwagon early may well have a lasting advantage.

Such companies are also likely to shift shape. The past 25 years saw the rise of huge tech platforms, including Uber, Google and Meta, most of which are marketplaces that match consumers with goods, services and content. As non-tech businesses, from carmakers to insurers, become more and more embodied in software, they will turn into large platforms. By embracing their digital twins, companies will be able to do more than just match buyers and sellers, orchestrating complex relationships between them too.

If businesses can increasingly be digitally replicated, why stop there? Some firms have started to build digital twins of entire sectors of the economy. J.D. Power, a data-analytics firm, is gathering reams of data on the American automobile industry—including information about individual cars, which dealers stock them, how they are configured, and so on—and how such factors influence sales. With the help of Palantir, a software-maker, J.D. Power is now developing a system that can indicate the current state of the market, as well as show carmakers what is likely to happen if they adjust certain variables, such as increasing incentives in a specific market or supplying more vehicles with luxury packages or in particular colours.

Such opportunities also come with risks. As businesses become ever more reliant on digital twins fed on their most sensitive information, they also leave themselves more vulnerable to being hacked. A well-targeted attack could, in theory, not only grant rogue actors access to a company's deepest secrets, but also allow such data to be secretly manipulated—with real-world consequences. This is magic to be handled carefully. ■



Culture

The sports boom

Leagues of their own

NEW YORK

Why the world is teeming with so many new sports leagues

THE BARCLAYS CENTRE usually hosts the Brooklyn Nets, a popular basketball team. But on a recent afternoon in August the arena was instead covered with 750 tonnes of carefully manicured dirt. It was the debut outing of the New York Mavericks, a new franchise in the Professional Bull-Riding (PBR) Teams league.

After an invocation was intoned and the national anthem belted, the lights dimmed and a flashy "PBR 101" video played on the gargantuan screen overhead. It is not just city folk who needed this primer. Teams are new in bull-riding. Athletes have to cling to a bucking bull for eight long, chaotic seconds, as they do during rodeos. But instead of riding by themselves, five cowboys compete together in a "head-to-head battle" against another squad. Viewers cheer their chosen teams through a two-hour-long match that has all the tension and drama of a good Western.

This fully "sportified" version of bull-riding is popular, with about 1m viewers tuning in to each PBR Teams event on television in last year's season. The expansion in New York signals the league's ambitions to lure new, urban fans. Franchise value is also growing fast: the first eight teams were sold for around $3m, but two new teams making their debut this year sold for around $23m each. The bulls are now running and kicking their way across America, including Kansas City on September 6th-8th and ending up at the Teams world championship in Las Vegas in October.

PBR Teams is one of at least 26 new leagues that have sprung up in the past decade in America. Some leagues are focused on popular pastimes, such as cornhole, the most-played game in America. (A longtime staple of university parties and country clubs, it involves throwing a bean bag through a hole on a board, in a feat of casual athleticism akin to bowling.) Pickleball, the country's fastest growing sport, now has several professional leagues. Slap fighting, in which contestants hit each other as hard as possible, also has one. Other leagues have restructured traditional sports to boost their appeal, like SailGP, a new and fast-growing sailing tour modelled on Formula One (F1), the popular international car race.

New leagues are not just storming the field in America. They are a global phenomenon, with the exception of China, where professional sport has struggled in recent years, with a major corruption scandal rocking football. The Kings League, for football, was founded in Spain in 2022, has expanded to Latin America and will soon launch in Italy. That same year investors launched a baseball team in the United Arab Emirates, which aims for sport to account for 0.5% of its GDP by 2031.

Saudi Arabia is spending billions on sports and founded LIV Golf, a tour that includes teams in what is usually a solo game; next the country will reportedly invest as much as $2bn in a professional boxing league. In the past decade India has brought its A-game, with new leagues for badminton, cricket, kabaddi (an Indian ▸▸

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contact sport), kho kho (a traditional tag game), table tennis, tennis and volleyball.

Investors are rooting for many of the upstart leagues, and it is not hard to understand why. Teams have appreciated handsomely over the past few decades in America, with valuations outperforming the S&P 500. A sports franchise also offers diversified income streams, with revenue from broadcast deals, sponsorship, ticket sales and merchandise.

Team dynamics

Traditional teams are few and expensive, especially since private-equity firms and sovereign-wealth funds have got in the game in recent years; startup leagues are cheaper, but still come with bragging rights for wealthy owners. A professional baseball squad costs about a hundred times more than a bull-riding outfit, but a PBR Teams event can have as many viewers as some baseball teams, according to Marc Lasry of Avenue Capital, a hedge fund that owns the New York Mavericks and has invested in SailGP and pickleball. "There's a huge arbitrage there," he insists.

Rapidly appreciating media rights have boosted the value of teams and given an assist to new leagues. In a business full of uncertainty, sports enthusiasts are probably the biggest fans of live entertainment. Broadcasters are paying ever more for the privilege of distributing it to them.

The entry of streamers like Amazon Prime Video, Apple TV+ and Netflix into the scrum has further pushed up prices for sports rights. Once leagues had to compete for limited airtime; now there is a platform for everyone and everything. Visually arresting, fast-paced events like bull-riding and SailGP are also particularly well suited to distribution via social media. "I don't think this would have happened 20 years ago without the advances in technology. There's just more eyeballs out there," says Mike Keenan, who runs the sport practice for PwC, a professional-services firm.

Intense fan culture, which has swept the world of entertainment writ large, has given new teams a boost. Athletes such as Megan Rapinoe and Caitlin Clark (female champions of football and basketball, respectively), are bona fide celebrities, helping draw attention and capital to women's sports. This has boosted established leagues and led to the creation of new ones for volleyball and hockey.

So strong is appetite for watching sport that viewers want to turn on shows about athletes even when they are off the pitch. PBR was the subject of Netflix and Amazon series. Next year Brad Pitt will star in a film about F1, which has already featured in a hit documentary series on Netflix. In other words, there are more ways than ever to find fans—and to be one.

That does not mean that a golden age for leagues will translate into gold for everyone. "Historically there is a lot of roadkill in this space," warns Scott Rosner, who teaches a class on emerging leagues at Columbia University. It is too early to say if Saudi Arabia's sports experiments will succeed; a recently proposed European Super League for football faltered after teams and fans rebelled. Several new American leagues, including the United Football and Arena Football leagues, are reboots of failed ventures, and may well strike out themselves.

Securing effective media distribution deals and "consumer share of mind and consumer share of wallet" remains a big challenge, says Mr Rosner. Winning a match or a medal is up to athletes. But it is ultimately the support and interest from fans that determines whether a new league wins or loses. ■

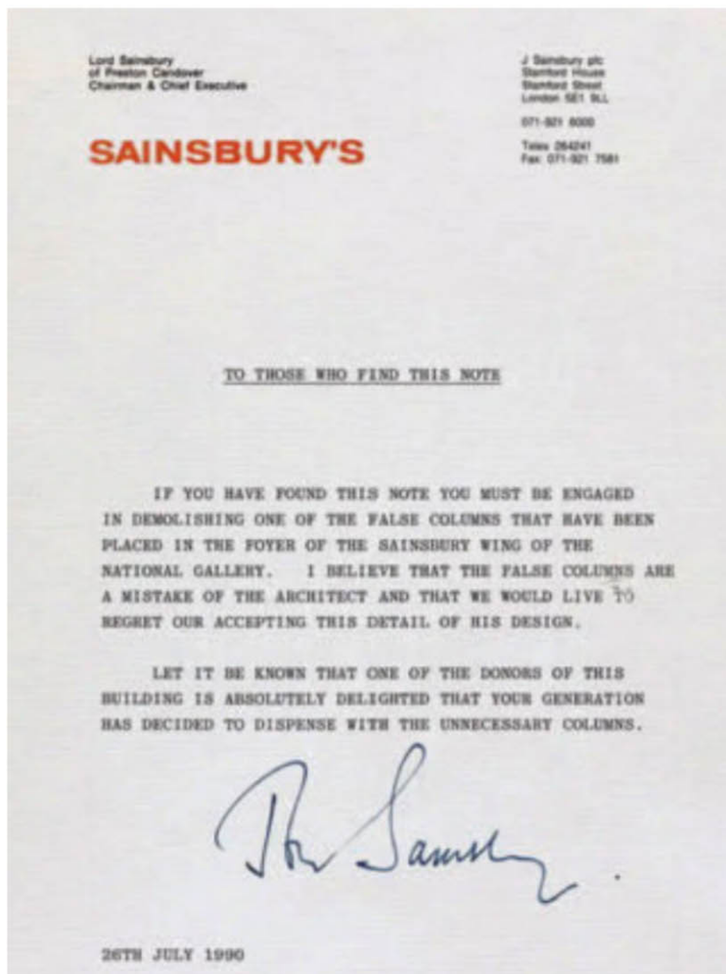
Art and money

Master clash

A hidden letter offers an insight into disputes between artists and patrons

THE TIME-CAPSULE letter from 1990 was written in passionate all-caps. Unearthed during a renovation of the Sainsbury Wing of the National Gallery in London, it denounced the ornamental column within which it was hidden as "A MISTAKE". The author was "ABSOLUTELY DELIGHTED" that, since his letter had been discovered, the column and its twin must have been demolished.

The writer was John Sainsbury of the supermarket Sainsbury's—who, with his brothers, paid for the construction of the new wing, with its high-concept design. It opened in 1991; he died in 2022. His newly publicised note is an elegant solution to an age-old problem: what to do when artists' visions clash with their patrons' tastes?



Lord Sainsbury
of Preston Candover
Chairman & Chief Executive

J Sainsbury plc
Stamford House
Stamford Street
London SE1 9LL
071-921 6000
Telex 264241
Fax: 071-921 7581

SAINSBURY'S

TO THOSE WHO FIND THIS NOTE

IF YOU HAVE FOUND THIS NOTE YOU MUST BE ENGAGED IN DEMOLISHING ONE OF THE FALSE COLUMNS THAT HAVE BEEN PLACED IN THE FOYER OF THE SAINSBURY WING OF THE NATIONAL GALLERY. I BELIEVE THAT THE FALSE COLUMNS ARE A MISTAKE OF THE ARCHITECT AND THAT WE WOULD LIVE TO REGRET OUR ACCEPTING THIS DETAIL OF HIS DESIGN.

LET IT BE KNOWN THAT ONE OF THE DONORS OF THIS BUILDING IS ABSOLUTELY DELIGHTED THAT YOUR GENERATION HAS DECIDED TO DISPENSE WITH THE UNNECESSARY COLUMNS.

26TH JULY 1990

Getting the last laugh

Some well-off sponsors indulge the avant-garde urges of creative types. But others want a version of something they have seen before. Because so much cash is involved, in architecture they generally get it. Even Frank Lloyd Wright humoured clients who wanted fuddy-duddy features such as closets. The stakes can be higher than a paycheck. Legend has it that, offered two designs for the Hotel Moskva near the Kremlin, Stalin approved both. No one was keen to point out his mistake, so it was built with an asymmetric façade.

Portraiture is a combustible art form, for reasons of vanity more than technique. For centuries portrait artists to monarchs and Medicis strove to draw a tricky line between flattery and verisimilitude. Charles V, a Holy Roman Emperor, leant on Titian to tweak the nose in a picture of his deceased empress. More recently the power has swung to celebrity painters: Lucian Freud added the head of a male assistant to his portrait of Jerry Hall, a model and actor, complaining she had missed sittings.

Artists and customers often row prosaically over late deliveries or payments. But some disputes are political. Asked to paint a mural in Rockefeller Centre in New York, Diego Rivera sneaked in an image of Lenin. The painting was destroyed, but Rivera had his revenge: in a replica he included a likeness of John Rockefeller junior, a teetotaller, boozing in a nightclub. Michelangelo immortalised Vatican bigwigs he disliked in the Sistine Chapel. The face of an official appears in hell; a cherub makes an obscene gesture at a pope.

A famous instance of a maestro's taste outstripping his master's came at the premiere of "The Abduction from the Seraglio", an opera. Emperor Joseph II is said to have commented that there were "too many notes, dear Mozart". ("Just as many as necessary," the composer replied.) Poets have overdone it sometimes, too. Ovid toadied up to the emperor Augustus, but still wound up in exile on the Black Sea, probably because of his erotic verse. "Corporeal friends are spiritual enemies," griped William Blake, forced to subordinate his genius to his patron's pet projects.

Like Blake, some innovative artists are vindicated by posterity. But in their lifetimes many have felt thwarted by their paymasters' demands, venting their frustrations in grumpy letters or small gestures of rebellion. The defunct columns in the National Gallery are a heartening example of the reverse. The architects got their way—but Sainsbury had the witty last word. ■

An arboreal affair

Trees of life

Twelve Trees. By Daniel Lewis. *Simon & Schuster; 304 pages; $30 and £22*

IT WAS JUST a seedling when Egypt's great pyramids were built. By the time the Roman empire fell its trunk was gnarled and auburn, stretching up more than ten metres. The ancient bristlecone pine (pictured) has witnessed human history for millennia, including "epochs of turbulence and calm". It is one of 12 trees chronicled by Daniel Lewis, a historian at the Huntington Library in California, in a marvellous new book. This arboreal adventure takes you up the trunk of the mighty ceiba tree in Peru and into the blazing forest fires America's longleaf pines need to thrive. The dozen species show how much the lives of trees are entwined with people.

The world has lost around half its trees since the emergence of agriculture 12,000 years ago. Despite this decline, there are still 3trn trees on Earth—400 for every living person. Each year they absorb more carbon than is emitted by America and Britain combined. Trees populate humans' landscapes and language: five of the 20 most common street names in America are trees (oak, pine, maple, cedar, elm). Their branches reach science, trade and literature, Mr Lewis shows.

Clues about the past lives of trees are buried inside their trunks. Some have been scorched by lightning; others have old bullets stuck in their side. Rings of light spring wood and dark summer wood tell scientists the age of trees, and hint at environmental changes over the course of their lives. Mr Lewis compares this to reading a book. For the researchers who "read" its rings, the bristlecone pine is a tome older than the Bible.

Trade has shaped the tales of trees. Central African forest ebony has been coveted by string musicians for centuries: its density elevates the sound of violins and guitars. The arboreal equivalent of "blood diamonds", this tree has long been pillaged and illegally harvested. But Taylor Guitars, a company in California that supplies guitars to stars such as Taylor Swift, is spearheading its conservation. From seedling to six-string, the firm monitors the supply chain. Traditionally only the darkest heartwood—about 10% of each tree—is harvested for instruments. To reduce waste, Taylor Guitars has started using lighter, mottled wood for its most expensive guitars. (The tonal qualities are identical.)

Although dangers lurk, from loggers to climate change, the book introduces a network of people who protect trees and their inhabitants. In America farmers set forests ablaze to help pines germinate. In Europe artisan olive growers pick fruits by hand instead of using automated harvesting machines, which suck up millions of songbirds a year.

Great writers, from Dante to Pablo Neruda, have extolled trees' splendour. John Clare, an English poet, wrote an ode to an elm in 1830, calling it "the sweetest anthem autumn ever made". Today prosaic tributes abound. Melbourne's 70,000 trees have email addresses so people can report problems to the council; thousands write love letters instead. In the spirit of Clare, a fan wrote to an elm: "I was struck, not by a branch, but by your radiant beauty". ■

Looking good in old age

Winston Churchill's travels

Guest who?

Mr Churchill in the White House. By Robert Schmuhl. *Liveright; 384 pages; $32. W.W. Norton; £25.99*

SOME QUESTIONS of diplomatic protocol are tricky. Others are not. For instance, should one meet a head of state clothed or nude? Winston Churchill, Britain's former prime minister and the puckish hero of a new history, often chose to grin—and bare it.

He made quite an impression during his time as the guest of two presidents. The chief usher at the White House recalled that "In his room, Mr Churchill wore no clothes at all most of the time during the day." Churchill's bodyguard remarked how President Franklin Roosevelt knocked on the door of the prime minister's suite during Churchill's first White House visit in December 1941, only to find that "Winston Churchill was stark naked, a drink in one hand, a cigar in the other." Roosevelt, clearly flustered, offered to leave, but Churchill demurred: "You see, Mr President, I have nothing to hide." The two leaders then spoke for an hour.

Born to an American mother and possessing lifelong Atlanticist instincts, Churchill stayed at the White House four times during Roosevelt's three terms in office (along with another four visits to Hyde Park, Roosevelt's redoubt in upstate New York) and once during Dwight Eisenhower's presidency. Even allowing for the time and trouble of a long sea crossing, his visits were often protracted; the first lasted from December 22nd 1941 to January 14th 1942. It is doubtful that any foreign leader since has spent more time as a guest at the White House.

Churchill stayed in what is today known as the Queens' bedroom. He was not the easiest houseguest, keeping odd hours and working and talking into the early hours of the morning. Eleanor Roosevelt said it "always took" her husband "several days to catch up on sleep after Mr Churchill left". Padding around the White House halls barefoot in his "siren suit" (a romper that he began wearing during air raids on London), Churchill earned the admiration of the White House staff for his prodigious appetite. A Secret Service officer said that he "consumed brandy and scotch with a grace and enthusiasm that left us all open-mouthed in awe".

Roosevelt and Churchill worked differently: the president was circumspect, ▸▸

"Welcome. Your scotch is waiting inside."

restrained and cagey, while the prime minister was effusive, commanding and far more experienced in military affairs. Nonetheless, their meetings were productive: Churchill's first visit laid the groundwork for a unified Allied command; his second, after the crushing defeat at Tobruk, for future operations in Europe; and the third for the landings at Normandy.

The fourth visit to Roosevelt was brief, lasting just 32 hours. Roosevelt had been sidelining—and at least once openly mocked—Churchill in an effort to get closer to Josef Stalin. Churchill's last visit, to Eisenhower, had a funereal cast. He was starting to show his age, and both the British Empire and Britain's place in the world were much diminished. Churchill tried but failed to arrange a summit between himself, the president and Stalin. Despite Eisenhower's respect for Churchill, he was yesterday's man.

Yet Churchill still had his personal magnetism, and in essence this book is a case study in the savvy deployment of political "soft skills". Churchill knew when to push and when to flatter, when to lead and when to follow (or at least give the impression of following), how to charm and how to inspire. He also knew the value of good publicity: whatever he actually felt about Roosevelt and Eisenhower, it suited him to have the world believe they were great friends, so that was the story he promulgated to the press and in public.

That not only kept the presidents onside and ensured he was kept in the loop, but it also made "the chubby little man with the fat black cigar", as one newspaper described him, deeply popular across America. Such popularity has endured: American historians are still writing books about him nearly 80 years after his last White House visit. ■

Blockbuster games

"Black Myth: Wukong" is a hit

Will China produce more?

YOU ARE thrust into the heat of battle—a clash so violent it has "disturbed heaven and Earth" and "alarmed both demons and gods". Playing as Sun Wukong, aka the Monkey King, you wield the *jin gu bang* (a fabled staff weighing eight tonnes) and face down Erlang, a three-eyed warrior-god. You must be wily, not to mention nimble: Erlang's axe can cleave entire mountains in two. (And you thought your day job was stressful.)

"Journey to the West" has been adapted many times: it is the most famous novel in Chinese literature and among the country's most successful cultural exports. But "Black Myth: Wukong", released on August 20th, is special. The video game is the first blockbuster release from a Chinese studio. In industry lingo, "Black Myth" is a "AAA" game—a label that denotes big budgets and high production values.

China is a country of gamers. By 2027 there will be more than 700m players there, and the market will be worth $57bn—up from $45.5bn in 2022—according to Niko Partners, a market-research firm. Many Chinese have bemoaned their country's inability to produce a video game as thrilling as "Grand Theft Auto" or "World of Warcraft" (which originated in Scotland and America respectively). They are hoping "Black Myth" marks the arrival of a new player in the AAA arena.

Why has China been so late to log on? One reason is that the country has been focused on winning the mobile game war. China made four of the ten highest-grossing mobile games of 2023, including the top entry, "Honour of Kings". Mobile games "monetise much faster", explains one game producer in China, which counts against designers who want to spend time and money on something more expansive.

Nor did it help that gamers did not have the right hardware. From 2000 to 2014 China banned imports of PlayStations and Xboxes, citing concerns for youngsters' mental health. After the ban was lifted, Chinese studios lacked the expertise to make games for those consoles; it has taken a long time to catch up. China's game technology is "backwards", says a developer at a major Chinese gaming firm. "Black Myth" was made with a 3D graphics creation tool called Unreal Engine from an American company, Epic Games.

Perhaps the biggest reason for the lag is that Chinese gamers are not in the habit of paying to play. Copyright protection is often scant and software piracy rampant. That has made making elaborate games financially unviable. China is richer now, but with the rise of mobile games—which are typically free-to-play and make their money from selling in-game benefits—the habit has stuck. Some Chinese netizens were nonplussed when the pricing for "Black Myth" was announced at 268 yuan ($38).

GameScience, the maker of "Black Myth", based in Hangzhou, is hoping to reboot that attitude. Feng Ji, its boss, abides by the motto "Move oneself first, then find alignment with the market." GameScience studied the best titles and historical material to create a game world that would feel true to "Journey to the West".

The process took six years, but the determination has paid off. In the day after ▸▸

Taking it to the next level

its launch, "Black Myth" enjoyed 2.2m concurrent players on Steam, a gaming platform—the second-highest figure of any game on record. Most of those players were from China, but it has proved popular abroad, too. In the week after its release, it has been the top-selling game on Steam in America, Germany and Japan. "Black Myth" has earned positive reviews on the platform from 96% of Chinese players and 93% of English-speaking ones.

With "Black Myth" the Monkey King has reaffirmed his reign over Chinese content. The game has already been promoted as a source of nationalist pride. Xinhua, an official news service, says "Black Myth" has succeeded in "telling China's story with world-class quality". A spokesperson for China's foreign ministry, delighted at a positive news story about China, has argued the game's approval overseas "reflects the appeal of Chinese culture".

Some analysts believe that China's gaming industry will not give up its preference for mobile even if "Black Myth" becomes the stuff of legend. But others are more optimistic. The game's success proves the viability of blockbuster games in China, they say, and encourages other developers to think big. GameScience has accrued the experience to make subsequent projects easier. Mr Feng asserts that "There will be more Chinese games that can vie with those overseas." That will come as good news to those who like to monkey around on gaming consoles. ■

BACK STORY

The first rule is...

Twenty-five years on, people are still talking about "Fight Club"

IN THE SCHEME of history, the late 1990s were—for many in the West—a kind of nirvana. The cold war was won; liberal democracy was rampant. The phantom millennium bug was as big a worry as any. In this becalmed era Chuck Palahniuk published "Fight Club", his scabrous novel of male alienation, which the director David Fincher adapted for the screen. Starring Brad Pitt as Tyler Durden, the red-leather-jacketed id of modern man, the film had its premiere 25 years ago, in September 1999.

Contrary to the rules, people have never stopped talking about "Fight Club", whether they consider it profound, offensive, pretentious or silly. Particularly among men of a certain age, it is a cultural monument of its era. As cult classics should, it had a limp run in cinemas but became a sensation on DVD, spawning copycat incidents, endless parodies and enduring controversy (its fascination with violence has been labelled "fascist"). A quarter of a century on it has lost none of its punch. The reverse is true. It resonates more today than in the tame late 1990s.

Played by Edward Norton, the unnamed narrator meets Durden on a plane. In contrast to the usual in-flight small talk, Durden is soon explaining how to make napalm (this is a story with a lot of amateur chemistry). He works as a cinema projectionist, splicing frames of pornography into family movies, and as a waiter at banquets, where he pees in the lobster bisque. For his part, the narrator is a wage-slave at the ultra-cynical end of capitalism: he calculates whether recalling faulty cars will cost or save the manufacturer money.

Along with its noirish palette and air of insomniac hallucination, the film has a mega-twist that it is still a shame to give away. Suffice it to say that, after an explosion in his flat, the narrator moves into Durden's crumbling mansion. They fight for kicks outside a bar; other men pick up their taste for blood and bare knuckles. Brawling is an ecstasy that dispels the anaesthesia of modern life.

Amid all the thwacking and bleeding in dank basements—and the shots of Mr Pitt's glistening torso—"Fight Club" is pugnaciously political. But its politics are confused. First it takes a swing at the false promises and deadening satiety of consumerism. "The things you own", Durden declares, "end up owning you." Later, when he bemoans the plight of the downtrodden proletariat, the problem is not too much affluence but too little.

The ideology on show is a hazy anarcho-nihilism, with the odd environmental flourish. Yet now, especially, there is wisdom within this incoherence. Indeed, the incoherence is itself an insight.

Consider the radicalisation process in the movie. As ever more unfulfilled men join the club, the aims and activities escalate. From knocking one another's teeth out, an elite cohort moves on to vandalism and assault, then onwards to revolution. Fans have debated whether the film sympathises with the aggrieved masculinity it depicts or sends it up. Here it is clearly tipping into satire.

At the same time, the process itself is authentic. In addition to its official rules (the first rule is...never mind), the club demands total loyalty and obedience. Next comes brainwashing, and, as Durden's plans spiral into fanaticism, a fateful step from private hobby to public crimes. When a recruit is in, he is in for good—and bad.

This cycle has played out repeatedly in the past 25 years, sped up by the internet. And, yes, it has mostly involved men. It is hard now to watch the skyscrapers collapse at the end of "Fight Club" without remembering the Twin Towers and al-Qaeda. Listen to the characters complain about women, and you think of noxious macho influencers and their online acolytes, or the derangements of the incel movement. The paramilitary outfits evoke America's posturing right-wing militias.

Meanwhile the film illuminates an overlooked motive for some of the ills of this more troubled age. Durden and his peers, he says, are "the middle children of history", with no great war or cause to call their own. In 1999 this gripe reflected the ennui of some in Generation X, who grew up into a pale, complacent world.

It also captures one reason why, today, some citizens of prosperous countries become convinced their lives are bereft, so turn to warped ideas and fiery leaders. The characters in "Fight Club" grope for a grievance to justify their rage, but its real wellspring is a gnawing feeling, less radical than banal. At bottom, they are just plain bored.

Economic & financial indicators

	Gross domestic product, % change on year ago: latest		quarter*	2024†	Consumer prices, % change on year ago: latest		2024†	Unemployment rate, %		Current-account balance, % of GDP, 2024†	Budget balance, % of GDP, 2024†	Interest rates: 10-yr gov't bonds, latest, %		change on year ago, bp	Currency units: per $, Aug 28th	% change on year ago
United States	3.1	Q2	2.8	2.4	2.9	Jul	3.0	4.3	Jul	-3.3	-6.9	3.8		-36.0	-	
China	4.7	Q2	2.8	4.7	0.5	Jul	0.4	5.2	Jul‡§	1.2	-4.4	1.8	§§	-58.0	7.13	2.4
Japan	-0.8	Q2	3.1	0.5	2.7	Jul	2.5	2.5	Jun	3.8	-4.7	0.9		25.0	145	1.5
Britain	0.9	Q2	2.3	0.7	2.2	Jul	2.8	4.2	May††	-3.3	-4.1	3.9		-58.0	0.76	5.3
Canada	0.5	Q1	1.7	1.3	2.5	Jul	2.5	6.4	Jul	-1.5	-1.5	3.1		-59.0	1.35	0.7
Euro area	0.6	Q2	1.2	1.0	2.6	Jul	2.5	6.5	Jun	3.1	-3.1	2.3		-28.0	0.90	3.3
Austria	-1.1	Q1	0.7‡	0.3	2.9	Jul	3.5	5.3	Jun	2.9	-2.4	2.8		-36.0	0.90	3.3
Belgium	1.1	Q2	0.8	1.2	5.4	Jul	3.8	5.9	Jun	-0.6	-4.7	2.8		-42.0	0.90	3.3
France	1.1	Q2	1.1	1.3	2.7	Jul	2.6	7.4	Jun	-0.4	-5.2	3.3		45.0	0.90	3.3
Germany	nil	Q2	-0.3	0.2	2.6	Jul	2.6	3.4	Jun	6.6	-1.6	2.3		-28.0	0.90	3.3
Greece	1.9	Q1	3.0	2.4	3.0	Jul	2.8	9.6	Jun	-5.8	-1.3	3.4		-54.0	0.90	3.3
Italy	0.9	Q2	0.7	0.9	1.6	Jul	1.2	7.0	Jun	1.5	-5.2	3.6		-58.0	0.90	3.3
Netherlands	0.8	Q2	4.1	0.1	3.5	Jul	3.3	3.6	Jul	8.0	-1.4	2.5		-35.0	0.90	3.3
Spain	2.9	Q2	3.3	2.7	2.9	Jul	3.0	11.5	Jun	2.5	-3.2	3.0		-46.0	0.90	3.3
Czech Republic	-0.2	Q1	1.2	1.1	2.2	Jul	1.9	2.9	Jun‡	0.2	-2.4	3.8		-53.0	22.5	-0.8
Denmark	3.5	Q2	2.6	1.6	1.1	Jul	1.6	2.9	Jun	10.5	1.8	2.2		-61.0	6.70	3.0
Norway	4.2	Q2	5.7	1.0	2.8	Jul	3.3	4.0	Jun‡‡	15.9	12.0	3.4		-48.0	10.5	2.2
Poland	3.2	Q2	2.0	2.9	4.2	Jul	3.8	5.0	Jul§	0.7	-5.4	5.5		-29.0	3.86	7.2
Russia	4.0	Q2	na	3.3	9.1	Jul	7.5	2.4	Jul§	1.6	-1.2	15.8		443	91.6	4.3
Sweden	nil	Q2	-3.2	0.6	2.6	Jul	2.0	7.7	Jul§	5.5	-1.0	2.0		-82.0	10.2	8.1
Switzerland	0.6	Q1	1.8	1.1	1.3	Jul	1.4	2.5	Jul	6.6	0.6	0.5		-53.0	0.84	4.8
Turkey	5.7	Q1	9.9	3.1	61.8	Jul	57.7	8.9	Jun§	-2.7	-5.2	26.7		802	34.1	-22.0
Australia	1.1	Q1	0.5	1.3	3.8	Q2	3.5	4.2	Jul	-0.6	-1.5	3.9		-35.0	1.47	6.1
Hong Kong	3.3	Q2	1.4	3.2	2.5	Jul	1.5	3.0	Jul‡‡	11.3	-2.8	2.9		-105	7.80	0.6
India	7.8	Q1	5.4	6.9	3.5	Jul	4.7	7.9	Jul	-0.5	-4.9	6.9		-32.0	84.0	-1.6
Indonesia	5.0	Q2	na	5.1	2.1	Jul	2.6	4.8	Q1§	-0.1	-2.4	6.6		17.0	15,425	-0.9
Malaysia	5.9	Q2	na	5.1	2.0	Jul	2.3	3.3	Jun§	2.6	-4.4	3.8		-10.0	4.34	7.1
Pakistan	2.8	2024**	na	2.8	11.1	Jul	15.5	6.3	2021	-1.7	-7.4	13.4	†††	-287	279	8.2
Philippines	6.3	Q2	2.0	5.4	4.4	Jul	3.3	4.0	Q2§	-3.2	-5.8	6.1		-44.0	56.3	0.6
Singapore	2.9	Q2	1.6	2.7	2.4	Jul	2.6	2.0	Q2	19.8	0.1	2.7		-60.0	1.30	4.6
South Korea	2.3	Q2	-0.9	2.6	2.6	Jul	2.4	2.5	Jul§	3.2	-1.6	3.1		-80.0	1,339	-1.2
Taiwan	5.1	Q2	1.2	4.2	2.5	Jul	2.0	3.3	Jul	14.0	0.2	1.6		37.0	32.0	-0.4
Thailand	2.3	Q2	3.1	2.5	0.8	Jul	0.9	1.1	Jul§	2.7	-3.7	2.8		nil	34.0	3.7
Argentina	-5.1	Q1	-9.9	-3.1	263	Jul	221.0	7.7	Q1§	0.3	-0.5	na		na	949	-63.1
Brazil	2.5	Q1	3.1	2.5	4.5	Jul	4.3	6.9	Jun§‡‡	-1.5	-7.6	11.8		67.0	5.53	-11.4
Chile	1.6	Q2	-2.5	2.4	4.4	Jul	3.8	8.3	Jun§‡‡	-2.7	-2.3	5.7		-2.0	910	-7.1
Colombia	1.8	Q2	0.4	1.1	6.9	Jul	6.7	10.3	Jun§	-2.7	-5.8	9.8		-19.0	4,068	1.2
Mexico	2.1	Q2	0.6	1.6	5.6	Jul	4.9	2.7	Jun	-0.3	-5.0	9.6		37.0	19.5	-14.3
Peru	3.6	Q2	9.8	2.8	2.1	Jul	2.5	6.4	Jul§	-0.3	-4.1	6.6		-48.0	3.74	-1.3
Egypt	2.2	Q1	na	2.4	25.7	Jul	27.7	6.5	Q2§	-4.4	-5.0	na		na	48.7	-36.5
Israel	-1.9	Q2	1.2	0.7	3.2	Jul	3.0	2.8	Jul	5.7	-7.3	4.8		88.0	3.66	3.8
Saudi Arabia	-0.8	2023	na	1.0	1.5	Jul	1.8	3.5	Q1	-0.1	-2.1	na		na	3.75	nil
South Africa	0.5	Q1	-0.2	1.1	4.6	Jul	4.8	33.5	Q2§	-2.0	-5.2	9.1		-102	17.8	4.5

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. †††Dollar-denominated bonds. Note: Euro area consumer prices are harmonised.

Markets

In local currency	Index Aug 28th	% change on: one week	Dec 29th 2023
United States S&P 500	5,592.2	-0.5	17.2
United States NAS Comp	17,556.0	-2.0	17.0
China Shanghai Comp	2,837.4	-0.7	-4.6
China Shenzhen Comp	1,493.6	-1.8	-18.7
Japan Nikkei 225	38,371.8	1.1	14.7
Japan Topix	2,692.1	1.0	13.8
Britain FTSE 100	8,343.9	0.7	7.9
Canada S&P TSX	23,127.0	nil	10.3
Euro area EURO STOXX 50	4,913.0	0.6	8.7
France CAC 40	7,577.7	0.7	0.5
Germany DAX*	18,782.3	1.8	12.1
Italy FTSE/MIB	33,880.1	1.7	11.6
Netherlands AEX	910.7	0.3	15.7
Spain IBEX 35	11,332.0	2.0	12.2
Poland WIG	83,762.3	-0.5	6.8
Russia RTS, $ terms	1,137.5	nil	5.0
Switzerland SMI	12,348.7	0.8	10.9
Turkey BIST	9,757.2	-1.5	30.6
Australia All Ord.	8,291.3	0.7	5.9
Hong Kong Hang Seng	17,692.5	1.7	3.8
India BSE	81,785.6	1.1	13.2
Indonesia IDX	7,658.9	1.4	5.3
Malaysia KLSE	1,675.2	2.4	15.2

	Index Aug 28th	% change on: one week	Dec 29th 2023
Pakistan KSE	77,992.8	-0.3	24.9
Singapore STI	3,391.0	0.5	4.7
South Korea KOSPI	2,689.8	-0.4	1.3
Taiwan TWI	22,370.7	0.6	24.8
Thailand SET	1,365.7	2.1	-3.5
Argentina MERV	1,617,544.0	-0.2	74.0
Brazil BVSP*	137,343.9	0.6	2.4
Mexico IPC	52,439.9	-2.6	-8.6
Egypt EGX 30	30,709.6	2.7	23.4
Israel TA-125	2,080.2	2.5	10.2
Saudi Arabia Tadawul	12,117.2	-0.6	1.3
South Africa JSE AS	84,018.6	nil	9.3
World, dev'd MSCI	3,631.2	nil	14.6
Emerging markets MSCI	1,097.2	-0.3	7.2

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 29th 2023
Investment grade	112	154
High-yield	374	502

Sources: LSEG Workspace; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

The Economist commodity-price index, 2020=100	Aug 20th	Aug 27th*	% change on: month	year
Dollar Index				
All Items	124.6	127.0	-0.4	1.7
Food	133.4	134.4	-3.4	-0.3
Industrials				
All	117.4	120.8	2.6	3.5
Non-food agriculturals	128.8	129.4	-4.1	11.7
Metals	114.4	118.6	4.6	1.5
Sterling Index				
All items	122.9	123.3	-3.4	-3.3
Euro Index				
All items	128.1	129.9	-3.6	-1.4
Gold				
$ per oz	2,511.3	2,515.8	5.3	30.0
Brent				
$ per barrel	77.3	80.2	2.2	-6.2

Sources: Bloomberg; CME Group; Fastmarkets; FT; LSEG Workspace; LME; NZ Wool Services; S&P Global Commodity Insights; Thompson Lloyd & Ewart; USDA; WSJ. *Provisional.

For historical indicators data, visit economist.com/economic-and-financial-indicators

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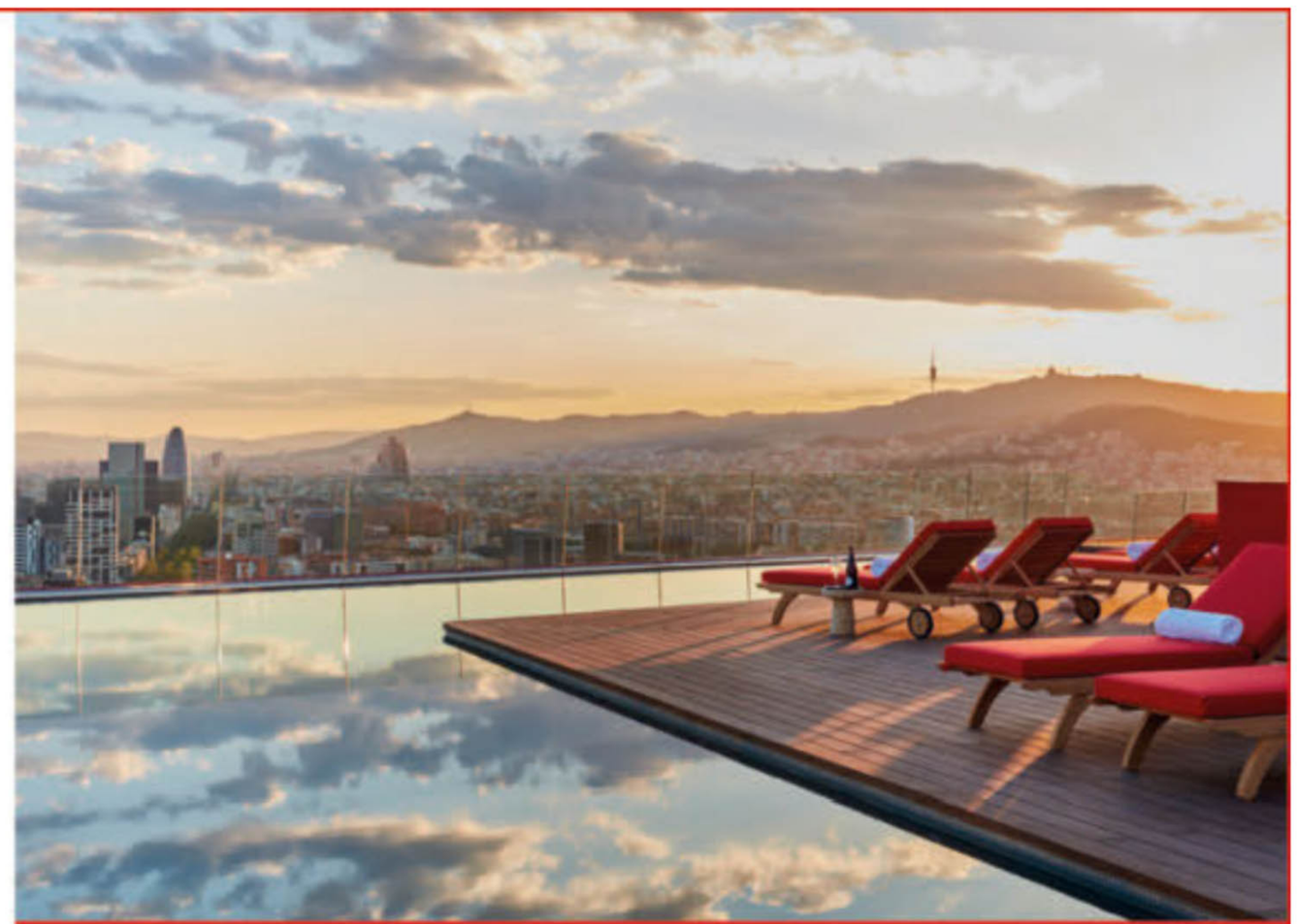

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Prime Minister's Office
Brunei Darussalam

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Tender document can be purchased at **BND5.00 (non-refundable)** and payment can be made through Bank Islam Brunei Darussalam (BIBD) digital online and payable to "The Government of Brunei Darussalam". After the payment is made, Tenderer is required to **upload/attach a screenshot of the payment and then notify by email** to the following address:

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Project proposals must be submitted in a sealed envelope to the specified address not later than **2.00 pm on Wednesday, 18th September 2024.**

The Economist

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OBITUARY
Helen Fisher

The discoverer of the science behind romantic love died on August 17th, aged 79

WHAT IS LOVE? A many-splendoured thing; the power that makes the world go round; a madness; a fire that can warm your heart or burn down the house; a deep sea; the greatest pleasure; infinity; blindness. The course of love never did run smooth. In the words of an Alaskan Native whom Helen Fisher liked to quote, it was also a pain as terrible "as a boil about to burst".

She experienced the pain and pleasure of love as much as anyone (or everyone) else; but as a biological anthropologist, she could not leave it there. For 20 years she studied sexual behaviour in many cultures, and that was simple enough to explain: a biological urge to reproduce, ranging over a wide field. But what people danced about, wrote poems about, cried about, pined for or killed for, was something else. Romantic love was a mystery, horrible when going badly but, when going well, perfectly wonderful. There seemed no reason for it. Then, as an expert on the brain, it struck her that it might be hard-wired into human beings.

To find out, she and two colleagues picked 17 students, all freshly in love, and scanned their brains. She chose them by asking, first, how often they thought about their sweethearts. "All day, all night," or "All the time," came the predictable answer. So would they die for this person? "Yes," said each one, as if she had asked them to pass the salt. In short, they made perfect subjects.

Once they were in the MRI machines, she showed them pictures of their paramours and, as a control, photos of other familiar faces. At the sight of the loved one their brains lit up in the ventral tegmental area, a tiny factory at the base of the brain where dopamine was made. It lay way below cognitive thinking, in the brain's reptilian core. A10 cells specifically became active, as they would when rewarded with food or with the high of cocaine. But at least you came down from cocaine. Her next experiment, crueller, and with subjects no longer starry-eyed but in bad shape, was to put through the scanner 15 students who had just been dumped. At the sight of their ex-sweethearts' picture their ventral tegmental areas lit up even more, fired by longing for what they had lost.

Since the pain was so unbearable, what was all this for? And why was it so exclusive? Why, at a crowded party where almost everyone was from the same background and of the same general intelligence, did one set of curls or some particular blue eyes stir up butterflies in your stomach? And why did that feeling become an obsession, as if someone was camping in your head? Because, she concluded, romantic love was a fundamental drive. It was wired into the brain because, to find the ideal mate, humans needed to focus on one individual, suitable or not. It was also, once triggered, an addiction, and one of the most powerful on Earth.

The mystery still remained of why X was attracted to Y, not Z, and here she was urged to go deeper. In 2005 she was appointed chief scientific adviser for Match.com, an online dating service, specifically to answer that question. It had to be a matter of personalities laid down in the sub-chemical systems of the brain. Like Plato (she felt a close sympathy with all poets and philosophers who had tried to untangle love), she identified four broad sorts of personalities: hers were Explorers, Builders, Directors and Negotiators, set out in the Fisher Temperament Inventory (FTI). Explorers had high levels of dopamine in their brains, which made them creative and inspiring. Builders had high serotonin: they were rule-bound and conscientious. Directors, with high testosterone, were logical, competitive and tough-minded; high-oestrogen Negotiators were consensual and nurturing. No one was all or nothing; everyone was a mixture; and every mixture was subtly different, explaining why no two people, even she and Lorna, her own identical twin, were exactly alike. She herself was all dopamine creativity at her desk, high-oestrogen caring in company and, though terrible at maths, scattered with testosterone logic, too.

Her Inventory was hugely popular with lovers, and she hoped it was useful for relationships generally: in schools, offices, consulting rooms, or any place where people had to get along. Forty countries used it widely. Books and TED talks underlined the message, with millions tuning in. But romantic love was still getting away. Her FTI could not describe the phenomenon of love at first sight, unless brain-chemical levels could be discerned immediately and at a distance. It also could not account for a different group of subjects, mostly in their 50s and with an average 21 years of marriage, who still professed to be wildly in love with their partners, and proved it by the glow of their ventral tegmental areas as they went through the scanners.

Love sprang surprises, too, in her own life. Her first marriage, in 1968 when she was graduating, lasted a mere four months. After that there were various relationships, but no more marriages until she decided, at 75, to tie the knot with a man she had known casually since 1994. In 2014, on a group trip to a ranch in Montana, they both felt that old dopamine stirring, but it faded. The next year, after dinner at a restaurant and a game of pool, they spent the night together, but he worried (serotonin?) that this was getting too serious. They split up at Grand Central Station; she cried terribly. Two months later he was back, and love settled. They got married with a backdrop of Montana mountains; she carried a bouquet of scarlet Indian paintbrush, and their officiant was dressed as the King of Hearts.

People often asked whether, knowing as much as she did about the science of love, love itself was spoiled for her. Hardly, she said. You could know all the ingredients in a chocolate cake, but when you actually ate it, it was just joy. The real key to lasting love was to prolong the romance, and the best way she found, ideal for late bloomers, was to keep separate apartments in New York. Each parting, as Emily Dickinson said, was "all we need of hell". But then came each reunion: euphoria, and magic. ■