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Tragedy in Texas

Don't go wobbly on Ukraine

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China's slowdown

The trouble with Xi's new economic model



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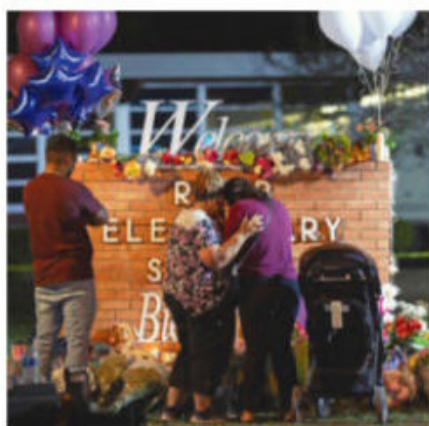
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An 18-year-old gunman murdered 19 young children and two adults at a school in Uvalde, Texas. After a stand-off with law-enforcement officers he was shot dead by a border-patrol agent. Parents were asked to provide DNA samples to help identify the children's bodies. The perpetrator had a semi-automatic rifle and wore body armour, as did the gunman who shot and killed ten black people at a supermarket in Buffalo on May 14th. It was the worst **school shooting** in America since the Sandy Hook massacre in 2012. The FBI reported this week that the number of "active shooter" incidents, not counting episodes of gang violence or domestic disputes, rose by more than 50% last year to 61.

Eric Adams, the mayor of New York, came under pressure to improve safety on the city's subway system, and throughout the city generally, after a Goldman Sachs worker was shot dead on a train in a seemingly chance encounter. The alleged killer is a gang member with a lengthy criminal record.

Donald Trump's candidate in the Republican primary for governor of Georgia was roundly defeated. Mr Trump wanted to oust Brian Kemp as governor in the primary as revenge for his refusal to overturn the presidential election result in the state in 2020 (Mr Trump's wild notion that the election was stolen rests in large part on losing Georgia). Mr Kemp's victory means he will face the Democrats' Stacey Abrams in a re-match for governor in November. Four years ago Ms Abrams claimed Mr Kemp suppressed the black vote in order to win.

A judge suspended the Biden administration's reversal of a pandemic health measure that allows for the swift expulsion of **illegal migrants** back across the Mexican border. Amid a new surge in border crossings, Republican states have sued to keep the measure, known as Title 42, in place.

A Gray day for Number 10

In Britain the final report from Sue Gray, a senior civil servant, into parties held at Downing Street during lockdowns was released, after police investigations ended. She levelled criticisms at senior political and official leadership, concluding that many of the gatherings were "not in line with covid guidance at the time". The report also indirectly criticised Boris Johnson, the prime minister, for "failures of leadership and judgment".

A judge in Argentina agreed to a deal that means the president, Alberto Fernández, will pay a donation to a vaccine-research institute so that legal proceedings against him for allegedly breaching lockdown rules are dropped. Mr Fernández's partner threw a birthday party at the president's official residence in July 2020.

A police raid on a favela in Rio de Janeiro resulted in the deaths of 21 people. Police said all but one of the fatalities were members of a drug gang who were resisting an attempt to arrest their leaders.

Russia's invasion of Ukraine has entered its "most active phase", according to Ukraine's defence ministry, as Russian forces step up their attacks in the east. Dozens of towns in the Donetsk region were assaulted by the invaders, as they try to encircle crack Ukrainian troops who have mounted a counter-attack.

Ukraine's foreign minister said his country strongly disagreed with a suggestion by Henry Kissinger that it cede territory to Russia to bring an end to the war. The former American

secretary of state said there "should be a return to the status quo ante", which at the very least would mean Ukraine accepting Russia's annexation of Crimea.

Viktor Orban, the right-wing prime minister of Hungary, declared a state of emergency because of the war in Ukraine. His opponents say this is a ruse for Mr Orban to consolidate more power. Hungary is holding up an EU embargo on Russian oil while it tries to eke out exemptions.

Michelle Bachelet, the UN's human-rights chief, began a highly orchestrated tour of the region of Xinjiang, where China is accused of detaining 1m Uyghurs and other minorities. Her ability to investigate such claims has been limited by the government, which expects a "friendly" visit. Activists in Washington released a trove of documents and photographs that detail China's abuses in the region.



The Labor Party won federal elections in Australia, defeating the conservative government that has held office for almost a decade. The new prime minister is Anthony Albanese, who promises to do more on climate change, an issue that bedevilled the tenure of his predecessor, Scott Morrison. Mr Albanese's first task was to attend a security meeting in Tokyo with America, India and Japan to discuss relations with China.

When Mr Albanese arrived in Tokyo he met Joe Biden, who was visiting Japan and South Korea. The American president caused a kerfuffle when he suggested that America will

use force to help Taiwan if it is invaded by China. A furious China said there was no room for compromise. Mr Biden later clarified his comment, and said America had not changed its policy of providing Taiwan with the "military means" to defend itself.

While Mr Biden was in Tokyo, China and Russia flew nuclear-capable warplanes over the Sea of Japan in a co-ordinated exercise. After he left, North Korea test-fired three ballistic missiles.

The African Development Bank will channel \$1.5bn to African farmers for seeds, fertiliser and better technology in a bid to boost the continent's output of food to avert hunger. Food prices have surged since Russia's invasion of Ukraine; both are big producers of grain and fertiliser.

Pro-democracy activists in Sudan said that more than 125 people were injured when police fired bullets and tear-gas at people protesting against the military government that took power in a coup six months ago.

Amnesty International's annual report on the death penalty found that at least 579 executions were carried out last year across 18 countries. That is up a fifth from 2020, but still the second-lowest number since 2010. Iran put the most people to death (314), followed by Egypt (83) and Saudi Arabia (65). China, which is thought to carry out thousands of executions a year, was excluded from the report, as were several other countries where data is hard to come by.

The final call

New York's last standing public payphone was removed from its site near Times Square. Introduced in the early 1900s, coin-operated phones have been gradually replaced by Wi-Fi kiosks. The one carted away this week is heading to the city museum.

Glencore, a Swiss-based commodities company, resolved various long-standing corruption allegations against it. In America it pleaded guilty to wide-ranging graft that the Justice Department described as "staggering", involving hundreds of millions of dollars in bribes to officials in numerous countries, and to running a scheme to manipulate oil prices. In Britain it indicated it would plead guilty to bribery connected with oil operations in five African countries. And in Brazil it is paying a fine for corrupt payments to Petrobras, the state-controlled oil company. Gary Nagle, who took over as chief executive last year from Ivan Glasenberg, on whose watch the wrongdoing took place, stressed that Glencore has taken significant steps to enhance its ethics and compliance programme.

A surprise profit warning from Snap, the parent company of Snapchat, caused its share price to drop by more than 40%, and rattled investors in other tech companies, dragging down the stocks of Alphabet, Amazon, Apple and Meta among others. Snap blamed a range of issues, including high inflation. The latest earnings season revealed slower growth in online spending by advertisers across the whole tech sector.

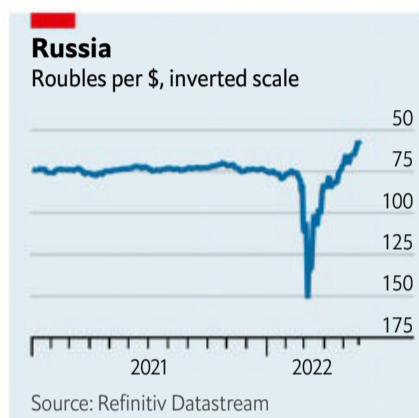
Abercrombie & Fitch's stock also swooned after it reported an unexpected quarterly loss. Like other retailers, A&F is battling higher logistics costs and a build-up in its inventory amid the supply-chain crunch, just as inflation bites and customers (already skinny at A&F) tighten their belts.

In Britain the share prices of leading oil-and-gas companies and electricity suppliers fell sharply ahead of an expected announcement of a **windfall tax** on the industry. The tax, a u-turn from the government, which has resisted the move for months, will be used to help households struggling with rocketing energy bills amid a cost-of-living crisis.

South Korea's central bank raised its main **interest rate** by a quarter of a percentage point, to 1.75%. New Zealand upped its rate by half a point, to 2%.

Refuseniks

American banks and investors can no longer receive **Russian bond payments**, after the US Treasury Department let an exemption to its sanctions regime that had allowed them to process the payments expire. The move is intended to squeeze further Russia's ability to make payments on its debt.



The **rouble** reached its highest level against the dollar in four years, and against the euro in five years. The Russian currency collapsed at the start of Russia's invasion of Ukraine, but has strengthened on the back of government capital controls to make it the world's best performer so far this year.

It has been boosted by the central bank raising interest rates, Russian exporters being ordered to convert 80% of their foreign currency into roubles, and Russia demanding payment for its energy supplies in roubles.

The British government approved the sale of Chelsea football club to a consortium led by Todd Boehly, an American businessman who tried to buy the team in 2019. **Roman Abramovich**, a Russian oligarch who was involved in peace talks with Ukraine in March, gave up control of Chelsea when he was sanctioned. The government is insisting that he in no way benefits from the sale; the proceeds will be held in a bank account and go to charity.

The implementation of a landmark deal to introduce global standards for **corporate tax**, including a minimum tax rate of 15%, will be delayed by a year and not come into force until 2024, according to the secretary-general of the OECD, which brokered the pact. The agreement, which has been signed by more than 130 countries, faces resistance from Republicans in the American Senate and in some European countries.

The head of responsible investing at HSBC was suspended, after he suggested that politicians and central banks were overstating the financial risks from **climate change** as they try to "out-hyperbole the next guy". A few days later the Bank of England published its biennial climate stress test and said that British banks could take a hit of 10-15% on their profits if they did not tackle the risks from global warming.

Despite the uncertain outlook for the world economy, **Samsung Group** announced a plan to invest 450trn won (\$356bn) over the next five years in chipmaking and biopharmaceuticals, creating 80,000 jobs.

It's a jungle out there

The outlook was not so rosy for **Gorillas**, a startup that promises to deliver groceries to your door within minutes, which is shedding half the jobs at its headquarters in Berlin to cut costs. The firm is also leaving four European markets to focus on Germany, Britain and other countries where it does most of its business. Gorillas raised \$1bn in its latest fundraising round, but the news on the vine is that it has run into stiff competition from rivals trying to ape its business.



Ideology versus prosperity

How Xi Jinping is damaging China's economy

OVER THE past 20 years China has been the biggest and most reliable source of growth in the world economy. It contributed a quarter of the rise in global GDP over that period and expanded in 79 of 80 quarters. For most of the period since China opened up after Mao's death, the Communist Party has taken a practical approach to making the country richer, mixing market reforms with state control. Now, however, China's economy is in danger. The immediate issue is its zero-covid campaign, which has caused a slump and may condemn the economy to a stop-start pattern. That is compounding a bigger problem: President Xi Jinping's ideological struggle to remake state capitalism (see Briefing). If it stays on this path China will grow more slowly and be less predictable, with big consequences for it and the world.

After nearly two months the lockdown of Shanghai is easing, but China is far from being covid-free, with fresh outbreaks in Beijing and Tianjin. More than 200 million people have been living under restrictions and the economy is reeling. Retail sales in April were 11% lower than a year earlier and purchases of KFC, cars and Cartier are weak. Although some workers are living on factory floors, industrial output and export volumes have dipped. For the full year China may struggle to grow much faster than America for the first time since 1990, in the aftermath of the massacre near Tiananmen Square. For Mr Xi the timing is awful: after the 20th party congress later this year, he intends to be confirmed for a third term as president, breaking the recent norm that leaders bow out after two.

It is, however, Mr Xi who bears much responsibility for the twin blows to the economy. The first is his zero-covid policy, which has been enforced for 28 months. The party fears that opening up would lead to an exit wave that could kill millions. That may be true, but it has wasted precious time: 100 million people over 60 are not triple-jabbed. It refuses to import more effective Western mRNA vaccines. Instead the plan may be to push zero-covid into next year. China has backed out of hosting the Asian Cup, a football contest, in June 2023. There is talk of permanent testing stations and a standing army to swab nostrils for ever. Since Omicron is highly transmissible, more outbreaks and lockdowns are inevitable. But since the zero-covid policy is identified with Mr Xi, any criticism of it is viewed as sabotage.

That same ideological zeal is behind the second shock, a series of economic initiatives that form what Mr Xi calls his "new development concept", which is meant to address "great changes unseen in a century", such as the Sino-American split. The goals are rational: to tackle inequality, monopolies and debt, and to ensure that China dominates new technologies and is fortified against Western sanctions. Yet in all cases Mr Xi believes the party must take the lead, and implementation has been punitive and erratic. A blizzard of fines, new regulations and purges has caused the dynamic tech industry, which contributes 8% of GDP, to stagnate. And a savage but incomplete crackdown on the property sector, responsible for over a fifth of GDP, has led to a funding crunch—one reason why housing sales fell by 47% in

April compared with a year earlier.

The government hopes a vast stimulus programme that is in the works will help it meet the official growth target of 5.5% for 2022 and calm nerves ahead of the congress. On May 19th Li Keqiang, the prime minister, urged officials to "act decisively" to restore growth, and the central bank cut mortgage rates. The party has tried to reassure terrified tech tycoons. A likely next step is a big bond-financed government infrastructure programme.

But more piles of debt and acres of concrete won't obviate the need for draconian lockdowns or reduce the risks from Mr Xi's economic model. It involves expanding the scope of the least productive part of the economy: the government-run one. China's industrial policy has had formidable successes, for example building a dominant global position in advanced batteries. Mr Xi hopes that technology and a new cohort of state investment funds will make decision-making more agile. But don't forget all the dismal failures, from rust-belt industries to microchips.

Meanwhile the incentives in the most productive part of the economy, the private sector, have been damaged (see Finance & economics section). You can see that in the financial markets, which have seen large outflows. The cost of capital has risen: Chinese shares trade at a 45% discount to American ones, a near-record gap. The calculations of investors and entrepreneurs are

changing. Some fear that the financial upside for any business will be capped by a party that is suspicious of private wealth and power. Venture capitalists say they have switched to betting on the biggest subsidies, not the best ideas. For the first time in 40 years no major sector of the economy is undergoing liberalising reforms. Without them, growth will suffer.

Mr Xi's ideological economy has big implications for the world. Though stimulus could gin up demand, more lockdowns are likely, imperilling a global economy flirting with recession. In business, China's size and sophistication make it impossible for multinationals to ignore. But more will rebalance supply chains away from China, as Apple is reportedly doing. Chinese champions may dominate some industries of the 2030s, but the West is likely to become a warier importer of Chinese products. In diplomacy, a less ambitious and independent private sector means China's presence abroad will be more state-led and political. It may become more malign, but also less effective, as our special report on China and Africa explains.

The perils of one-man rule

And what of life inside a more insular China? While people vent online about lockdowns and lost jobs, this is unlikely to translate into unrest thanks to surveillance, propaganda and broad support for the party's goals. Some technocrats disagree with the country's leftward shift but lack the power and courage required to object to it. And to the extent it can be discerned from the black box of elite politics, there is no rival to Mr Xi, who is 68 (see China section). Yet in the run-up to a party congress that may see him secure power until at least 2027, the shortcomings of one-man rule in the world's second-largest economy are glaring. ■



Guns in America

Perhaps make it a bit harder to buy one?

In many states it is easier to own a gun than a dog. That is absurd

THE MOTIVES for mass murder vary. The teenager in Buffalo who on May 14th shot and killed ten people, most of them black, was driven by racial paranoia. The 68-year-old who killed one and injured five on May 16th in a Californian church hated Taiwanese people. What impelled Salvador Ramos to kill at least 21 on May 24th in and around a school in Texas may someday become apparent, though Mr Ramos is no longer alive to explain himself (see United States section).

What these horrors have in common, though, is the murder weapon. Guns are simple, reliable tools for killing. A man with a gun and plenty of ammunition can kill more people, more quickly and with far less physical effort than he can with a knife, a blunt object or his bare hands. The weapon Mr Ramos used—a military-style assault rifle with high-capacity magazines—allowed him to keep shooting until someone shot him. That most of his victims were children makes the crime unusually horrific. But it resembles countless other American tragedies in that the easy availability of guns made it deadlier than it might have been.

A robber who carries a gun is more likely to kill. Domestic quarrels are more likely to end in death if a firearm is handy. Suicide attempts with guns usually succeed. Police in England and Wales shot and killed only two people in 2021; American cops killed 1,055. The main reason for this vast disparity is not that English cops are gentler or less racist. It is that American police face a heat-packing public. Most of those they kill are armed; many of the rest are mistakenly believed to be so. The abundance of guns is also the main reason why the murder rate in America is four or five times higher than in a typical rich country.

By one estimate, Americans own 400m guns. If they were evenly distributed, each family of five would have six. In 2020 more than 45,000 people in America died from firearm-related injuries. Guns now kill more young people than cars do.

The Economist believes it should be hard to own a gun. Farmers need them for pest control; hunters and other hobbyists may use them for sport. But each gun should be licensed and registered. Each owner should have to pass stringent background checks, and the process should be slow—no one should be able to buy a gun while in a fit of rage. Also, there is no good reason to let civilians own guns that fire rapidly, or magazines that let them kill a room full of people before reloading.

In America such strict gun control is unthinkable. The Second Amendment guarantees a right to bear arms, and the National Rifle Association promotes a maximalist interpretation of it. Politicians who hint that they might make it a little bit harder to obtain a firearm face a well-organised bloc of single-issue voters. In Republican primaries, especially, few dare offend the gun lobby.

Hence the steady loosening of rules in places like Texas, where 21-year-olds can carry a handgun in public without training or a permit (both of which are needed to cut hair); and where 18-year-olds can buy a handgun if they come from a violent home (to defend themselves against abusive relatives); and where almost any adult can buy a rifle with minimal hassle. Mr Ramos bought two assault rifles legally as soon as he turned 18, and shot his grandmother before heading for the local elementary school.

This is not what most Americans want. Hefty (but dwindling) majorities favour some commonsense curbs, such as denying weapons to the mentally ill, creating a database to track all gun sales, and banning both assault-style weapons and high-capacity magazines. Congress is unlikely to deliver such things, thanks to the Senate filibuster. So cities and states should step in, though guns will always flow illicitly from lax jurisdictions to stringent ones. Voters should reward politicians who think a gun licence should be at least as hard to obtain as a driving licence. Not all gun deaths are preventable, but many could be. ■



Ukraine

Don't stop now

Volodymyr Zelensky needs continued support, not timorous advice

MARGARET THATCHER supposedly admonished the elder George Bush that this was “no time to go wobbly” as the two leaders pondered their response to Saddam Hussein’s invasion of Kuwait. Were she still alive, she might very well feel the need to repeat her warning today.

The war in Ukraine has entered its fourth month, and Vladimir Putin’s unprovoked aggression has met with a response that few imagined possible, especially from brave Ukrainians but also from the Western countries that have given them political, economic and material support. Russia’s large but incompetent army has been driven back across the north of the country, hav-

ing failed to take the capital Kyiv, and from Kharkiv, Ukraine’s second city, in the north-east. But it still holds on to substantial gains in the eastern Donbas region and in the south, where it has seized a “land bridge” connecting the previously stolen Crimean peninsula with Russia itself. As the fightback continues, Ukrainian morale is cautiously optimistic, the flow of weapons from the West is increasing and America’s Congress has just authorised a \$40bn package of support.

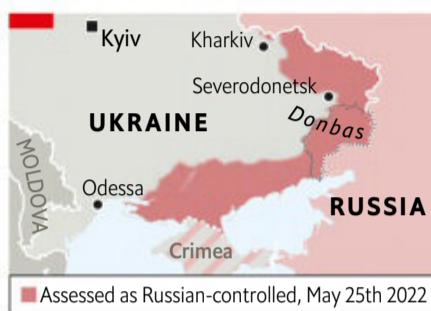
However, there is a growing view among Europeans and some Americans that it is time to explore a ceasefire and peace talks (see Europe section). Some say the war would end sooner if ►

► Mr Putin were given an “off-ramp”, allowing him to claim some sort of victory at home. Such arguments have an emotional appeal. No one wants an endless war. The longer it lasts, the more people will die, the more homes will be destroyed, the more Ukraine’s economy will be ravaged, and the more perilously the supply of grain to the world will be interrupted. If allowing Mr Putin to save face saves lives, who could object?

Yet it is naive to imagine that Mr Putin is ready to make peace. Volodymyr Zelensky, Ukraine’s president, warned this week that talks would merely allow Russia time to dig in and regroup (as it has in the past), before attacking again. Ukraine’s objective remains to get “all its territory back”, said Mr Zelensky. He implored the West, as he has done repeatedly since the start of the conflict, to send more and better weapons so his country can repel the invaders. And he spoke of his concern that the West is not yet truly united in its support of Ukraine.

He is right on all counts. Great dangers lie ahead for the world if Mr Putin’s aggression is rewarded; that is, if he gets to keep the land he has occupied. Remember what happened in 2014. With little practical Western support, Ukraine in effect had to stand by as Russia annexed Crimea and then backed a separatist takeover of the eastern part of Donbas. Eight years later, nothing had been handed back; and Mr Putin, emboldened by this feeble response, decided to take a second, and much larger, bite out of a country he has repeatedly said is nothing but a 20th-century administrative invention.

If the West now reduces its support for Mr Zelensky and pushes him into premature talks, what would be the result? Most likely, that Russia would consolidate its gains; that it



would swiftly break any undertaking that it gave; and that Mr Putin’s position at home would be buttressed by his victory. This is, after all, what has happened before. And sooner or later he would be tempted to try for a third bite at Ukraine, or somewhere else—such as Georgia, Moldova, or even one of the Baltic states.

Furthermore, other despots in other parts of the world would conclude that warmongering pays, if you stick at it long enough. Faced with discontent at home, they would seek martial glory abroad to distract their people, confident that any pushback from the democratic world would be short-lived.

No solution can be imposed on Ukraine without the consent of Ukrainians. Mr Zelensky is unlikely to remain in office if he pre-emptively surrenders territory in a vain attempt to appease his rapacious neighbour. Nor would the inhabitants of such territory submit meekly to oppressive Russian rule; they would fight a guerrilla war that could last for years.

For now, the situation on the ground is fluid. Having pulled back from the north and the north-east, the Russians have upped the pace of their attacks in the east, targeting the Ukrainian-held city of Severodonetsk in Donbas, with the clear aim of cutting off Ukrainian forces and pushing on to Sloviansk and Kramatorsk in an attempt to secure the entire region. Where Mr Putin will stop is unclear, but unless he is soundly defeated he will continue to do all he can to cripple Ukraine. He sees an open, Western-facing democracy on his doorstep as a challenge to the inward-looking autocracy he has imposed on Russia. He will not let Ukrainians live in peace, so they have no choice but to stand up to him. The West must go on helping them until the job is done. ■

Eritrea

Containing the North Korea of Africa

An arms embargo and sanctions should be reimposed on Issaias Afwerki’s regime

DICTATORS SELDOM improve with age or time in office. As they grow accustomed to untrammelled power, they forget why restraint is a virtue. As they punish truth-tellers, they hear more lies. After years of tyrannising their own people, they wonder if they can get away with bullying foreigners, too. Vladimir Putin and Kim Jong Un are not the only despots who menace their neighbours. Eritrea’s Issaias Afwerki is equally malign.

He is the only leader his country has known in three decades of independence. He has turned it into a hot, dusty prison camp. He has fought wars against two neighbours, stirred up trouble in several others and, in 2020, sent troops into Ethiopia’s civil war, where he is seen as the main obstacle to ending that bloody conflict. Restraining him would be a public good.

Little is known about life in Eritrea under Issaias. His regime allows no free press and keeps out foreigners, particularly journalists. Travelling incognito, *The Economist* recently gained a rare glimpse inside the secretive gulag state (see Middle East & Africa section). Our reporter found a country that has taken an even grimmer turn after 19 months of war. Shops are almost bare. In Asmara, the capital, cafés that once buzzed are now empty. Young people are afraid to leave home, in case they are press-ganged into the army—a horrific prospect.

Issaias rules by fear. Honest advice is unwelcome, much less criticism. Early in his rule soldiers complained that they had not been paid for two years and were unhappy that he wanted to withhold their wages for another four. He met them, heard their grievances, then locked up their leaders for 14 years. A few years later, when 15 senior members of his party signed a letter calling for democracy and human rights, Issaias tossed most of them into a secret prison. They have not been seen since.

Torture is common. Political prisoners—or even people who follow religions other than the four that are officially recognised—are locked in shipping containers in the desert sun, often without food or water. Some are subjected to the “helicopter” (lying facedown with their hands and feet tied together behind their backs) or “8” (being tied to a tree) for up to 48 hours.

Conscription lasts indefinitely: some Eritreans are discharged from the army only after 20 years or more of building roads, digging ditches or fighting. The young are barred from leaving the country. Thousands sneak across the border to Sudan and then on to claim asylum, often in Europe.

Eritrea also has a history of stirring up trouble with its neighbours by backing insurgents and proxies. In 1998 it fought a war with Ethiopia that cost perhaps 70,000 lives over a stretch of

► barren and almost uninhabited land. A decade later Issaias attacked tiny Djibouti to control the side of a disputed hill. He was also accused of arming al-Shabab, a militia in Somalia affiliated with al-Qaeda. These latter two actions provoked the UN Security Council to impose an arms embargo on Eritrea in 2009 and financial sanctions on its political and military leaders.

In the past decade Eritrea has released Djiboutian prisoners of war, signed a peace deal with Ethiopia and appeared to be mending relations in the region. As a reward the UN lifted sanctions in 2018. Yet Issaias's good behaviour did not outlive the sanctions. He is widely blamed for having egged on Abiy Ahmed, Ethiopia's prime minister, to wage war on the Tigrayan People's Liberation Front (TPLF), an Ethiopian party-cum-rebel-group that Issaias has resented for decades. Eritrea is again thought to be supporting proxy forces in the region and it is building up forces on the borders of Tigray, where they threaten to wreck

peace talks between Ethiopia and the TPLF. "Everyone is beginning to arrive at the same conclusion: that if there is one spoiler in the region, it is Eritrea," says a diplomat.

Stopping Issaias's mischief-making will require firm action. America has already imposed financial sanctions on his army and ruling party. The UN should follow this lead and reimpose an arms embargo on his regime. This would make it harder for him to threaten his neighbours directly, or to arm proxies. Yet this alone may not be enough. Regional powers should apply pressure. The United Arab Emirates and Saudi Arabia have long given Eritrea money and fuel in exchange for influence and military bases. They have an interest in stability; they should make this clear to their belligerent client. Finally, the region should plan for the day when Issaias, who has allowed no potential successor to emerge, dies or is toppled. Unlike tyrants, contingency plans can improve with time. ■

Financial markets

Prophets and profits

Why investors are increasingly worried about recession in America

SO CHOPPY HAS America's stockmarket been this year that only a fool would predict mid-week (or even mid-Friday) whether prices will end the week up or down. At the market's close on May 25th, the S&P 500 index of leading American shares looked on course to break a seven-week losing streak—or to extend the rout to eight weeks. Thus far, at least, it has avoided (just) the 20% peak-to-trough decline that is the informal definition of a bear market. But there are signs that America's markets are entering a new, more worrying phase.

From January until early May, falling share prices could be put down to the effect of rising bond yields, as fixed-income markets responded to guidance from the Federal Reserve that interest rates would be going up a lot and fast. Higher interest rates reduce the present value of a stream of future company profits. Shares were marked down accordingly, especially those of technology firms whose profits could be projected furthest into the future. But in recent weeks share prices have kept falling, even as bond yields have dropped back. This combination points to fears of recession. Indeed, the mix of Fed tightening, slowing GDP and rising production costs has the ominous feel of the later stages of a business cycle. The expansion is barely two years old. Yet investors are already worried that corporate profits are under threat.

The world economy has been sideswiped by several big shocks. China's GDP is likely to contract sharply in the current quarter, because of renewed lockdowns. Europe's consumers are suffering a squeeze on purchasing power because of sky-high gas prices. America's economy had seemed resilient. But parts of the economy that are sensitive to rising interest rates are faltering, even though the Fed has barely got going. Figures released on May 24th showed that new home sales fell by almost 17% between March and April. Any sign from corporate reporting that demand is flagging is seized upon. When Snap, the company behind Snapchat, a social-media app, said this week that its sales would be weaker than it had suggested as recently as April, its

share price plunged by 43%. The share prices of Walmart and Target fell when the two retailers reported they had been left with piles of unsold stock after misjudging consumer demand.

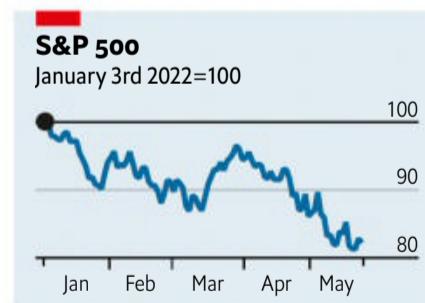
Slower growth is one element of a textbook profit squeeze. A consequence of the mostly stable cost base of big businesses is that, when sales rise or fall, profits rise and fall by a lot more. This effect boosted profits considerably last year, but as GDP slows it goes into reverse. The other element of a profit squeeze is higher costs. A variety of bottlenecks have pushed up the prices of key inputs, notably energy. Debt-service costs are rising with interest rates. But the main worry is wages. The jobs market in America is tight. Pay rises have become more generous as a consequence. Corporate America finds itself in a double bind in this regard. If it passes on rising wage costs in higher prices, it

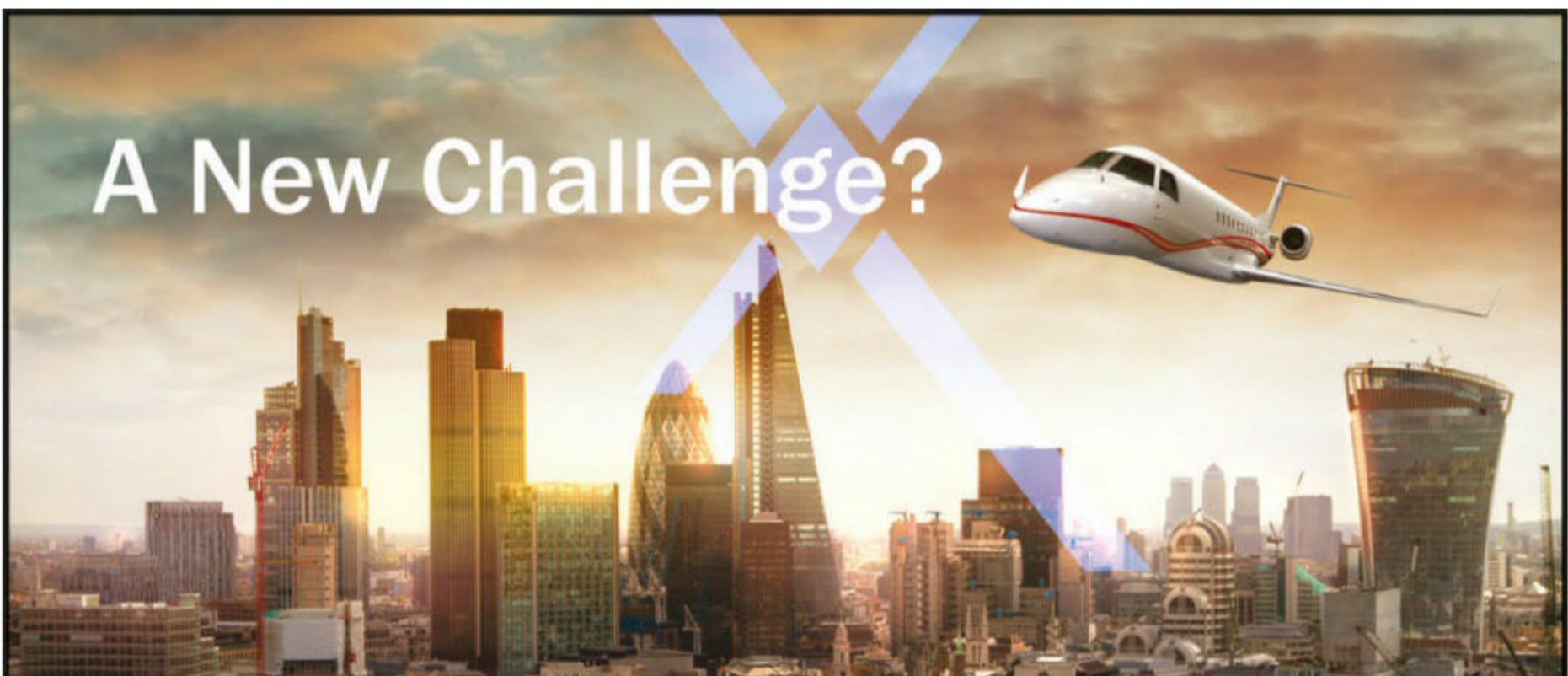
will keep inflation high and force the Fed to raise interest rates more aggressively. If it absorbs rising costs, that will crush profits.

Is any relief for investors in sight? Some soothsayers feel they are due a bear-market bounce. Their theory is that if a lot of traders have already sold stocks, there will be fewer potential sellers to drive prices down in the future.

But a rally based on more balanced position-taking will not do much to change an awkward macroeconomic backdrop for equities.

If consolation can be found in the present conjuncture it lies in the fact that financial markets have done a lot of the Fed's heavy lifting for it. Since the start of the year, bond yields have risen sharply; mortgage rates have surged; spreads on corporate bonds have widened; the dollar has climbed; and share prices have slumped. In a counter-factual world in which financial markets had shrugged off the Fed's two interest-rate increases so far, the risks of a hard landing for the economy would, paradoxically, be greater. Inflation pressures would keep building. But as things stand, interest rates may not have to go quite as high as they otherwise might have. Amid all the down days for the stock-market, this is not a great comfort. But every little helps. ■





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Vacancy references: Santiago: RAPS/1/2022/AM/04 • Cairo: RAPS/1/2022/AF/01.



AMRO is an international organization established to contribute toward ensuring the macroeconomic and financial stability of the ASEAN+3 region. Its membership comprises the 10 members of the Association of Southeast Asian Nations (ASEAN) and China; Hong Kong, China; Japan; and Korea. AMRO's mandate is to conduct macroeconomic surveillance, support the implementation of the regional financial arrangement, the CMIM, and provide technical assistance to its members.

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For Deputy Director (Administration) position:
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For Deputy Director (CMIM, Strategy & Coordination) position:
AMRO_DD2@charterhouse.com.sg

We will acknowledge receipt of all the applications. However, we regret that only shortlisted candidates will be notified.

Cleaning up London

Your article on tainted foreign money in London was timely, coinciding with the launch of our Economic Crime Manifesto ("Dirty capital", May 7th). You cited four areas that require attention to drive out dirty money. We, too, have identified four pillars in the effort to tackle corruption: transparency, making it easier to identify the real owners of companies and assets; enforcement, properly funding the agencies charged with going after economic crime; accountability, making the bosses and enablers, such as the lawyers and estate agents mentioned in your article, responsible for their actions; and regulation, giving Companies House proper powers and funding to prevent its misuse.

The sheer size and success of the City and Britain's financial industries have contributed to London's status as a laundromat for dirty money. Our defences are overrun. The tainted cash that runs rampant threatens our very security. Prosperity must not be built on the ill-gotten gains of crooks and kleptocrats. Britain's unique place in the global financial system presents an opportunity. The forthcoming Economic Crime and Corporate Transparency bill offers a chance for Britain to lead by example.

DAME MARGARET HODGE MP
Chair of the All Party Parliamentary Group on Anti-Corruption and Responsible Tax
KEVIN HOLLINRAKE MP
Co-chair of the All Party Parliamentary Group on Fair Business Banking
House of Commons
London

I was glad to see you raise the issue of low pay in central government, particularly in reference to the salaries of investigators at the National Crime Agency. However, the NCA is better paid compared with its sister organisations, such as the Home Office, where a typical investigator earns under £25,000 (\$31,400). In the past 12 years pay is down

by 30%, after accounting for inflation, on conservative estimates. It has now become impossible to hire any specialist staff. Turnover is higher than ever and the average time in a job is under two years.

JESSE RAIKES
Manchester

The primitive Taliban

The Taliban is a byword for "medieval violence, bigotry and misogyny", says Banyan (May 14th). Surely you don't mean to suggest that the era of 500 to 1500 was so totally devoid of human accomplishment that it is comparable to how Afghanistan is run today? Where is the Taliban's Eleanor of Aquitaine, Thomas Aquinas, or Hildegard of Bingen, let alone its Harun al-Rashid, Moses ben Maimon (Maimonides), Ibn Sina (Avicenna), or any of the other leaders, thinkers, authors, poets and scientists of that era, spanning three continents and dozens of civilisations? What new systems of banking has it invented lately? What schools of art have flourished under its patronage? Where are its cathedrals, mosques, universities and libraries?

Yet again, your paper maligns a thousand years of human history by using the term "medieval" as a pejorative. Or perhaps you mean to suggest that of all the eras of history, the one dubbed "medieval" promoted the worst violence, bigotry and misogyny humankind ever invented. In that case, please look merely to the previous century, in which you can find violence, bigotry and misogyny on a level that far exceeds anything experienced by those who lived through the Middle Ages.

EVA ST CLAIR
Silver Spring, Maryland

Republican regret in Deseret

If there is any deeply red state capable of shrugging off its infatuation with Donald Trump, it would be Utah. Yet I am far more pessimistic about Evan McMullin's prospects as an independent Senate candi-

date than Lexington (May 7th). Even if it were possible to unite votes from moderates and Democrats, polls suggest that Mr McMullin would still lose to the unpopular incumbent, Mike Lee. Lexington mentioned that Mitt Romney has refused to endorse either Mr Lee or Mr McMullin, but most people here simply regard Mr Romney as a traitor to the Republican Party, and will be happy to replace him with a more hard-line candidate when his term ends in 2024.

BEN MURTON
Draper, Utah

Horrible bosses

I enjoyed Schumpeter's discussion of shrinkflation (April 30th), especially in light of your coverage of enticements to get staff to return to the office. The firm I work at provides free coffee to tempt workers back. As more and more people return, the coffee runs out earlier and earlier in the day. Management's response to this of course is to provide smaller cups.

HARALD ANDERSON
Reston, Virginia

From the frying pan

It is 2,345 miles (3,775km) from Jakarta to Dhaka, and yet that is the reach of the blow unleashed by Indonesia's temporary ban on its export of palm oil ("Food fight", May 7th). The ban has driven up the global price of edible oil, a big problem for importing countries such as Bangladesh. Indonesia surely did not have Bangladesh in mind when it took its decision, but it has cast a long shadow. Organisations such as the Global Alliance for Improved Nutrition will now have to delay work supporting the Bangladeshi government's goal of fortifying edible oil with Vitamins A and D, given that local food-oil manufacturers are faced with huge price uncertainty. This will deprive at least a quarter of the country's 168m people of the nutrients they need to avoid premature mortality and preventable morbidity.

Food needs to keep flowing across borders and oceans if catastrophic increases in hunger and malnutrition are to be prevented in the coming months and years.

LAWRENCE HADDAD
Executive director
Global Alliance for Improved Nutrition (GAIN)
Brighton

When computers disagree

The idea of creating a digital twin for a piece of technology has a precedent ("A second opinion", May 7th). In "2001: A Space Odyssey", co-written by Arthur C. Clarke, a digital twin of the HAL 9000 supercomputer onboard the spacecraft making its way to Jupiter is monitored by mission control on Earth, using a twin version of HAL. A discrepancy between the two HALs suggests that there is a problem with the Jupiter-bound model, leading to the decision to shut down the HAL in space, a decision with disastrous consequences.

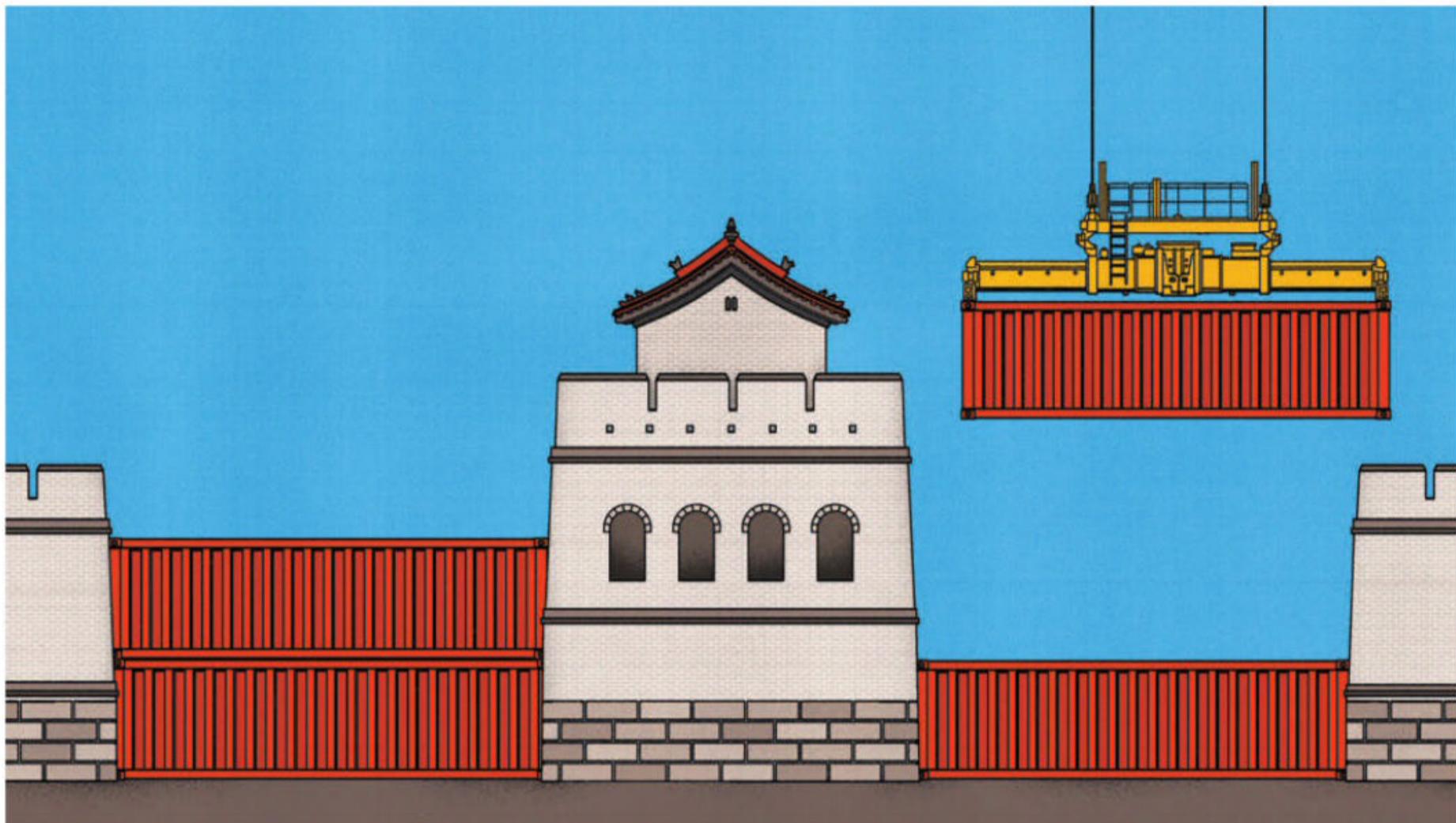
Similarly, if planes were routinely monitored by an artificial-intelligence digital twin, a discrepancy involving a safety issue discovered while a passenger airliner was in flight might result in a serious dilemma for decision-makers: which twin to believe?

ROBERT CHECCHIO
Dunellen, New Jersey

Football as life and death

Your article on the Premier League's finances commented that Manchester United has "even" had an "official paint partner" ("Fall of the Roman empire", May 14th). In 2018 my beloved Brentford Football Club announced a deal with a local undertaker as its "official funeral partners", under the headline "Brentford 'til I die".

REV PETER CRUMPLER
St Albans, Hertfordshire



Fortified but not enriched

SINGAPORE

China's effort to protect its economy from Western pressure is not going well

IN A MESSAGE to Chinese aerospace engineers and researchers for "Youth Day" earlier this month, President Xi Jinping shared his ambitions for the industry. Young workers should advance the cause of Chinese self-reliance, he said, following in the footsteps of their predecessors who developed a home-grown nuclear weapon, missile and satellite, with little help from outsiders, in a campaign in the era of Mao Zedong called "Two bombs, one satellite".

On the face of things, this is an odd message to trumpet in the country that has benefited more than any other from the most recent wave of globalisation. In 2000 China was the biggest merchandise trading partner of only a tiny number of countries. Now it is the biggest partner of more than 60. Between 1985 and 2015 Chinese exports of goods to America rose by a factor of 125. Partly as a result of the associated manufacturing boom, growth in China's GDP per person averaged more than 8% a year from 2001 to 2020.

But the Chinese government has never been completely comfortable with globalisation, whatever the benefits. The process

of "reform and opening up" started by Deng Xiaoping in the 1970s, under which China liberalised production and trade, has always been piecemeal and partial. The Communist Party does not intend to relinquish a commanding role in the economy. It worries about the infiltration of Western ideas. Foreign capital and expertise have therefore been courted and rewarded, but also circumscribed and often resented.

Mr Xi's calls for self-reliance reflect his view that the balance of globalisation's risks and rewards has changed. He believes that China has become too dependent on liberal democracies, including Europe and Japan but especially America. One risk is that the West might experience another economic slowdown similar to the financial crisis of 2007-09, sapping demand for Chinese goods and services. Another, made much more vivid by the sanctions imposed on Russia after its invasion of Ukraine, is that Western countries might use their economic power to weaken China.

To ward off such perils, Mr Xi wants to change China's place in the world economy. To oversimplify a little, there are two

interrelated elements to what Mr Xi terms "becoming strong". The first is to build a commanding position in industries the government considers strategic—tech and energy, for the most part—so that no one can thwart China's economic rise. China knows that its crucial role in global supply chains helps keep its autocratic system safe from foreign attacks. The second objective is for China to rely less on potentially hostile Western partners for trade and finance, and to develop new and better ones closer to home. The Belt and Road Initiative, a huge global infrastructure development strategy, is just one method by which China hopes to find new economic friends.

Make, don't buy

China has had some success with the strategic industries. Research published by Goldman Sachs in 2020 found that China's self-sufficiency in high-tech products was broadly improving (see chart 1, on next page). In many industries domestic production has caught up with domestic demand, meaning that China needs fewer products from abroad. Indeed, after hitting an all-time high in 2004-06, China's imports of goods and services have fallen sharply relative to its GDP (see chart 2).

In few industries has the push for self-sufficiency borne more fruit than in solar energy. China accounts for over 70% of the production of the raw materials used to manufacture solar cells, but also the cells themselves, and the modules into which they are assembled. Dan Wang, an analyst

► at Gavekal Dragonomics, a research firm, suggests that China's lead in solar technology is likely to be irreversible. The same is true of batteries for the booming electric-vehicle industry. Wind energy is going gangbusters too. China added more offshore-wind capacity in 2021 alone than the rest of the world managed in the prior five years put together.

In fact, China has come to dominate many businesses in this way. *The Economist* looked at export data for 120-odd global manufacturing industries. We estimate that in 2005 China was ascendant (defined as a share of global exports of more than a quarter) in 42% of them. In 2019 that hit 67%, a record. The share of export markets that China dominated—which we define as a market share of more than half—tripled over the same period, to a third.

Yet in many important respects China's drive for self-reliance has disappointed. Even as Mr Xi has reduced China's overall import bill, relative to GDP, he has struggled to reduce its dependence on foreign components used to make high-tech goods. China spent 2.7% of GDP on imported components for electronics when he came to power in 2012, and 2.6% in 2020. Its overall bill for imports requiring large amounts of research and development has dropped only slightly.

What is more, China relies heavily on geopolitical rivals for supplies of such goods, including Taiwan (see Asia section) and Western democracies. In aviation and spacecraft—the object of Mr Xi's calls for self-reliance earlier this month—the democratic world still supplies 98% of China's imported components.

China is also increasingly dependent on foreign expertise. The vast majority of Chinese patent filings are home-grown, but the share involving foreigners has risen from 4.8% to 5.9% since 2012. Scientists based in the EU, Japan and America are increasingly common partners with Chinese inventors, even as Western compa-

nies and universities talk of disengaging from China to try to stop industrial espionage. In 2020 China was responsible for 8.4% of total global cross-border payments for the use of intellectual property, an all-time high.

Mr Xi's second big objective—finding better trading and investment partners—is another mixed bag. Take trade. China has eagerly befriended Russia, which has been shunned by the West. It has also embraced the Regional Comprehensive Economic Partnership, a fairly shallow but broad trade deal involving 15 Asian countries that account for almost a third of global GDP. It has applied to join the rump of the Trans-Pacific Partnership, an ambitious trade pact conceived by America but then abandoned by it.

In a survey of policymakers, business leaders and other grandees from South-East Asia published earlier this year, 77% of respondents named China as the most influential economic power in the region. "I see East and South-East Asia increasingly being pulled within the sphere of the gravitational force of the Chinese economy. That is inevitable," says Henry Gao of Singapore Management University.

Overlapping spheres

Yet big Western economies continue to exert a pull on China. *The Economist* gathered data on stocks of foreign direct investment (FDI—takeovers of companies and the construction of factories), portfolio investment (purchases of stocks, bonds and the like) and international trade for nearly 120 countries. For each indicator we ranked every country based on the strength of its bilateral relationship with China, then combined the rankings.

The countries with which China has the closest economic relationships are all still Western or Western-leaning: America, South Korea, Singapore, Germany and Japan. And during Mr Xi's rule most Western economies have become more intertwined

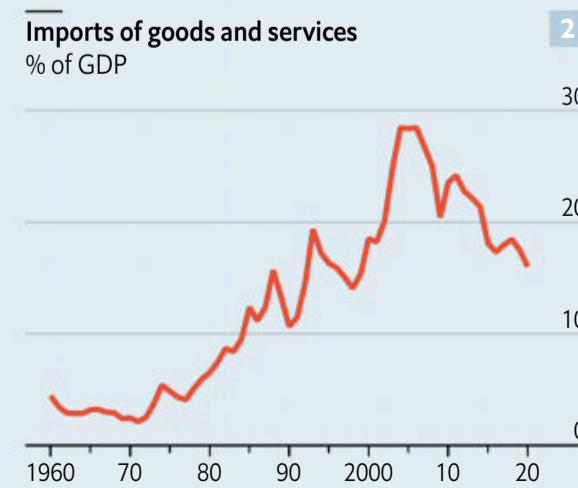
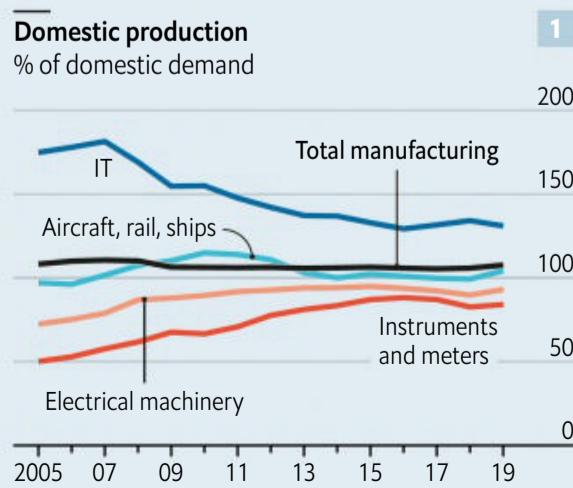
with China's. The stock of German FDI in China has more than doubled, for instance. Chinese long-term investors have doubled their gross exposure to Australia, even as politicians in both countries hurled invective at each other. Meanwhile China's ties with countries that might be expected to fall within its sphere of influence, such as Indonesia and Russia, have weakened.

China's export industries also remain highly dependent on Western demand for their wares. In the decade before Mr Xi came to power the share of Chinese goods exports that were destined for the EU, Japan and America had fallen from 50% to 39% (see chart 3). But since then no further progress has been made. Countries with which China would like to develop closer trading relationships are simply too small to replace the huge markets of America, Europe and Japan. It is difficult simultaneously to produce more high-tech goods and services and to expect the share of them sold to poorer countries rather than rich ones to increase. Despite all the warm handshakes Mr Xi shares with Vladimir Putin, Russia's president, Russia buys just 2% of China's exports.

In recent years China has been trying to develop closer financial ties with countries it believes to be sympathetic to its objectives. This includes an attempt to promote the use of its currency internationally. The idea is to reduce China's dependence on the dollar, and thus to become less vulnerable to American financial sanctions. To this end China has slowly opened its bond market to foreign investors. In the early 2010s the central bank began signing agreements on yuan-denominated swaps (ie, emergency lines of credit) with other central banks. It has also been working hard to develop a digital yuan, which is intended to make trade using the currency faster and easier to monitor. Chinese firms have been paying for imports of Russian commodities in yuan this year, which helps Russia by diminishing the im- ►

Less exposed...

China



Sources: CEIC; Goldman Sachs Global Investment Research; OECD; World Bank



► pact of Western sanctions while also raising the yuan's international profile.

But China's financial links with its near abroad remain weak. Take its bond market. A new paper by four economists, Christopher Clayton, Amanda Dos Santos, Matteo Maggioli and Jesse Schreger, examines private investors' holdings of yuan-denominated bonds. In recent years the vast majority of inflows into these assets have come from America, the euro zone and Japan. A paper published in 2018 by Camilo Tovar and Tania Mohd-Nor of the IMF examined the importance of the yuan to other currencies (ie, how much one influences the other). The researchers find "no evidence to suggest that the [yuan] is the dominant currency in Asia, by influencing exchange rates in the region or through Asian supply chains".

China's push for a more self-sufficient economy, in short, has not been entirely successful in its own terms. What is more,

the attempt to create one has thrown up a series of contradictions. The desire to promote the use of the yuan abroad, for example, clashes with efforts to insulate China from global financial swings. The resulting muddle has left China neither much of a force in global finance nor protected from movements in markets beyond its control. The Chinese currency's share in cross-border payments recorded by SWIFT, a financial-messaging network, is around 2% most months, as it has been for most of the past five years. Even that overstates the currency's reach, since most transactions involving the yuan outside of mainland China take place in Hong Kong, which is part of China but uses a different currency.

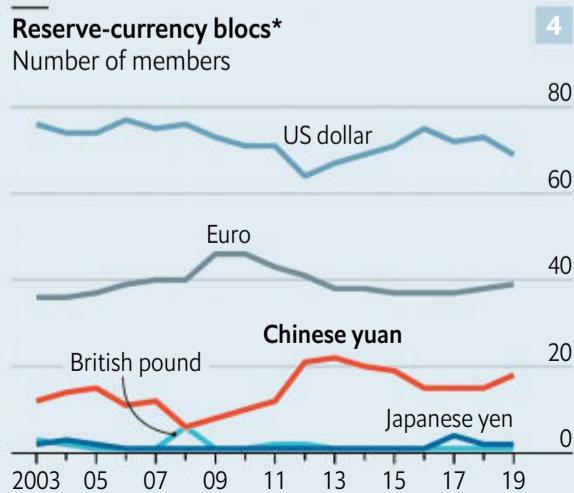
On a global scale the yuan is an "anchor" for few other currencies (see chart 4). The number of new yuan-denominated swaps agreed by the central bank has slowed sharply. Research published last year by Michael Perks, Yudong Rao, Jong-

soon Shin and Kiichi Tokuoka, all of the IMF, found that the Chinese banking system still plays a tiny role in global finance compared with America's (see chart 5). A new paper by Yi Fang of the Central University of Finance and Economics, in China, and colleagues, finds that Chinese markets "are more influenced by the financial markets in the G7 economies than the other way around". When America sneezes the rest of the world catches a cold. When China sneezes, most countries brush it off.

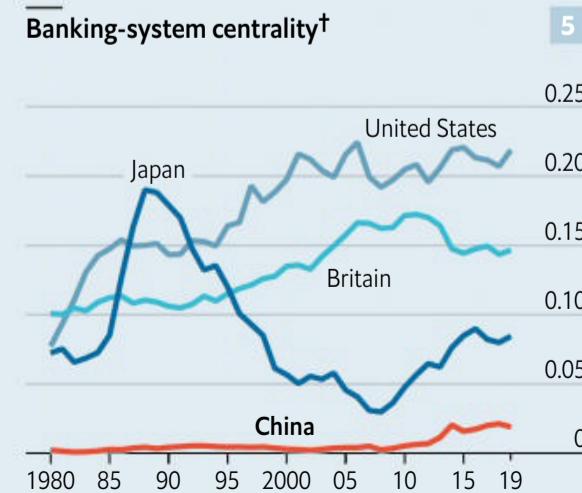
Another tension in China's push for self-reliance concerns productivity. Total factor productivity (ie, the amount of output per unit of labour and capital) has barely grown under Mr Xi, a marked deceleration from before the financial crisis (see chart 6). The government believes that aiming for self-sufficiency in high-tech industries will encourage innovation and so boost productivity. In fact, the opposite is more likely. In its efforts to boost domestic champions and spur trade with friendly countries, the government will probably end up conferring advantages on firms that are not the most efficient or capable suppliers of a given product, thereby denting productivity. Because lifting productivity is the only lasting way to raise living standards, that is a worrying prospect.

Taken alone, either of Mr Xi's ambitions—whether fortifying China against economic and technological vulnerabilities or finding a more reliable set of partners for trade and investment—would be a massive undertaking. Taken together, they are already generating contradictions, and more are likely to emerge. Trade and investment create mutual benefit and therefore mutual vulnerability by their very nature. China's leaders are right that dependence on Western technology, markets and financial plumbing leaves them exposed, but wrong if they imagine they can escape this predicament. The only alternative to interdependence is immiseration, whatever Mr Xi tells China's rocket scientists. ■

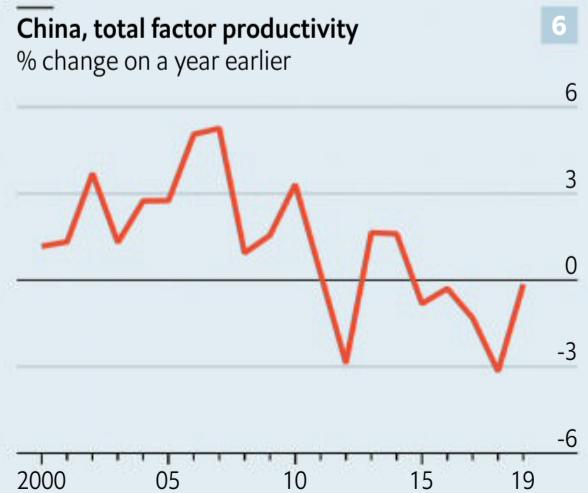
...but also less influential



Sources: "Reserve currency blocs: a changing international monetary system?", IMF working paper. 2018; "Evolution of bilateral swap lines", IMF working paper. 2021; Penn World Table



*Based on currency co-movements, relative measure
†Higher scores illustrate a banking system more closely connected to others globally



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Another mass shooting

A senseless slaughter

DALLAS

The spate of gun violence shows American exceptionalism at its worst

VALDE IS A small town in the pictur-esque Texas Hill Country, west of San Antonio, which used to be best known as the “honey capital of the world”. Today it is associated with senseless slaughter. On May 24th an 18-year-old gunman, Salvador Ramos, entered Robb Elementary School and carried out the largest school shooting since Sandy Hook Elementary in Newtown, Connecticut, in 2012. At least 21 are dead, including 19 children.

The gunman reportedly bought two assault rifles on his 18th birthday and is believed to have used one, and high-capacity magazines, which allowed him to fire multiple bullets quickly. In a haunting parallel with Sandy Hook, in which that gunman killed his mother before perpetrating the school attack, Mr Ramos shot his grandmother, who is in critical condition. No motive has been revealed.

There have been over 900 shootings on school grounds since the massacre of six- and seven-year-olds at Sandy Hook a decade ago. Whether in schools or elsewhere,

mass shootings have become tragically common in America (see chart on next page). Less than two weeks ago, another 18-year-old killed ten people at a grocery store in Buffalo, New York, targeting them because of their race. “We’re in this scenario where we keep watching the same movie play over and over again, and it’s a bad version of ‘Groundhog Day’,” says Joe Sakran, a surgeon and gun-control advocate.

President Joe Biden, freshly back from Asia, gave a sombre speech, which merged the gravity of a eulogy with the outrage of a

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23 Russians wanted, sort of

24 Lexington: Southern Baptist scandal

prosecution. “What struck me on that 17-hour flight was these kinds of mass shootings rarely happen anywhere else in the world...Why are we willing to live with this carnage?” he asked. Mr Biden blamed the strength of the gun lobby, which has opposed even the most moderate of proposals, including funding federal research on gun violence and investing more in the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), an under-resourced agency that is responsible for background checks and ensuring firearms dealers comply with the law. The ATF has had a permanent head only once in the past 15 years, owing to opposition by gun groups such as the National Rifle Association (NRA).

When it comes to guns, America is exceptional in three ways. Per head, it has the highest level of gun ownership in the world (war-torn Yemen ranks second). It has a significantly higher share of killings with guns than countries like Britain and Canada, which have stricter controls. And unlike other countries, such as Australia and New Zealand, which have experienced mass shootings but adapted their laws in the wake of tragedy, America has refused to change its gun laws.

The lack of congressional action on gun control is its own sorry tale. After Sandy Hook, President Barack Obama gave the job of pushing through substantive gun-control legislation to his vice-president, Mr Biden. In 2013 a bill that would have intro-

duced universal background checks on all gun sales failed in the Senate. There has been little federal action on gun control, because of Congress's unwillingness to stare down the barrel of the NRA, which remains influential in Washington despite the group's own financial and reputational problems. In order to get things done, Mr Biden has tried to change policy by executive order, including regulating "ghost guns" that can be assembled from parts bought online and which had previously evaded regulation.

More action has occurred at the state level. For example, after the shooting at Marjory Stoneman Douglas High School in Parkland, Florida, in 2018, many states passed new gun-control laws, including the Republican-led Sunshine State. But there has also been a loosening of rules. Texas has embraced "permitless carry" laws, which allow people to carry guns around in public with no permit or training. In the absence of stronger federal legislation, places with stiffer restrictions see the results of their efforts diluted by anti-gun-control states. This is why there is an "iron pipeline" of guns trafficked from states in the South with fewer restrictions to those in the north-east which have stricter policies, says Mr Sakran.

Although the shooting in Uvalde breaks hearts, will it change minds? As politicians prevaricate, more guns circulate. During 2020 and 2021, an estimated 43m guns were sold in America. Universal background checks would be the most meaningful reform—though an elusive one in a divided Congress. Some Democrats want to lengthen the waiting period for gun purchases. Currently the FBI has three days to

conduct a background check for a gun sold by a federally licensed gun dealer, and if it does not object in that quick window, the buyer receives his firearm. This happened with the assailant in a grim shooting in Charleston in 2015.

The most likely change out of Washington could come soon from the Supreme Court, which is going to rule on a case regarding the constitutionality of New York's restrictions on people's ability to carry guns in public. Many expect the court to rule against New York, making it easier for individuals to carry firearms and potentially leading to more states' gun restrictions being struck down.

Messing with Texas

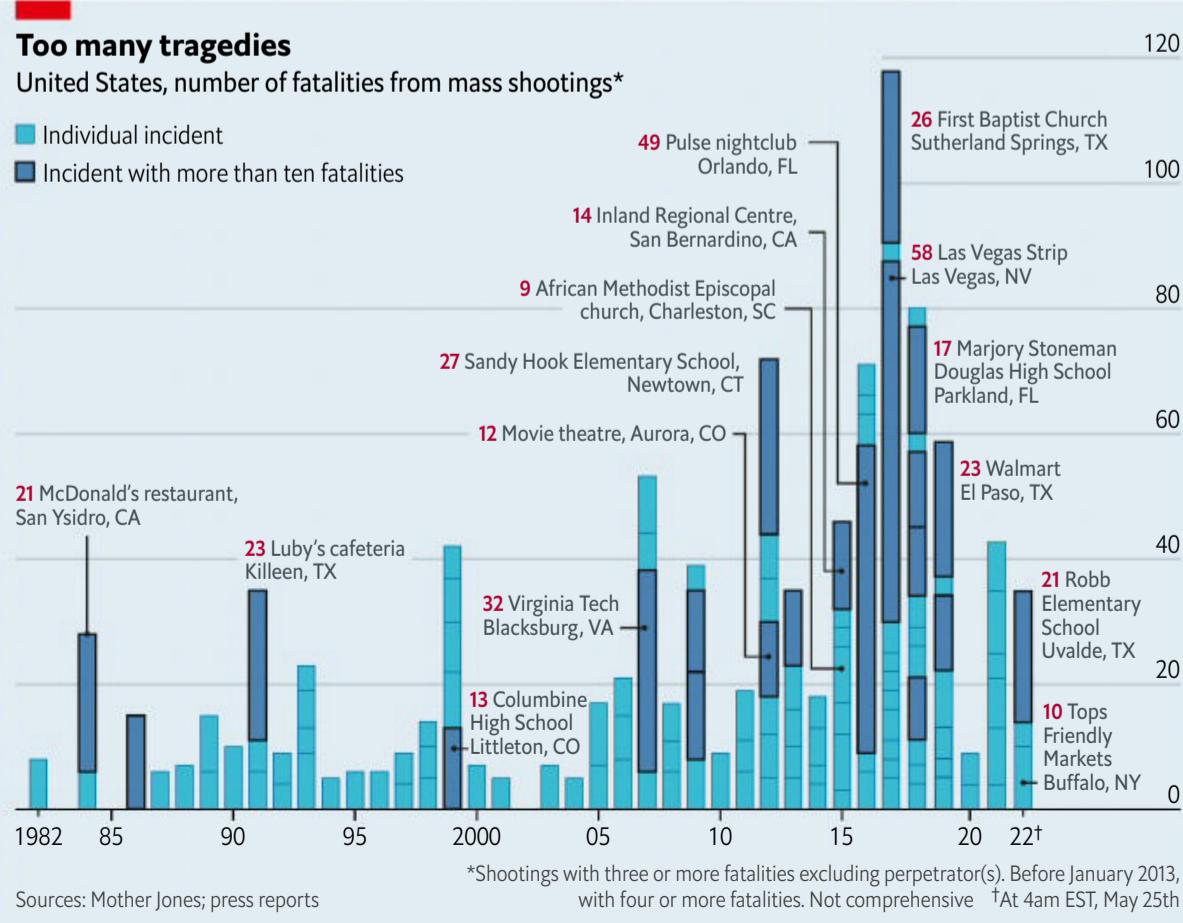
In Texas, voters will soon be able to indicate whether they are content to tolerate the status quo. In the wake of two mass shootings in 2019, Mr Abbott promised to look into solutions for avoiding future attacks but failed to act, instead signing permitless-carry into law. Beto O'Rourke, a Democrat who is running for governor, has made gun-control central to his political career (he confronted Mr Abbott at a news conference in Uvalde on May 25th). But his chances of victory against Mr Abbott are low, and there is little he could do to regulate guns in a Republican-controlled state legislature anyway.

On May 27th the NRA is kicking off its annual conference, with speakers including Mr Abbott, Ted Cruz, a Republican senator from Texas, and former President Donald Trump. That the Uvalde atrocity and the NRA's gathering will occur in the same state, in the same week, is a symbol of America's divisions and dysfunction. ■

Too many tragedies

United States, number of fatalities from mass shootings*

■ Individual incident
■ Incident with more than ten fatalities



Georgia primaries

A slap for Trump

ATLANTA

The triumph of two Republicans the former president tried to oust

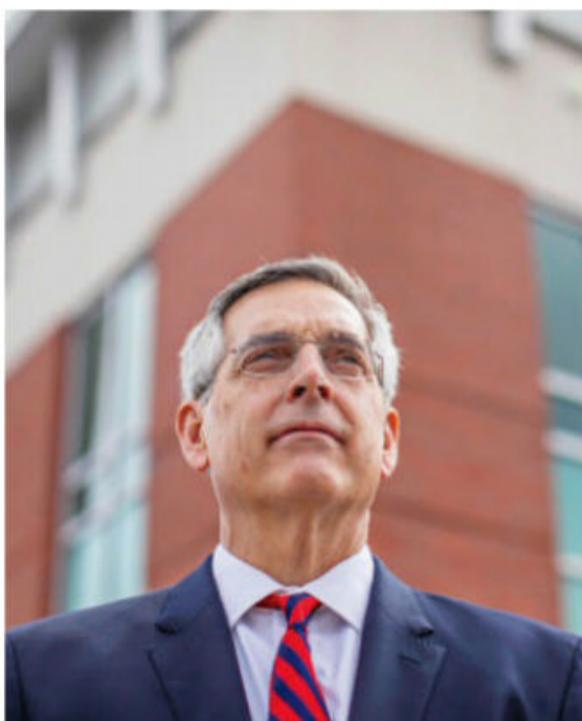
FOR THE better part of a decade, the contingent of Americans hopeful that Donald Trump's spell over the Republican Party would soon break have been dealt setback after setback. The night of May 24th proved to be a respite. In two closely watched Republican primary elections held in the state of Georgia, two incumbents—Brian Kemp, the governor, and Brad Raffensperger, the secretary of state—managed to keep their seats despite vigorous challengers stirred up by the former president. Is the Trump wizardry waning?

Before 2020, both Mr Kemp and Mr Raffensperger were seen as rock-ribbed Republicans. But when Mr Trump could not face the fact that he had narrowly lost Georgia to Joe Biden, he and his surrogates resorted to a campaign of extraordinary pressure on the state's top election officials to reverse the result. When they refused, they earned the president's permanent ire.

In the end, it was not particularly close. Mr Kemp won 73.7% of his vote, smashing David Perdue—an ultra-wealthy former business executive and senator. Mr Perdue, who convincingly reinvented himself as a conspiratorial nationalist with no discernible character traits save Trumpism, has probably authored his permanent and ignominious exit from politics. By a smaller margin of 19 percentage points, Mr Raffensperger fended off a challenge from Jody Hice, a pastor and congressman whose higher calling appears to be chanting about fraud in the 2020 election and returning Mr Trump to power.

However real, the repudiation is not wholesale. Early data show that registered Democrats, who are allowed to participate in Georgia's open primary, came out in record numbers—not enough to seriously dilute the heavily Republican electorate, but perhaps enough for Mr Raffensperger to avoid a run-off. (There is no doubt that even among true Republicans, Mr Kemp delivered a walloping to Mr Perdue.)

More importantly, the race was not a referendum on Trumpism. Both men were careful never to betray any animosity towards the former president. "I'm not mad at him. I think he's just mad at me," Mr Kemp said before the vote. He received an endorsement visit from Mike Pence, the former vice-president whom Mr Trump now despises because he, too, would not overturn a democratic election. "In all the Trump-Pence administration, there was no



Raffensperger, a win for democracy

► greater champion of the conservative agenda [than Mr Kemp]," said Mr Pence at an election-eve rally held in Kennesaw, carefully avoiding criticism of his ex-boss.

That reticence is perhaps more telling than Mr Trump's endorsement win-loss record (which remains very high). Aside from pursuing his personal vendettas, Mr Trump has been careful in most cases to endorse candidates with little chance of losing. He has been so mindful of ensuring that his position as party kingmaker not be challenged that he unendorsed one candidate for senator from Alabama, Mo Brooks, who was trailing in the polls—allegedly because his zealotry for "stopping the steal" had cooled too much.

It is not hard to find signs of Mr Trump's continuing power. On the same night as the Georgia primary, Republican voters in Texas chose to keep Ken Paxton, a scandal-tarred, Trump-endorsed culture warrior, as their attorney-general candidate. That Mr Paxton handily beat George P. Bush, the scion of the family that produced two Republican presidents, is a microcosm of the party's continued evolution. And Republicans in Arkansas voted overwhelmingly to reward Sarah Huckabee Sanders, Mr Trump's pugnacious former press secretary, by making her the likely next governor of the state.

The American primary season is long, stretching all the way from March to September. But the results so far suggest that the Republican Party that emerges at the end of this marathon will be fashioned more in the image of Mr Trump—not less. And given the national environment that Democrats face, which includes painful inflation and a feeling of malaise towards a flagging Biden administration, it is likely that general-election voters in November will elect a good number of hardened Trumpists. Those who wish that Mr Trump would fade away still face a long wait. ■

Bentonville's lessons Live better

BENTONVILLE, ARKANSAS

The home of Walmart wants to beat, of all things, sprawl

IN HIS PRIME, Sam Walton, the founder of Walmart, loved to fly. In the 1970s and 1980s, before anyone could stare at satellite pictures on Google Maps, he would take a Cessna 414 and bank over towns, trying to judge where to open new stores. The best locations would be at the edge of towns, where America's expanding network of highways could bring customers to the firm's "discount cities", each with at least five acres of land, most of it given over to car parking. The stores thrived, growing with the suburbanisation of America, and made the Walton family rich. Though politicians and residents attacked the firm for leaving downtowns desolate, Walton hardly cared. If the customer liked to drive out of town in search of low prices, so be it.

Fly over Bentonville, in north-west Arkansas, where Walton opened his first store and where the firm has its headquarters, and it looks much like many small American towns, with tracts of single-family homes, highways and car parks. Yet visit on foot and you will see something else. Downtown, a clutch of cafes, yoga studios and a farmer's market occupy an area smaller than a Walmart car park. A ten-minute walk along a tree-lined trail leads to an astonishingly good art museum, the Crystal Bridges, built on stilts amid the Ozark forest. Families roam around on bicycles. It is, in short, a model of urbanism.

Much of this is thanks to the Waltons. Many of them still live in the town, and take a close interest in its development. Having made their money from urban sprawl, America's richest dynasty seems to want to build something different.

Bentonville is a boom town. Between 2010 and 2020 its population grew by over 50%, to 54,000. The wider region is the 13th-fastest-growing in America. Much of this is because of Walmart, which employs 14,000 people in the area, as well as Tyson Foods, a big meat supplier, and J.B. Hunt, a logistics firm. But the town also wants to attract people with its lifestyle. "We are not embarrassed to say we are borrowing heavily from Austin's playbook," says Olivia Walton, the museum's chairwoman. The idea is that by sponsoring music events, building bike trails and investing in art, people will be drawn to Bentonville just as they have been to Texas's capital.

Austin's growth, however, has come with traffic congestion, costly housing and long commutes. Bentonville would like to

dodge that. To do so, while still growing, it will have to persuade people to live more densely. The city has grandly trademarked itself "Mountain Biking Capital of the World", and built miles of trails. Walmart notes that half of its employees in the city live within a five-mile commute, and it wants to get 10% of them cycling to work; its new headquarters has fancy showers and bike parking. Tom Walton, who is a grandson of Sam (and Olivia's husband), cycles around town on an electric bike with a child seat attached.

"We are trying to prevent...the suburbanification of northwest Arkansas," says Nelson Peacock, president of a "regional council" set up by the Walton, Hunt and Tyson families in 1990 to bolster growth. His council has been trying to persuade the local governments to approve the development of flats, instead of just tract housing, close to jobs. Some are to be offered to workers for the city government at below-market rates. The idea is not only that flats are cheaper and enable people to live closer to their jobs. They also ought to make it more plausible to develop public transport. "We don't have a really robust bus system," says Mr Peacock. Tom Walton has proposed building a block of flats downtown with no car-parking spaces at all.

Densifying is tricky. Bentonville already has a lot of suburbia. Its population density is half of Austin's, and around 6% of New York's. Its zoning laws decree, for example, that bowling alleys must have six parking spaces for every lane. Developers like building suburbs of single-family homes; while land at the edge of town remains cheap, it is tricky to persuade people to buy apartments. Still, when Mr Peacock talks to officials from bigger cities, he says, "most of them say, 'we wish we'd started when you did.' Somebody has to try—even if it is a family that has profited from sprawl perhaps more than any other. ■



No sprawl, please

From catering executive to agricultural entrepreneur.

Meredith learned how on YouTube.

Meredith left her life in catering and bought 20 acres of California farmland. She didn't know how to farm, but she learned how on YouTube. Her business, Autonomy Farms, has doubled its revenue in the last three years and has built a reputation as a menu staple throughout the West Coast.



For more on how people are growing careers and business opportunities with YouTube, visit **yt.be/impact**



Labour unions

The name game

New trade unions are successfully using company brands

CHRISTIAN SMALLS and Jaz Brisack have lived very different lives. Mr Smalls started out as a rapper and worked in a series of jobs in retail before joining Amazon as a warehouse picker in 2015. He was fired in 2020 for leading a staff walkout, and he went on to found the Amazon Labour Union (ALU). Ms Brisack won a Rhodes scholarship to the University of Oxford, then moved to Buffalo, New York, to work on a union campaign, but soon took a job at Starbucks. Eight months later she helped to found Starbucks Workers United (SBWU). Despite their different routes, Mr Smalls and Ms Brisack are the faces of America's changing labour movement.

SBWU unionised the first Starbucks café last December: more than 90 have followed. In April the ALU won an unexpected victory at JFK8, an Amazon warehouse in Staten Island, New York, to form the company's first union in America. President Joe Biden has met Mr Smalls and told him: "You're my kind of trouble." One reason these unions have found success is that they have chosen to focus on organising workers within single firms rather than those across an entire industry.

Their names tell the story. Older unions have often had long names that describe their sectors—sometimes a mouthful (such as the Paper, Allied-Industrial, Chemical and Energy Workers International Union). This reflected their ambition. They wanted to win collective agreements covering all workers in an industry, to drive up wages and improve conditions across the board. But new unions are shunning complex monikers and using company names instead, such as Target Workers Unite (founded in 2018).

These are independent outfits but some enjoy the backing of older ones. The SBWU began with Ms Brisack secretly meeting with Workers United, affiliated to the century-old Service Employees International Union. Some 16 unions, including Alphabet Workers Union and Medium Workers Union, have sprung up since 2020, affiliated to the Communication Workers of America (formed in 1947). In the media industry, New Yorker Union started in 2018 and Condé Nast Union in March.

Anastasia Christman of the National Employment Law Project, a think-tank, suggests that this helps target workers who lack experience of unions. Mr Smalls sought to distance ALU from Amazon's at-

tempts to paint established unions as outsiders. ALU's name helped to create a shared identity rooted in the warehouse and not in a remote sectoral union.

Using company names makes it harder for firms to distance themselves from "independent contractors". Instead, through their union's branding, workers "insist on their identity as employees", argues Ms Christman. Borrowing their employer's brand also helps them alert consumers to the idea it could be associated with labour exploitation, says Catherine Fisk, director of the Berkeley Centre for Law and Work.

However it is not plain sailing. On May 2nd Amazon workers at LDJ5 warehouse, in New York, voted against forming a union. And the SBWU may have unionised 80 cafés but there are some 15,500 Starbucks outlets in America. Brands—even borrowed ones—take time to develop. ■

Immigration policy

Bordering on chaos

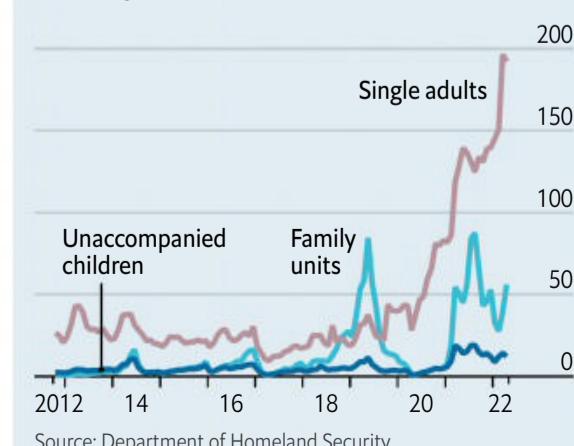
MCALENN, TEXAS

The furore over "Title 42" highlights America's broken immigration system

WHEN YOUR rivals start offering their sympathies, you know you're in trouble. Recently, this has been happening to Henry Cuellar, a Democratic congressman representing Laredo in south Texas, because of the Biden administration's move to end "Title 42", a border-management tool. "I've talked to a lot of Republicans, and they said, 'We cannot believe, Henry, that the White House has given us our narrative,'" he says. (Mr Cuellar was in a tough primary election on May 24th, with border policy an animating issue.) The White House's hope of lifting Title 42 from May 23rd played into the idea that Democrats are stoking disorder at the border.

Title 42 is a public-health rule invoked

Coming to America
United States, border encounters
By demographic, '000



in March 2020 by Donald Trump's administration to combat the spread of covid-19. It aimed to seal America's borders from migrants, allowing the immediate expulsion of border-crossers, including asylum-seekers. The policy has been used in nearly 1.9m instances. Under Title 42, Customs and Border Patrol (CBP) can rapidly expel certain migrants to Mexico, instead of putting them through formal deportation proceedings. President Joe Biden has had to balance concern over rising numbers of migrants with his desire to create a more humane immigration system and honour the legal right of people to seek asylum.

Opponents of ending Title 42, including Mr Cuellar, believe lifting it could add to the current migrant surge (see chart). In April, CBP apprehended migrants around 234,000 times at the southern border, the most in more than 22 years. Alejandro Mayorkas, the secretary of homeland security, has said once Title 42 is lifted as many as 18,000 a day could arrive—more than double the daily average in April.

A coalition of Republican states sued to block the lifting of Title 42, and a federal judge ruled on May 20th that it must stay in place. The White House is going to appeal against the judge's ruling. According to Aaron Reichlin-Melnick of the American Immigration Council, a think-tank, "It's exceedingly unlikely that Title 42 is ended before the mid-term elections." He predicts that the Supreme Court could ultimately take it up next year.

Designed as a public-health measure, Title 42 is flawed as a border-management tool. Migrants do not face charges for repeated entry, as they would if they were processed under normal immigration law. This encourages repeated attempts to cross. Recidivism surged from 11% in 2018 to 27% in 2021, inflating the number of apprehensions that CBP reports. "Hasta mañana," one man recently told a border official, as he was about to be expelled.

The measure has contributed to wildly different outcomes at the border, depending on a migrant's nationality. Mexico accepts back Mexicans, Guatemalans, Hondurans and Salvadorans removed under Title 42, but not most others. Without the capacity to send these migrants home, CBP often releases them into America. At first, Title 42 "slowed people from coming", but it "made border management less predictable and therefore gave people hope of getting in", says Andrew Selee of the Migration Policy Institute, another think-tank.

Morale among Border Patrol officers is the lowest it has been in at least 25 years, says Richard Douglas, who formerly worked for CBP and now runs security for the East Foundation, which owns ranchland in south Texas. Around 60% of CBP agents have been assigned to process migrants, taking them away from field work. ►

► One border expert estimates that less than 20% of people trying to cross the border undetected are stopped. Texas has deployed National Guard troops, filling whole hotels in south Texas.

Three larger points are easily lost in all this. One is that high levels of migration are not occurring only at America's southern border. Globally, more people are displaced from their home countries than at any time since 1945. Covid-hit economies, violence, persecution and hurricanes have pushed Central and South Americans to move. Last year in Mexico a record 131,000 people applied for asylum.

Previously, the migrants arriving at the southern border were mainly Mexicans, Salvadoreans, Hondurans and Guatemalans. But instability elsewhere has led large numbers from other countries, including Ukraine, to show up. In February 2021, when your correspondent visited the "humanitarian respite centre" run by the Catholic Relief Services of the Rio Grande Valley, it was full of Central American families released by CBP. Recently, most of the families there were Haitian. In the first seven months of this fiscal year, those stopped by CBP at the southern border included about 52,000 Colombians, compared with just 401 in 2019, and 6,700 Turks, up from 57 in 2019.

The second, larger point is courts' greater involvement in setting immigration law, in the absence of decisions by Congress. "The judiciary is now making our immigration policy on an ad hoc basis in different courts across the country," explains Theresa Cardinal Brown of the Bipartisan Policy Centre, another think-tank. When Mr Biden tried to end the Migrant Protection Protocols (MPP), which force asylum-seekers to wait in Mexico pending their immigration hearings, Texas and Missouri sued, and a federal judge ordered Mr Biden to restart the MPP. The fate of the

MPP will be decided by the Supreme Court.

The fact that so many people want to rely on an obscure public-health tool as a border-management strategy points to a third issue: how dysfunctional America's immigration system is. It was designed for a time when most migrants were Mexican single adults trying to come to America for work. Today whole families and children are arriving from around the world, many seeking asylum. A recent memorandum from Mr Mayorkas pointed the finger at Capitol Hill: "We are operating within a fundamentally broken immigration system that only Congress can fix."

The Biden administration is about to introduce a faster system for adjudicating on new arrivals' asylum claims, but that will not tackle the record backlog of asylum cases. (True to form, Texas has sued to block the move.) According to Mr Cuellar,

the White House has been too close to immigrant-rights advocates and not listened enough to border communities and law enforcement. Sister Norma Pimentel, who runs Catholic Relief Services of the Rio Grande Valley, says the administration appears "uncertain as to how to proceed".

Last year 650 migrants (and probably many more) are known to have died trying to enter America, the deadliest year on record. Some, including this newspaper, have argued that Mr Biden and his senior advisers should go to the border to witness the mess. Others want action, not a border tour. "I'm to the point where I don't even want them here" for a photo-op, says Javier Villalobos, the mayor of McAllen, a Texas border town. The situation is so urgent that he wants them to "stay in Washington, sit down, figure out what to do and fix our border and our immigration problems". ■

The talent war

Russians wanted, sort of

WASHINGTON, DC

Fitful attempts to lure Russia's scientists and techies to America

BEFORE THE war in Ukraine, Nikolai Shevchik was happy working at an American technology startup in St Petersburg. But an economic slump and Vladimir Putin's crackdown on dissent changed his mind. "For anyone who opposes the war, it is a question of safety now," says Mr Shevchik, who is thinking of emigrating. He runs a channel on Telegram, a messaging app, where 50,000 or so like-minded Russians look for tech jobs abroad or remote work that pays in dollars or euros. Many have already fled to Turkey or Armenia.

Policymakers in Washington are looking for ways to capitalise on their disenchantment. America has often benefited from troubles abroad. Jewish émigrés from Nazi Europe, such as Leo Szilard and John von Neumann, helped develop the atom bomb and accelerated innovation in physics, chemistry and more. America scooped up hundreds of German scientists and engineers after 1945 through Operation Paperclip. Werner von Braun, a former SS officer, became a leading force in the lunar programme. The collapse of the Soviet Union led Congress to pass the Soviet Scientists Immigration Act of 1992, permitting some 750 people to emigrate to America.

"These kinds of immigrants increase entrepreneurship, invention and growth," says Jeremy Neufeld of the Institute for Progress, a think-tank. About 23% of America's patents are produced by immigrants. Mr Neufeld estimates that nearly half of all advanced-

degree holders in its defence industry were born abroad.

The Biden administration put its weight behind a provision tucked into the president's proposed \$33bn supplemental budget for Ukraine that would ease the path for Russians with technical skills to emigrate to America. Russians with a master's or doctoral degree in science, technology, engineering or maths would no longer have been required to have an American employer as a sponsor for their H-1B visa, the employer-based immigration scheme. But Congress left this out of the bill it approved. So the search is on for other options.

Certain requirements, such as the need for an employer, could be waived by executive order on national-security grounds. The O-1 visa, available to star academics, could be reinterpreted to allow a broader array of applicants. Congress has another opportunity in its version of an industrial-policy bill, which exempts advanced-degree holders from the caps on green cards, America's permanent-residency permit.

Even if policymakers can ease the way for the likes of Mr Shevchik to come, America must still tackle an emerging talent gap with its principal geopolitical rival, China. China awards over 100,000 more advanced degrees every year than America does. America's byzantine immigration system excels at kicking out foreign-born graduates. The place remains attractive to skilled foreigners—if only it will let them in.



Hoping for the best

Lexington | Sex scandal and Southern Baptists

White evangelicals look even less able to self-correct than the Catholic church



IN 1985 GILBERT GAUTHE, a cowboy-boot-wearing showboat of a priest in southern Louisiana, was convicted of abusing dozens of altar boys. It was one of the first of the sexual-abuse scandals that for three decades have rippled through the Catholic church, devastating the institution. Millions of Americans and Europeans have left it. After a fresh round of scandals in 2018, concerning abuse of children in Pennsylvania, 37% of the remaining American Catholics said they were considering doing so.

America's biggest Protestant denomination, the Southern Baptists, now faces the same reckoning. In 2019 the *Houston Chronicle* revealed 380 allegations of sexual abuse in the denomination's 47,000 affiliated churches. In response, its national executive stonewalled and prevaricated, leading to demands for an independent investigation. Its findings, made public this week, are even more shocking than expected.

Abuses within the denomination appear to have been widespread, often committed by church leaders and systematically covered up. The report includes a "credible" allegation of sexual assault by a former president of the national executive, Johnny Hunt, against the wife of another pastor. It describes efforts by Southern Baptist officials to intimidate and denigrate as "opportunist" victims of assault and an overriding concern to stop them suing for compensation. A senior Southern Baptist leader is quoted denouncing victims' complaints as a "satanic scheme to completely distract us from evangelism".

It amounts to a familiar story: of privileged men exercising power with grubby and sometimes criminal impunity, then denying having done so to protect their institution and themselves. Secular institutions have seen plenty of that, of course. But it is probably no coincidence that the Catholic and Southern Baptist churches are among the most male-chauvinist Christian traditions. Nor is it by chance that some of their most censorious figures have turned out to be among the biggest abusers.

Those named in the report include Paige Patterson and Paul Pressler, once-revered architects of the "conservative resurgence" of the 1970s and 80s that propelled Southern Baptists into politics. Mr Patterson, another former Southern Baptist president, was sacked from a leading seminary in 2018 after it was revealed that

he had allegedly instructed one student not to report a rape and met privately with a victim of abuse in order to "break her down". Mr Pressler, a former vice-president of the denomination, is accused of raping a boy.

Southern Baptists will discuss the report, which is already receiving pushback from conservatives, at their annual meeting in California next month. But even if their leadership accepts it contritely, the revelations seem likely to accentuate a decline in the white evangelical tradition that is already advanced.

Since 2006, when Southern Baptist membership peaked at 16.3m, the group has lost 2.6m members, including over a million in the past three years. Formerly seen as an American bulwark against irreligiosity, white evangelicalism, of which Southern Baptists are the dominant strain, now looks to have been a brief holdout. It has been losing congregants at the same rate as the Catholic and mainline Protestant churches. In 2006, almost a quarter of Americans were white evangelicals; only 14% are today.

The decline has been most pronounced among those aged 18-29. Anecdotal evidence suggests they dislike the partisan alignment as much as the scandals Messrs Patterson and Pressler have wrought. Leah Boyd, a 23-year-old Southern Baptist seminarian and victim of assault within the church, estimates that of her 30 school friends in the Alabamian Bible belt, only ten attend services. "I'm an outlier," she says. "It's not just the sex-abuse scandals. People of my age are turned away by the positions on race, sexuality and gender." And also, she adds, by white evangelicals' embrace of Donald Trump, another alleged sexual predator. Southern Baptists "were supposed to be part of a moral majority", she says.

The group's politicisation has on the face of it provided a counterweight to secular decline. Voting in lock-step, white evangelicals have punched well above their dwindling numbers. They represent a plurality of the Republican coalition and are by far the country's most powerful special interest. If America is about to lose the right to legal abortion, it will be by order of a conservative Supreme Court majority assembled to please them. Yet a cultural minority will struggle to win a culture war. And the damage white evangelicals' political overreach is storing up is already obvious.

The Catholic church has survived the dire failures of its priesthood in part by emphasising other strengths, including the vigour of its charities, its growth in developing countries, and their ability to replenish dwindling rich-world vocations and congregations. In their partisan fury, America's white evangelicals seem more intent on kicking their tradition's crutches away.

A secular decline

Southern Baptists' core strengths are their decentralised structure and commitment to evangelising. Both attributes, emblematic of America's singular religious tradition, contain the potential for re-thinking and regrowth. Yet politicisation has blunted them in favour of groupthink and hostility to outsiders. Black and immigrant Southern Baptists, possible sources of renewal, have joined progressives in the rush to the exit. Dissident thinkers such as Russell Moore, a critic of the church's response to the abuse scandal, and Beth Moore (no relation), one of its few notable women, have been driven out. New baptisms are close to record lows.

The sexual-abuse scandal is emblematic of these wider institutional failures. Conscientious evangelicals consider it proof of the persistence of sin. An alternative reading is that it indicates an institution that has abused its power over its own vulnerable members, just as it has in the public square. ■



Colombia's election

The costs of inaction

BOGOTÁ

A divided Colombia is poised to elect its first leftist president

IT IS TIME for the left to come to power,” says Nicole Gómez, a student in Bogotá. “We are tired of the inequality, and of everything staying the same.” She and the rest of the Colombian electorate go to the polls on May 29th to elect a new president. The right-wing incumbent, Iván Duque, is stepping down after his constitutionally-allotted one term in office.

Ms Gómez plans to vote for Gustavo Petro, a former guerrilla hoping to become Colombia’s first leftist leader. Her exhaustion is typical. Voters want to break with a political class they see as corrupt and ineffective. Mr Petro leads the race, but is unlikely to win the 50% of votes needed to avoid a run-off on June 19th. The election is the most important in Colombia’s recent history. The country’s institutions are at stake, as are its investor-friendly economic model and the future of the peace deal signed in 2016, which ended a 50-year civil war. The immediate threat is that violence breaks out in the election’s aftermath.

When its progress is measured in decades, Colombia appears to be doing well. GDP per person grew from \$1,400 in 1990 to

\$6,700 by 2018. Over the same period, the share of university-aged people enrolled in tertiary education nearly quadrupled to 55%. In April 2020 Colombia joined the OECD, a club mostly of rich economies. That is good going for a country that has been in a near-continuous state of civil war since 1948. The most recent one, which ran from 1964 to 2016, saw the state fighting the Revolutionary Armed Forces of Colombia (FARC), a Marxist guerrilla group. A quarter of a million people died and another 8m were forced to flee their homes.

Despite the improvements, Colombians like Ms Gómez have reason to be angry. Their country is one of the most unequal in the world (see chart on next page). A regressive tax system does little to help. Tax revenues make up just 19% of GDP, far below the OECD average of 33%. Colombia is one of the only countries in Latin America that has never carried out land reform with

any gusto. More than 80% of private agricultural land remains under the control of just 1% of farms. That is much higher than the regional average of about half. Many of these problems are not getting better. Concentration of land ownership increased between 2000 and 2015. Inequality has hardly budged in a decade.

Mr Petro has topped the polls all year. More than 40% of voters say that they will cast their ballot for him. He rejects the label of socialist firebrand. As a member of the M-19, a nationalist movement, he says he did not want to usher in a Soviet economy. He told *The Economist* that he now wanted a “social-democratic market economy” with “respect for private property and free enterprise” and a healthy dose of “social responsibility”.

Central-bank independence will stay, too, though Mr Petro is keen for “people close to society” to have a presence on its board. He has promised in writing, under oath and before a notary, not to expropriate businesses. María Claudia Lacouture, the president of the American Chamber of Commerce in Colombia, says she recently had a long meeting with Mr Petro. He was not so business-friendly the last time he ran, and lost, in 2018.

Yet many of his proposals remain radical. He wants tariffs on agricultural imports, but has not said at what level, just that their goal will be “domestic job creation”. He guarantees work for Colombia’s 3m unemployed people. New exploration for oil and gas, products which make up ➤

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► half of Colombia's exports, would be banned. University education will be made free. Trade deals are to be renegotiated, most importantly with the United States.

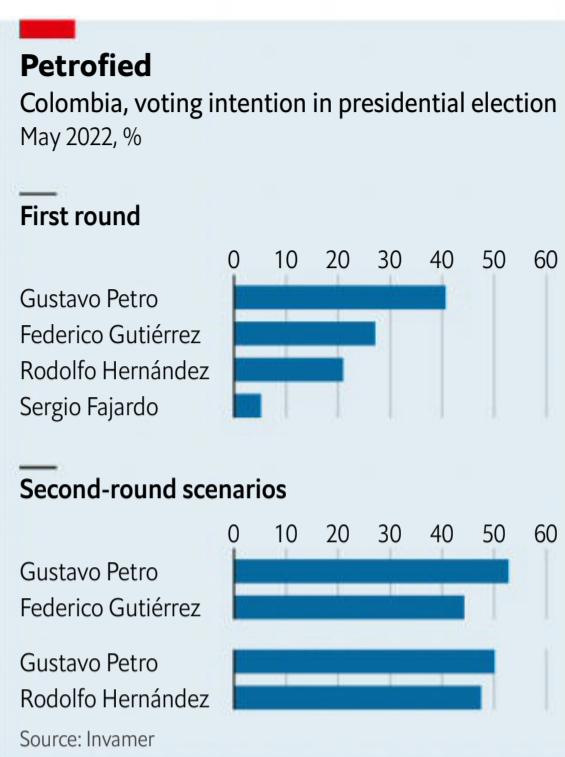
Mr Petro plans to pay for this by clamping down on tax evasion, reducing exemptions and raising taxes on agricultural estates which are "unproductive", a term he has not defined. He thinks this, and pension reforms, will increase government revenues by 5.5% over four years.

His policies are unlikely to be cost-neutral. Wealthy Colombians already appear to be moving their money out of the country to hedge against his victory. The Miami Association of Realtors says more Colombians searched its website for property in March than did so from anywhere else. Mr Petro says growth in tourism and agriculture will make up for shortfalls created by his ban on oil and gas exploration. But to replace revenue from hydrocarbons, Colombia would need to reel in as many tourists as Argentina and Brazil combined.

Mr Petro has a reputation for being hard to work with. Some 60 officials resigned or were sacked during his four years as mayor of Bogotá. One wrote an open letter warning that "a left-wing despot does not stop being a despot just because he is from the left". In that light one of Mr Petro's commitments, to "democratise institutions", sounds concerning. Moderates hope that the fragmented Congress elected in March, in which Mr Petro's coalition lacks a majority, will force him to build alliances.

Mr Petro's strength spooked Colombian elites in the run-up to the election. In the primaries in March they chose Federico Gutiérrez, a former mayor of Medellín, Colombia's second city, to run against him. The hope is that his everyman persona—he goes by his nickname Fico—can counter Mr Petro's fustier manner. They also hoped that his status as a relatively independent candidate would provide some cover for their unpopular politics.

This plan worked at first. Unknown beyond Medellín before the primaries, within three months a quarter of the electorate



said they planned to vote for Fico.

But his rise has stalled. For many, Mr Gutiérrez is a candidate of continuity. All of Colombia's traditional parties back him. Some of his policies are moderate. Although he voted for the peace deal of 2016, the support he enjoys from landholding elites and right-wing parties that opposed it may limit his ability to carry out its land-reform mandates. "My worry is that the peace deal would be abandoned and left to die," says Yesid Reyes, a former Minister of Justice, who helped design the agreement.

Mr Duque has been slow to make the changes required by the peace deal. Just 4% of the land-reform measures mandated in the accord have been put in place since it was signed, according to the Kroc Institute for International Peace Studies at the University of Notre Dame in Indiana. More than 1,000 environmental and human-rights leaders were killed over the same period, mostly by new armed groups that emerged to fill the vacuum left behind by the FARC. That is what the mandates of the peace accord were designed to fill. More than 300 ex-FARC combatants who laid down their arms have also been murdered.

The constraints on the degree to which Mr Gutiérrez would be able to improve this, along with his establishment credentials, have created space for another challenger to Mr Petro. Rodolfo Hernández, a populist outsider, has surged in the polls in the past three weeks. He is now tied with Mr Gutiérrez. A 77-year old former mayor of Bucaramanga, a mid-size city near the Venezuelan border, he made his money building homes for the poor. He has been recorded saying that the key to becoming wealthy was financing the purchase of his slum homes, not just building them: "I collect the mortgages, which are the cash cow. Just imagine, 15 years of a little man paying me interest. It's delicious."

This sort of unpleasantness is the norm. Mr Hernández was suspended twice when he was mayor, once for slapping a city legislator and once for campaigning while holding public office, which is banned in Colombia. He resigned shortly before the end of his term.

Mr Hernández blames corruption for most of Colombia's problems. This chimes with voters' mood. As soon as he is president, he says, he will start selling off the presidential cars and planes. He wants to close Colombia's embassies and consulates because the civil servants employed there "don't do any work". Other countries' representatives are to be served nothing more than tap water when they visit the presidential palace. All this is ironic given that Mr Hernández is due to be tried for corruption in July.

TikTok vs Trotsky

Mr Hernández's populist bombast lends him an anti-establishment air which may provide an edge over Mr Petro if the pair end up facing off in June. Mr Petro has run for president twice before, and has been a member of Congress for decades. Mr Hernández reaches his supporters through TikTok, a social-media app, where he posts goofy videos playing on his septuagenarian charm. He is prone to gaffes. In 2016 he said that he was a "great follower" of Adolf Hitler. (He apologised last year, after he declared his presidential candidacy, and said he had been thinking of Albert Einstein.)

Mr Hernández's policy proposals are a mixed bag. The plan is to cut domestic taxes but raise agricultural tariffs. He rails against international institutions, but seems to like some of what they do. His programme makes repeated, positive mentions of COP 26, a UN climate-change conference. He wants to ratify the obscure Protocols of Nagoya-Kuala Lumpur, a UN biodiversity agreement. He plans to rebuild ties with Venezuela, but has made xenophobic comments about Venezuelan women. He has wacky ideas about drugs, including supplying free cocaine to addicts as a public-health measure.

Turns for the worse



Like other candidates he promises to implement the peace deal in full, even though his father was kidnapped by the FARC and had to be ransomed. He even wants to negotiate peace with the ELN, an extant leftist guerrilla group that is thought to have kidnapped his daughter in 2004 (she has never been found).

Some of Mr Hernández's bluster has authoritarian overtones. He plans to hold daily press conferences at which supposedly corrupt politicians will be named and shamed. Colombians who inform against corrupt officials will, he says, get 20% of

any money that can be clawed back as a result. He has expressed fondness for Nayib Bukele, El Salvador's autocratic president, who rules through Twitter-diktat.

The most pressing concern is what will happen right after the vote. "Colombia is at risk of entering a new cycle of violence," says Alejandro Gaviria, a centrist who ran unsuccessfully in the March primaries. Mr Petro is likely to cry foul if he loses, and start whipping up his supporters. The ground is prepared for this; after making claims of fraud in the legislative elections in March, a recount allowed Mr Petro's co-

alition to secure at least three extra seats. A victory for Mr Gutiérrez is likely to bring protesters to the streets, unhappy with the status quo he represents.

And like leftist candidates before him, Mr Petro's life is at risk. He and his vice-presidential candidate, Francia Márquez, a rare black politician, have received death threats. They have campaigned behind bodyguards wielding riot shields. Such campaign tools attest to the possibility of violence. Colombians hope for change. A spiral of post-election mayhem is not what they have in mind. ■

Bello The wealth of the Andes

A test of whether big mining can be socially sustainable

DEEP IN A valley, at 3,500 metres in the Andes near Moquegua in southern Peru, giant terraces are being carved from the mountainside. Diggers load loose rock into 320-tonne driverless trucks which carry it to a conveyor belt. They pass by a dam built to hold back the Asana river in case it overflows the tunnel which carries it for almost eight kilometres beneath Quellaveco. This is a new \$5.5bn copper mine operated by Anglo American, a London-listed multinational mining company, and part-owned by Mitsubishi of Japan.

The diggers and trucks are "pre-mining", stripping away surface rock to expose the copper ore below. Nearby, workers are putting the finishing touches to the plant which will extract the metal from its ore. In the next few weeks mining proper will start. It has taken more than a decade to get to this stage. With blanket Wi-Fi as well as its driverless trucks, Quellaveco is perhaps the most technologically advanced mine in Latin America. It is also a test of whether big mining has a future in a country and region in which social conflict threatens to banish extractive industries.

Channelling the river past the mine, so that it emerges untouched downstream, was a condition for Quellaveco to gain an environmental licence and local consent. So was a new reservoir, built by Anglo at 5,500 metres on the headwaters of another river 90km away. The mine will use just 4m of the reservoir's 60m cubic metres of water. The rest will go to farmers lower down, providing them with a reliable water supply they previously lacked. The mine will depend upon water from a third river which is naturally suffused with heavy metals.

Other commitments came from 18 months of talks between the company,

local officials and community groups convened in 2011 by Martín Vizcarra, the governor of the Moquegua region, who later became Peru's president. Anglo agreed to pay for a \$1bn development fund, to be spent over the 30-year life of the mine, and to fund small community projects. Perhaps its most important commitment was to hire local people, many of whom it has trained, and to give opportunities to local suppliers. Of the mine's permanent workforce of 2,500, the company says 71% are from Moquegua and 28% are women (compared with an average of 10% at mines in Peru).

"The key is that people can see something beyond tomorrow," says Hugh Elliott, a British diplomat who worked for Anglo American and was involved in the talks. "You can build sustainable livelihoods if you do it right." That is where other big mines have run into problems. Chinese-owned Las Bambas has been shut for weeks after local communities occupied parts of it. When they surrendered their land for the project, they received new houses, plots elsewhere and at least

\$100,000 in cash per family. Now the money has been spent and they find it hard to adapt to a more urban life.

That is one explanation. The other is that activists are attempting to extort more money from mines, egged on by Vladimir Cerrón, an ally of Cuba whose Free Peru party controls Pedro Castillo, the president. Under Mr Castillo, conflicts over mining have increased sharply. Protesters recently forced a two-month closure at Cuajone, a much older copper mine near Quellaveco. They were demanding \$5bn.

Mining is vital for Peru. Over the past decade it has provided 59% of export income and 10% of total tax revenues, according to the Instituto Peruano de Economía, a think-tank. Quellaveco will boost its output of copper by 10-12%. The metal is vital to green-economy products such as electric cars.

Mining companies have often been insensitive to their surroundings. But many of their problems stem from the weakness of government, both national and local. Their taxes don't necessarily translate into benefits for local communities. Anglo was fortunate that Mr Vizcarra, a poor president but an effective governor, was determined to make dialogue work. That created stakeholders with an interest in the mine's success.

But Quellaveco now faces the tricky transition from construction, which at its peak involved 15,000 workers, to its much smaller operational staff. "It's very different from ten or 30 years ago, it's not just about a mining business where you try to be efficient," says Adolfo Heeren, Anglo American's boss in Peru. "You have to renew your social licence every day." That costs more upfront. But if it allows continuous operation, it saves money in the long run.





Semiconductors and strategy

Bargaining chip

SINGAPORE AND TAIPEI

Taiwan's security rests on computing hardware as much as the military kind

FOR A BRIEF moment on May 23rd, it seemed as if American policy towards Taiwan had undergone a sudden and dramatic change. Asked if America would “get involved militarily” to defend Taiwan in case of an invasion, President Joe Biden replied that it would. “That’s the commitment we made,” he said. It was the third time he had made a similar statement—and the third time it was quickly dialled back by his aides.

Good thing then that Taiwan has *huguo shenshan*, or the “magic mountain that protects the nation”. The mountain is not a sophisticated defensive fortification, nor a treaty with a big power. It is instead what Taiwanese call their \$147bn semiconductor industry, equivalent to 15% of GDP. It accounts for nearly 40% of its exports and is a pillar of the island’s economy. It is also a guarantor of its security. Taiwanese companies make the world’s most advanced chips, which in turn make the island an indispensable part of the global supply chain for crucial industries such as consumer technology, cars and aviation. America’s

firms (and its armed forces) depend on Taiwan’s semiconductors, and so do China’s businesses and military hardware.

For the mountain to retain its magic, the industry must retain its technological edge. Taiwan Semiconductor Manufacturing Company (TSMC), the world’s largest contract chipmaker, controls 90% of the market for the most advanced kind of chips—those with components smaller than ten nanometres (see chart on next page), or about 10,000 times thinner than a sheet of paper. Such chips sit at the heart of the most powerful computing devices,

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from iPhones to supercomputers. Only two other companies, Intel and Samsung, can make semiconductors approaching this level of sophistication, but their technology is not as good as TSMC’s, nor are they innovating as fast.

TSMC rose to dominance by focusing on making chips rather than designing them. Specialisation allowed the company to become the best at a complex manufacturing process that involves manipulating sub-atomic particles to create a super-precise form of ultraviolet etching light. How that process works involves many levels of trade secrets that rivals are desperate to acquire. Headhunters prowl Hsinchu Science Park, where most of Taiwan’s chip companies are based, seeking potential recruits who could bring valuable know-how to South Korea or America—or China.

Semiconductors pose a big and growing problem for China. The government has set a target of producing 70% of its own chips by 2025. It set up a 139bn yuan (\$23bn) National Semiconductor Fund in 2014, which it topped up with another \$30bn in 2019. Local governments have poured at least \$25bn more into their own such funds. In 2020, by when China produced 16% of the chips it used, it announced ten years of corporate-tax exemption for the most advanced chip manufacturers. That year, America restricted exports of chip-making equipment to China’s leading manufacturer of semiconductors.

Such incentives have prompted a big ➤

► expansion of chip-making in China and attracted many engineers and executives from Taiwan. Between 2014 and 2019, more than 3,000 semiconductor workers—7% of Taiwan's chip workforce—moved to China, according to Taiwan's government.

The exodus has alarmed Taiwanese officials. On May 20th the legislature passed amendments to its national-security laws and those that govern relations with China. The changes criminalise economic espionage and require government permission for employees of companies that work on "national core technology" and receive some form of government support to go to China. The amendments threaten up to 12 years of prison for anyone giving "national core technology trade secrets" to a foreign power, but do not define what constitutes core technology or trade secrets.

Chip-industry types are unenthusiastic about the rules. "The government thinks it's trying to do something, but they don't know how business works," says Nicholas Chen, an intellectual-property lawyer in Taipei. Though Chinese companies have been poaching Taiwanese executives and engineers, the most advanced Chinese chipmakers remain years behind Taiwan's best. TSMC has maintained its lead by tightening internal trade-secret protection, not by erecting barriers to China, which is one of its biggest markets.

It is also not clear how big a problem the brain drain really is. Taiwanese managers have realised that they get dumped by Chinese companies after an average of five years, when all their know-how has been extracted. Then they cannot find jobs back in Taiwan, where they are seen as "traitors", says Lucy Chen of Isaiah Research, which studies the industry. Chinese attitudes have changed, too. Taiwanese used to be looked up to as managers and experts, but now they feel more like "mercenaries" or "just one of the workers", says a Taiwanese-American executive who worked in China for many years. Moreover, China's

covid-19 lockdowns and pressure from American and Taiwanese governments are persuading many to go home.

If Taiwan wants to keep its edge, says Mr Chen, the government should not rely on vague laws. Instead, it should help other semiconductor companies improve their own policies to protect trade secrets, which can be costly to implement. That is a view echoed by Richard Thurston, TSMC's former general counsel. He says it would allow Taiwanese firms to keep growing while protecting them from rivals—not just Chinese firms but other foreign and domestic ones, too. TSMC's main competitor is not a Chinese company, but Samsung, which is South Korean. In 2015 TSMC won a legal battle against Liang Mengsong, an executive who moved to South Korea and leaked trade secrets there. ■

America and South Korea

Quiet comfort

SEOUL

To strengthen the alliance, deter North Korea but don't mention China

WHEN PRESIDENT JOE BIDEN paid a visit to South Korea on May 20th, the first stop on a five-day tour of East Asia, he brought a special present for his South Korean counterpart, Yoon Suk-yeol, who took over as South Korea's president on May 10th, now owns a replica of the sign that adorned the desk of Harry Truman, the president who sent American soldiers to fight in the Korean war in 1950. It reads, "The buck stops here."

Beyond the congratulatory gesture, the gift alluded to America's responsibilities as South Korea's oldest ally and defender against the nuclear-armed dictatorship to the north. It set the tone for Mr Biden's visit, during which he and Mr Yoon vowed to expand their countries' military co-operation, strengthen deterrence against North Korea and work together on a host of other issues from supply-chain resilience to space exploration.

The commitment to more deterrence was put to the test soon after Mr Biden left Japan, the second stop on his trip. On May 25th North Korea launched three missiles off its east coast. South Korea's armed forces said one of them was likely to have been an intercontinental ballistic missile, which America regards as particularly provocative. Such weapons may be capable of hitting its own shores. On the same day the South Korean intelligence service said it had evidence that the North had been trying a nuclear detonator over the past few weeks, probably in preparation for a nuc-

lear test. America and South Korea responded by affirming the commitment Messrs Yoon and Biden had made just days before, conducting their first publicly declared joint missile launch in five years.

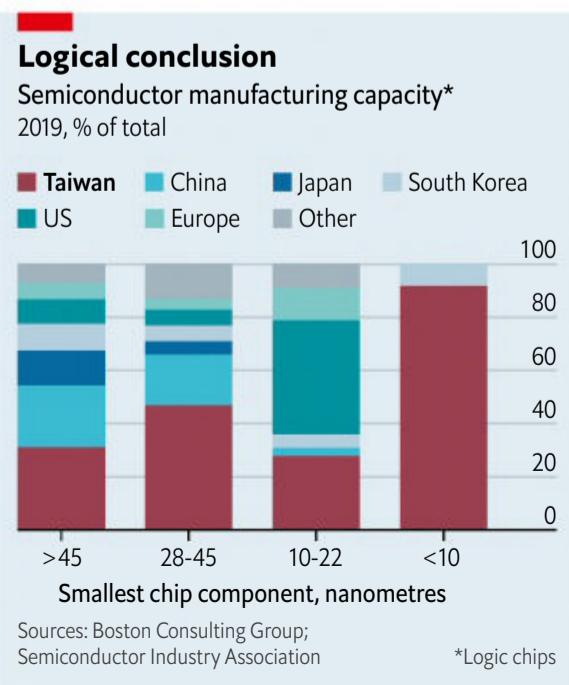
The show of strength echoed the general tone of Mr Biden's visit. Earlier in the week the president had made headlines with an offhand remark, quickly walked back, about how America might get involved militarily should Taiwan be invaded (see previous story). Big items on the agenda aimed to assure allies of America's commitment to countering China's increasing heft in the region. These included a meeting with leaders from the Quad, a loose grouping of America, Australia, India and Japan, and the launch of the Indo-Pacific Economic Framework, a plan to strengthen America's economic presence in Asia. In a joint statement with Kishida Fumio, Japan's prime minister, in Tokyo on May 23rd Mr Biden admonished China for its failure to condemn Russia's invasion of Ukraine and for its coercive actions in the South China Sea.

Yet when it came to South Korea's relationship with China, Mr Biden trod more carefully. The joint statement he and Mr Yoon issued at the end of his visit ran to nearly 3,000 words but did not mention China. That reflects South Korea's wariness of antagonising its largest trading partner. Memories are still fresh of China's economic boycott of South Korea following the deployment of an American missile-defence system there in 2017.

For South Korea, diversifying supply chains by building trade links with other Asian countries might reduce China's ability to hold it to ransom. So might an American commitment to step in with economic assistance should a situation like that in 2017 repeat itself. Mr Biden is right that the best way to counter China is to reassure allies in the region of America's reliability. But in certain places, if not others, such assurances may be best uttered quietly. ■



The rug stops here



Thai politics

Chadchart topping

BANGKOK

An election in Bangkok heralds an optimistic new kind of politics

ON MAY 22ND 2014 soldiers kidnapped Chadchart Sittipunt, then Thailand's transport minister, detaining him and other cabinet members in an undisclosed location for a week while army generals seized power in a coup. Eight years later to the day, Mr Chadchart was elected governor of Bangkok, the country's capital, by a landslide—he won 52% of the vote.

Among his rivals was Aswin Kwanmuang, the incumbent, who was appointed by the junta in 2016. With a mere 8% of votes, Mr Aswin took a humiliating fifth. Though he ran as an independent, he was seen as the preferred candidate of Palang Pracharat (PPP), the army's proxy party. The PPP has run the country since 2019, when the junta tried to give itself a sheen of democracy by holding elections. The Bangkok vote was widely regarded as a referendum on the government of the prime minister, Prayuth Chan-ocha, the senior general who seized power eight years ago. It was the last one before a general election, which must be called by next March.

Mr Chadchart's election may mark a turning-point in Thai politics. The last two decades have seen vicious fights between conservative, pro-army "yellow shirt" royalists and pro-democracy "red shirts" and student protesters, which have sometimes tipped over into violence. Mr Chadchart used to belong to the latter camp, as a member of Pheu Thai, the party of Thaksin Shinawatra, a populist former prime minister. But he now styles himself a moderate. His technocratic background (he is a former engineering professor), friendly manner and promise to govern from the middle appealed to both red and yellow shirts. His victory suggests Bangkokians are ready to "move on" from the political strife of the past two decades, says Stithorn Thanathichot of King Prajadhipok's Institute, a Thai think-tank.

Whether the rest of the country is ready for Mr Chadchart's new, conciliatory style of politics remains unclear. Seeing the overwhelming support for Mr Chadchart in Bangkok, Mr Thaksin predicts a landslide victory for his Pheu Thai party at the general election. His optimism may be premature. Many yellow shirts voted for Mr Chadchart precisely because he distanced himself from his old party, which they loathe. Two important parties in the governing coalition—the pro-army PPP and Bum Jai Thai—did not contest the election.



Songbird competitions

Avian idol

JAKARTA

Indonesians know why the caged bird sings

SOME MEN spend their weekends watching football. Imam Safi'i and his mates spend theirs watching songbirds warble. Hundreds of songbird contests take place across Indonesia every year. On most weekends Mr Imam and his friends attend duels in Jakarta, the capital, rooting for their pet crooners. The birds are assessed by referees who grade the complexity and range of their melodies, as well as their stamina and posture as they flit around their cages.

Owning a champion bird is not just a matter of pride. Winners receive televisions, motorcycles, cars and cash prizes of hundreds or thousands of dollars. Over the past four years Ethes, Mr Imam's stone magpie, has racked up scores of trophies and enriched his owner by some 15m rupiah (\$1,000)—half the average annual wage. Mr Imam attributes his bird's success to love, care and good nutrition. Looking after songbirds, he says, is like looking after children.

Indonesians have come to regard songbirds as a "social and financial asset", writes Paul Jepson of the Universi-

ty of Oxford, and competitions as an opportunity to network. They also provide an excuse to hang out with buddies. Tournaments are "boisterous" and a "great time", says Mr Imam, especially when Ethes is not competing. Watching songbirds challenge each other in a kind of Avian Idol "relieves our stress over the weekend". Men from all walks of life participate—even Joko Widodo, Indonesia's president, once entered his white-rumped shama in a competition.

The people of Java, Indonesia's most populous island, have kept songbirds, a symbol of Javanese knighthood, for centuries. But contests started to become common in the 1980s and 1990s, when enthusiasts began replacing imported zebra doves, whose vocalisations are fixed, with native passersines, which could be trained. This opened up the tournaments to anyone with the time and patience to coach their pets.

Ownership of songbirds in Java has doubled over the past decade. There are between 66m and 84m birds in captivity on the island. Nearly a third of households keep them, according to a survey conducted in 2018. Breeders cannot keep up with demand, and in any case it is wild birds that are prized for their supposedly superior vocal cords. So many birds have been whisked from the forests of Indonesia that more than a dozen species are in danger of extinction.

Traders are now ransacking Malaysia and Thailand, too. The Indonesian government is aware of the problem and forbids trade in protected species. In 2018 hundreds of birds, including songbirds, were added to that list. Yet traders exploit legal loopholes and patchy enforcement. As many as 1m birds were smuggled out of the forests of Sumatra, a big Indonesian island, in 2019, according to one estimate. Indonesia's love of birdsong threatens the songbirds themselves.

The latter, which won 10% of the vote in 2019, is popular in rural areas.

Yet conservatives must still be nervy. The PPP probably did not contest the governorship because it suspected the party would flop. Prajak Kongkirati of Thammasat University in Bangkok said at a post-election talk. Indeed, the party won just two of 50 seats in elections to the city council held the same day. By contrast, Pheu Thai and Move Forward, a social-democratic party popular with young peo-

ple, won a combined 34 seats. It did not help that many conservative parties fought each other in the governor's race.

No one in the ruling coalition will be more worried than Mr Prayuth. He has led the country for eight years, first as junta leader, then as prime minister after the constitution was rewritten to prolong his rule. Yet he has little to show for it, and his popularity is low and falling further. Conservatives must hope that Mr Chadchart is content with his new job. ■

Australian politics

Political weather

SYDNEY

Voters have made it clear that they want action on climate change

FIRST CAME fires, which incinerated an area larger than Britain and swallowed cities in a suffocating haze. Then came floods, which inundated towns in Queensland and New South Wales. Climate change has become harder to ignore since Australians last voted in a federal election in 2019. When they returned to the polls on May 21st, enough of them cast their ballots with the climate in mind to oust a conservative coalition government that had been in office for nine years. "Together we can end the climate wars," declared the new prime minister, Anthony Albanese (pictured), after his Labor Party won.

These wars have crippled Australian politics this century: three of the country's prime ministers have lost their jobs since 2010 for trying to cut emissions. Conservative politicians have stoked fear about doing so on the basis that it would dent the jobs and wealth generated by Australia's vast coal and gas industries. Yet they are increasingly out of touch with the public. Some 60% of Australians cite climate change as a "serious and pressing problem" which needs tackling even if "significant costs" are involved, according to the Lowy Institute, a think-tank in Sydney. Mr Albanese, or "Albo", as he is known, promises to do more about it.

His Labor government will set a goal to cut emissions by 43% by 2030, compared with 2005 levels—up from the coalition's 26-28%. It will focus on cleaning up electricity generation, the biggest source of Australia's carbon emissions. Most of the country's power comes from coal; in 2020 less than a quarter came from renewables. Mr Albanese wants to raise that to 82% over the next eight years, helped by a modernisation of the transmission network.

Still, his plans fall short of what scientists say Australia should be doing. They were "deliberately not very ambitious, to prevent attacks from the coalition", says Frank Jotzo, a climate economist. The results of the election suggest that many Australians would like Mr Albanese to have a tougher climate policy. Less than a third of them voted for Labor, making it the least popular government in Australia's history. Mr Albanese prevailed partly because his opponent, Scott Morrison, fared so poorly. Voters in cities and rich suburbs abandoned Mr Morrison's Liberals, the larger party in the conservative coalition, for new independent and Green candidates de-



Cleaning up

manding stronger climate action. Second votes, under a preferential voting system, helped push Labor to power.

Together, those new MPs represent a third force in Australia's parliament. Six "teals", independents named after the colour of their branding, won metropolitan seats held by the Liberals for generations. They called for cuts to emissions of at least 50% by 2030. The Greens, meanwhile, made gains in Australia's coal heartland, Queensland, snatching at least two constituencies in Brisbane. Overall, the number of independent and minor-party MPs in the House of Representatives has more than doubled. About a third of Australians voted for them—up from a quarter in 2019.

Mr Albanese will not need their support if he can eke out a majority in the lower house, which seemed likely as *The Economist* went to press. (Postal votes were still arriving.) The prime minister insists he will not change his emissions targets. Yet "he cannot ignore the pretty overwhelming vote to deal with this issue", says Frank Bongiorno of the Australian National University in Canberra, the capital. And Labor will not control the Senate. The Greens made gains there too, and will hold its balance of power. They will push for a ban on new coal and gas projects.

This is not the first time a government promising action on climate has been elected. In 2007 Australians voted in a new Labor prime minister, Kevin Rudd, who pledged to do more. His plans for an emissions-trading scheme were scuppered by the Senate, partly because Greens voted against them (the scheme was weak, they argued). Both left-leaning parties have "learnt from their mistakes to be more collaborative", says Mr Bongiorno. Australians know a move away from coal is coming. Conservative politicians may keep waging climate wars—but fewer citizens are enlisting. ■

Education in India

Testing situation

Widespread cheating is yet another symptom of a poor education system

AS INDIA'S EXAM season kicked off earlier this year Facebook groups dedicated to helping with preparations were inundated with offers of guaranteed academic success. "Get leaked questions and answers before your upcoming exam, 100% guaranteed and secured," read one. "Get certificate without sitting exams 100% legal," promised another.

India's education system is brutal. The bar for entry to university is extraordinarily high. There is a near-unlimited pool of applicants for the top institutions. Until it changed its policies this year, Delhi University, among the best, required prospective students to have scored at least 99% in their school-leaving exams. Stratospheric parental expectations only add to the pressure. Getting into university is not the end of it, either. High marks are necessary there, too, so that graduates can go on to foreign universities or find jobs at home. Plenty of canny (if dubious) entrepreneurs are only too happy to offer shortcuts to success—for a hefty price.

Cheating is thus widespread. It is also organised and elaborate. In a survey in 2021 by Learning Spiral, a big provider of online-exam software, 73% of university students admitted to cheating in online tests. Neha, who teaches at an engineering college in Maharashtra, a western state, reckons that 90% of her students cheat in some form.

At its simplest, cheating involves smuggling notes into the exam hall or buying stolen test papers. Students are routinely frisked as they enter the hall. Question papers are often kept under lock and key in police stations or government buildings. They are nonetheless commonly leaked on social media. Sarita Sinha, a former schoolteacher who now runs a prep centre, says she does not find this surprising. "Even if you lock it in police stations, you think the policemen do not have children?" she says. Yet it works both ways. Once a paper is out online, it quickly goes viral. This means everyone—including the authorities—discovers the leak and questions can be changed.

Officials are turning to ever more sophisticated and stringent measures. This year, the state of West Bengal installed internet jammers near schools in many districts. It also put CCTV cameras in exam halls and insisted students trade in their face masks for fresh ones provided by the school. More basic methods are also used:



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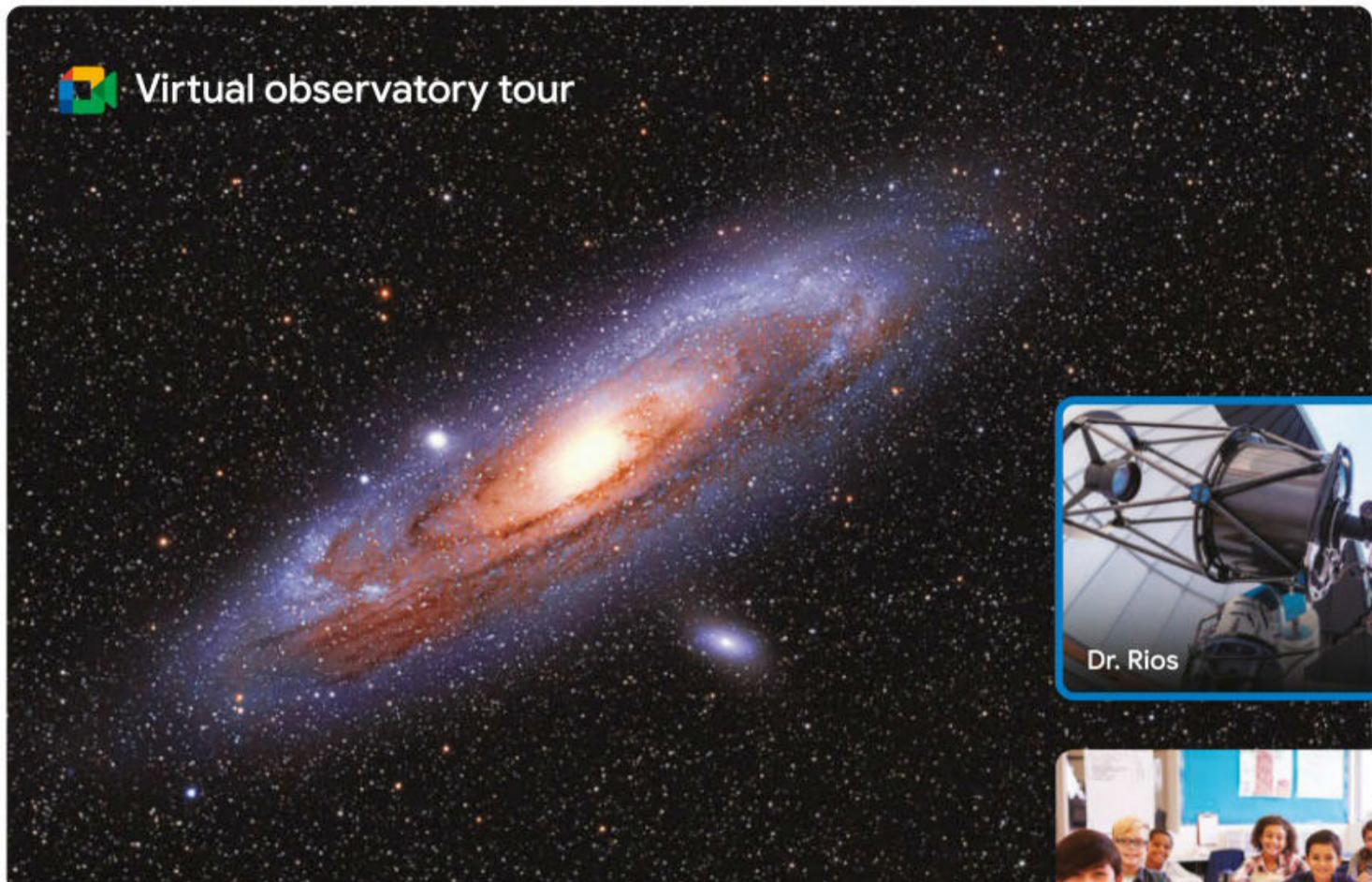
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16 4 8



Virtual observatory tour



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Amy

Charlie



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► in 2019, a school in Karnataka, in the south, forced students to wear cardboard boxes over their heads—cut open on one side—to foil cheating.

Yet even as officials come up with novel ideas, so do the cheats. In February, a medical student at Mahatma Gandhi Memorial College in Indore, a small city, was caught with a skin-coloured Bluetooth device surgically implanted in his ear. A phone linked to the device was sewn into a secret trouser pocket. Last year, ten students taking a trainee-teacher exam were arrested for attempting to use Bluetooth gadgets

concealed in the soles of their flip-flops. At least 25 students had bought such footwear from a gang for 600,000 rupees (\$7,700) a pair. It is often mandatory for students to remove shoes and socks before exams.

Parents, too, sometimes help with the cheating. In 2015 dozens of them scaled the outside of a five-storey building to pass answers to their schoolchildren taking crucial year-end exams inside. Hundreds, including parents, were arrested and at least 750 students expelled.

The problem may be with the education system itself, rather than any innate dis-

honesty among students. Teachers receive low salaries and can be bribed to help or turn a blind eye. Schools care about pass rates. Learning revolves around memorisation rather than understanding or reasoning. Outcomes are poor. Exams requiring thought rather than regurgitation would be harder to memorise, says Ms Sinha. The quality of education would improve, too. The Indian government is mulling changes to the way it assesses students at higher levels. Until then, the cat-and-mouse game between students and invigilators is doomed to continue. ■

Banyan The Abe era

Abe Shinzo, a hawkish former prime minister, still looms large over Japan

THE MENUS during President Joe Biden's visit to Tokyo this week reflected the tastes of Japan's prime minister, Kishida Fumio, whose family is from Hiroshima. There were Hiroshima beef fillets, Hiroshima vegetables and Hiroshima lemon sodas. The agenda, however, owed more to Abe Shinzo, a former prime minister who led the country from 2012 to 2020.

Japan promised to spend much more on defence and urged America to rejoin an Asian trade pact the bigger country had ditched. Both are longtime causes of Mr Abe's. Mr Kishida chatted with Mr Biden about the "Free and Open Indo-Pacific", a concept Mr Abe codified. The two leaders met their Australian and Indian counterparts as part of the Quad, a grouping Mr Abe championed.

Though Mr Kishida leads the ruling Liberal Democratic Party (LDP), and thus Japan itself, the party remains under the sway of Mr Abe, especially when it comes to foreign and security policy. "Kishida is not the agenda-setter for Japan—Abe is," says Tobias Harris, the author of a biography of the former prime minister.

Mr Abe's basic strategy remains the default for Japan: doubling down on the alliance with America while beefing up its own defences and strengthening partnerships with third countries to counter China's rise. Even the opposition has struggled to articulate an alternative course. As Michael Green, an American academic and former government official, argues in a new book, "Line of Advantage", the trajectory set under Mr Abe looks likely to endure for a generation: "What is now in place is a grand strategy for the era of Abe Shinzo—not just the tenure of Abe Shinzo."

Yet while the direction has been set, the country has yet to arrive where Mr

Abe would like: a Japan less shackled to its post-war past and more autonomous in its security. "Japan likes to speak about an ideal world," Mr Abe tells *The Economist*. "But we must change our attitude of leaving all military matters to America. Japan must take responsibility for peace and stability, and...work together with America to achieve it."

That unfinished business may be one reason why he has eschewed a quiet retirement. His mentor, Koizumi Junichiro, a former prime minister, retired from politics soon after leaving office and lent his voice to the superhero character Ultraman King in "Mega Monster Battle Ultra Galaxy: The Movie". After stepping down as prime minister because of a chronic illness in 2020, Mr Abe immediately returned to the Diet, where he now leads the LDP's largest faction. He has used his voice to continue calling for a more assertive security policy, a cause that has taken on a new urgency after Vladimir Putin's invasion of Ukraine.

The Japanese people have had to "face the reality" that invasions are possible in the modern era, Mr Abe says. Since leaving

office, he has talked more openly about the defence of Taiwan. Recently, he has urged Japan to discuss hosting American nukes, as some NATO members do. As for the time and political capital he spent on his 27 meetings with Mr Putin, he does not regret it "at all"; he backs Mr Kishida's tougher approach to Russia in the wake of the invasion.

He seems determined to use his bully pulpit—and his big voting bloc in parliament—to pragmatically advance his goals, rather than picking ideological fights. His talk of hosting American nukes is intended to end the "taboo" around discussing nuclear deterrence, not to make the idea an immediate reality, Mr Abe insists. Instead of making a renewed case for revising Japan's post-war constitution, he touts the "epoch-making" nature of the more limited legal changes he managed to pass, which allow the Japanese Self-Defence Forces to operate in a wider range of situations.

Yet in Japan, Mr Abe remains a polarising figure. To some observers, his recent outspokenness points to the re-emergence of Abe the ideologue, freed from the responsibility of higher office to push the nationalist causes with which he has long been identified. Mr Kishida, a more vanilla figure, may in fact be better placed to move the LDP's security agenda forward. Since fewer people, especially liberals, have "an allergic reaction" to Mr Kishida, he may find it easier to get Japan to "swallow bitter medicine", says Akita Hiroyuki, a commentator for *Nikkei*, a Japanese daily. Mr Abe's plans for beefier Japanese security, in short, may go down better with a slab of Hiroshima beef.



To read a full transcript of *The Economist's* interview with Mr Abe, please visit economist.com/AbeInterview





Rumours and leadership struggles

How to see Xi

Reading the runes in a year of political tension for China and its ruler

AMID THEIR frantic efforts to halt the spread of covid-19 and revive a sputtering economy, officials around China have also had to attend some routine meetings. They involve lectures on the need for absolute loyalty to the country's leader, Xi Jinping. "Turn your hearts to the general secretary", rural bureaucrats were instructed at one such gathering this month in south-western China. Later this year Mr Xi is expected to be anointed for another five years as Communist Party chief. The strong unspoken message of these meetings is that no one else can do the job.

Few analysts doubt that Mr Xi will begin an unprecedented third term after the party's 20th congress, which will probably be held in the autumn. But it is safe to assume that his "zero-covid" policy, which this year has resulted in widespread lockdowns and swingeing damage to the economy, is causing political stress. Even on China's censored social media, it is clear that public anxiety about the government's handling of the pandemic is growing.

Such a climate naturally breeds speculation about disharmony within the lead-

ership. In recent days rumours have spread—not least through Chinese-language media abroad—of divisions in the party and high-level opposition to Mr Xi's career plans. Though flimsily sourced, they deserve attention—not as indicators of any real impediment to Mr Xi's extended rule (the loyalty meetings strongly suggest he is well on track for that), but as reminders of how handicapped outsiders are in their study of China's ruling elite.

Analysis is not made easier by wishful thinking. There are probably many in the party and business elite who would like to see the back of Mr Xi. His anti-corruption campaign has targeted some 4m officials, including about 400 at or above the rank of deputy minister. Many intellectuals resent

Mr Xi for tightening ideological controls and for his ruthless crushing of dissent. Among ordinary Chinese Mr Xi is widely admired as a strongman who has boosted China's global clout. Many also remain convinced that the West's handling of covid is a death-stalked disaster. Still, Mr Xi's pandemic controls are brutal for a growing list of cities and business sectors.

In such an oppressive political environment, any leader who appears less harsh than Mr Xi attracts attention. The party's second-highest-ranking member, Li Keqiang, the prime minister, is one such—an economic reformer who, unlike Mr Xi, appears at home with Westerners (and speaks good English). A few years before Mr Xi took over as ruler in 2012 there was speculation that Mr Li was in the running for the job. Those who crave a return to warmer relations between China and the West, and less of a role for the party in China's economy, are naturally disposed to seize on signs that Mr Li—a distant number two to Mr Xi—is gaining political ground.

Much of the recent rumour has focused on Mr Li's visibility in state media, his warm words to businesspeople (who have been quivering, following a crackdown on China's tech giants) and his forthright remarks on China's economy. On May 25th Mr Li said China's economic difficulties were greater "in some aspects" than the initial impact of the pandemic in 2020. Could this signal a shift, some wonder, away from Mr Xi's ideologically driven campaigns that have spooked investors? ►

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► Earlier this year Mr Li confirmed that he would step down as prime minister when his two terms—the maximum allowed by China's constitution—are up next March. (In 2018 Mr Xi engineered the scrapping of the two-term limit on his own concurrent job as state president, thereby making it easier for him to stay on as party chief, the state and party positions normally being held by the same person.) But Mr Li could still influence the choice of his successor.

Evidence of a Xi-Li struggle is thin, though. Mr Xi remains far more prominent and very much in charge. State media still gush about the president as well as policies closely linked to him, such as the zero-covid strategy. On May 21st the armed forces were reminded to include the “two establishes” in their political-training programmes—shorthand for the party's decision to establish Mr Xi as its core, and his thought as part of its guiding ideology. On May 24th state media began serialising fawning accounts of Mr Xi's trips around the country during the past ten years. China Media Project, a research group in Hong Kong, notes that occasional absences of Mr Xi from the front page of the *People's Daily*, the party's main mouthpiece, are in line with historical trends.

At times of great stress, such as that China's economy is now facing, it is not unusual for Mr Xi to push others to the fore. In the early stage of the pandemic, in January 2020, Mr Li was the first central leader to visit the city of Wuhan, where covid was discovered. In August last year Mr

Li, not the president, paid a visit to Zhengzhou after flooding killed hundreds in the city. China's paramount leaders have a record of working with prime ministers who cultivate an image of being in tune with public suffering. Zhou Enlai played such a role under Mao Zedong. Wen Jiabao did so under Hu Jintao, Mr Xi's predecessor. No obvious power struggles were involved.

There are certainly fewer whiffs of one today than ten years ago, in the build-up to the handover of power to Mr Xi at the party's 18th congress. Early in 2012 a member of the ruling Politburo, Bo Xilai, was arrested after what officials later described as an attempt to stage a coup. Months before the 13th congress, in 1987, a struggle between conservatives and reformers led to the toppling of a general secretary, Hu Yaobang (a subordinate of Deng Xiaoping).

The fear that Mr Xi has struck in the bureaucracy with his purges and campaigns, and his stranglehold on the media, would make it more difficult today to detect such splits. Inside information about the party has fewer channels through which to spread. Even before the pandemic, China was expelling record numbers of Western journalists; covid has made it even less eager to issue visas. Mr Xi has not met the leader of any G7 country face-to-face since the pandemic began. The signals he and his system are sending may not yet convincingly suggest that serious fractures are forming. But given these challenges, as the 20th congress approaches, even the faintest of signals will need close attention. ■

Unemployment

Storming the fortress

HONG KONG

Faced with a grim job market, many youngsters would rather not enter it

MARRIAGE, ACCORDING to a French proverb, is like a fortress besieged. Those outside want to get in; those inside want to get out. That thought, immortalised in the title of a novel by Qian Zhongshu from 1947, has more recently been applied to China's graduate schools. At the end of last year, a record 4.6m people tried to storm these fortresses by taking the postgraduate admissions exam, an increase of over 21% from the previous year.

Some of these test-takers may have an abiding thirst for knowledge. But more than a few are probably keen to delay their entry into China's labour market. The urban unemployment rate for young people aged 16 to 24 averaged over 14% last year. In April it rose to 18.2%, its highest level since the survey began in 2018 (see chart on next page). Earlier this month Li Keqiang, China's prime minister, described the employment situation in China as “complex and grim”. One of his potential successors, Hu Chunhua, identified college graduates as a group of key concern.

This group will be unusually big this year: 10.8m, about 18% more than in 2021. Less than half of those wanting to start work after they graduate have already received a job offer, according to a survey last month by Zhaopin, a recruitment firm. That compares with over 60% at this time last year. They have also settled for lower pay. Their average monthly salary was about 6,500 yuan (\$970), compared with almost 7,400 last year.

Their plight is easy to explain. The increased supply of university-leavers has met faltering demand. The economy is shrinking thanks to China's strict “zero-covid” policy, which has locked down some of the best-educated parts of the country, such as Shanghai and areas of Beijing. China's services sector, which employs many college graduates, contracted by over 6% in April, compared with the previous year.

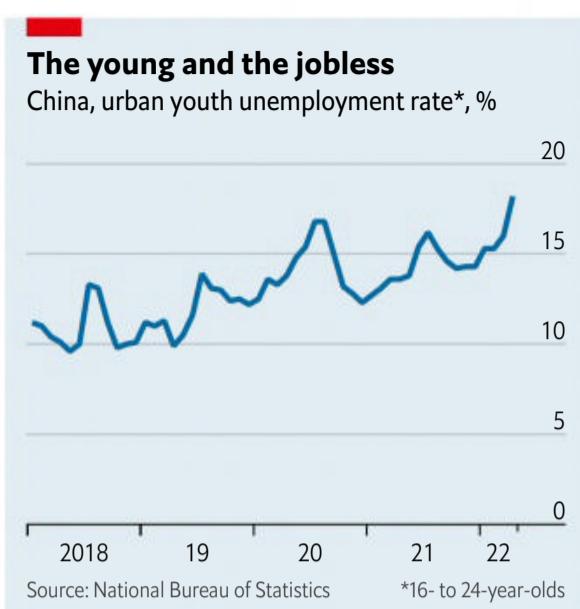
Even before China's covid lockdowns, its regulatory crackdowns had inhibited demand for college graduates. The government has imposed fines, limits and new obligations on China's technology companies. For example, a nine-month freeze on new licences for video games damaged Tencent, China's most valuable private firm. It is scheduling lay-offs. “Winter is coming,” says the company's chief, Pony Ma, according to *Caixin*, a magazine.

A bleak season has already arrived for ►



A timely reminder

Thousands of documents and photographs shed new light on China's abuses in the region of Xinjiang, where it is accused of detaining some 1m Uyghurs and other minorities. The cache includes mugshots of detainees, some as young as 14, and security protocols that describe a shoot-to-kill policy (after a warning shot) for anyone trying to escape from the government's “re-education” camps. The files, which date from 2018, were reportedly hacked from police computer servers and released by the Victims of Communism Memorial Foundation in Washington. The leak came as Michelle Bachelet, the UN's human-rights chief, began a highly choreographed tour of Xinjiang.



► China's edtech firms. Under what is known as the "double-reduction policy", the government has tried to cut the burden of homework and private tutoring on children and their parents. Many of the 4.6m people competing to enter graduate school to consume more education might once have joined an edtech firm producing it. In this way a policy to lighten the burden of education on the young has extended the education of the slightly less young.

When job prospects turn precarious, job aspirations turn conservative. College-leavers now crave stable jobs over dynamic ones. State-owned enterprises are their first choice, preferred by 44%, according to Zhaopin. Private enterprises lost popularity. Young people also seem keen to join the civil service. They have displayed a similar enthusiasm for the civil-service entrance exam (or *kaogong*) as they have shown for the postgraduate test. There were 46 civil-service test-takers per opening in the most recent exam, according to the government. Luo Ziheng, an economist at Yuekuai Securities, describes the rush to take the test as "*kaogong fever*". He contrasts it with the confidence with which civil servants quit their safe, dry jobs in the 1990s to dive "into the sea" of private employment.

China's restrictions on travel, and its success last year in containing covid, persuaded many young Chinese who had been studying abroad to come home. The number returning may have exceeded 1m, according to the State Information Centre, a government think-tank, adding to the pressure on the labour market. China's draconian lockdowns this year may cause some to regret their choice.

The hapless protagonist of Qian's novel also returns to China at a difficult juncture in its history, after a spell studying in Europe. In this tale, his foreign education is not much of an asset. After finding work at a Shanghai newspaper, he confesses to his appalled parents that his wife, who works at a factory, earns twice as much as he does. The fortress of his marriage, heavily besieged, swiftly crumbles. ■

Corruption

No mercy

SHANGHAI

Trouble at the top and bottom of the financial sector

THE PROTESTERS gathered outside the office of the banking regulator in Henan province have a simple demand: "Return our deposits." Thousands of customers of three rural banks in the region recently discovered that they were unable to withdraw their funds. They have been cut off from at least \$178m, according to Reuters, a news agency. Met with silence from local officials, many aggrieved customers descended on Zhengzhou, the provincial capital, carrying signs and chanting slogans. Videos that have circulated on Chinese social media show dozens of people kneeling in the middle of a road, disrupting traffic as they beg for their money to be returned (pictured).

Such scenes resonate beyond provincial borders. Central regulators in Beijing, the capital, often view incidents like this as threats to social harmony. China's leader, Xi Jinping, sees financial stability as underpinning the Communist Party's rule. But bank runs and other signs of distress at small lenders are on the rise. And there is trouble at the top of the sector, too.

The details are fuzzy, but a spate of recent investigations, part of a months-long crackdown on corruption, has ensnared several prominent bankers and officials. Wang Bin, the former head of China Life, a state-owned insurer, was arrested in January. Wang Ye, the former president of the Shenzhen branch of China Construction Bank (CCB), a state lender, was detained in



They'd like to make a withdrawal

April. Shortly thereafter, a probe into Tian Huiyu, then president of China Merchants Bank (CMB), a large commercial lender, was announced.

Regulators have also been targeted. Sun Guofeng, a former senior official at the central bank, and his wife were detained on May 18th. Zeng Changhong, a former official at the China Securities Regulatory Commission, was arrested in April. More than 40 finance officials have been investigated or penalised since October, reckons Bloomberg, a news agency.

China's financial system is notoriously opaque. So the damage wrought by crooked bankers often goes unseen, sometimes for years, before exploding into the open in the form of enormous losses for investors. Corruption can lead to bad investments, toxic debts and capital outflows, says Zhu Jiangnan of the University of Hong Kong. These can quickly become threats to financial stability.

The arrest of officials sometimes portends years of chaos at state firms. Take the troubles of Huarong, a state-owned investment group that required a \$6.6bn bail-out in November. Its chairman, Lai Xiaomin, was detained suddenly in 2018 and accused of extraordinary graft and debauchery. It was later revealed that Lai was at the centre of a web of bad loans and unrecoverable investments that pushed Huarong to the brink of collapse. That, in turn, posed a threat to the financial system. Lai was executed for his crimes in January 2021.

Loans among friends

With many of its cities facing pandemic-related restrictions, China's economy is struggling. That has heaped pressure on poorly run companies and laid bare dodgy lending. A crisis in the property sector appears to explain at least some of the problems at banks. Those in trouble often have relations with land developers and other firms that are far too cosy. The three banks in Henan are majority-owned by developers (a common arrangement in China). The authorities there are chasing several people connected to the deposit crisis, including a businessman who has fled abroad, Chinese media reported.

The detained officials from CMB and CCB are said to be linked to loans granted to a property company, Tahoe Group, that has since defaulted on its debt. Tahoe was also a customer of Huarong. With the economic situation expected to get worse, dirty dealings by other senior bankers will probably come to light. Mr Xi, meanwhile, is looking forward to a crucial party congress later in the year, at which he is expected to launch a third term as party chief. Stability is the key, say officials. Expect the government to continue upholding its promise, made in January, to "show no mercy" in its fight against corruption. ■

Chaguan | A generational divide

Older Chinese intellectuals find the young childish, nationalist and scary



IN RECENT DAYS, scholars of culture in China have been locked in a serious argument about a silly claim: namely, that young people are killing the Chinese language. Their wrangling has filled social-media sites followed by liberal intellectuals, a lively but embattled online world where blog posts may be censored after an hour, but still earn hundreds of thousands of views in that time.

A first rock was lobbed into this intellectual pond on May 20th, with a post entitled "Chinese is probably dead". The author accuses younger netizens and writers of adopting the language of "giant babies" when discussing grave and grown-up topics. Using the pen-name Wang Zuozhongyou (or Wang Left-Centre-Right), he reserves special loathing for euphemisms that soften the rough edges of China's "zero-covid" policy, in both social media and official news reports. He notes how pandemic workers in white full-body suits are often called "Big Whites", a reference to a cute robot from a cartoon film. In a play on words, people who test positive for covid-19 are called "little sheep" or "two-legged sheep" (the characters for positive and sheep sound the same), and are congratulated for "graduating" when they emerge from quarantine hospitals. This is reducing the suffering of others to children's jokes, the blogger grumbles. His post was censored within about 24 hours, but not before it was widely copied and shared.

Many intellectuals share Mr Wang's worry that China's public discourse is being infantilised. Several well-known bloggers criticised a recent fad for posting online videos of children, but also young adults, dancing and performing "Listen to Me Say Thank You", a sickly-sweet and popular song, for pandemic workers. Others, notably former journalists from news outlets once famous for testing the boundaries of free speech, point to the sentimental yet censorious reactions of many netizens to fatal accidents and natural disasters. The crash of a China Eastern airliner in southern China in March, which left 132 dead, saw some bereaved relatives feeling obliged to apologise, after being scolded online for sharing their grief too publicly. At the same time, other social-media users treated the search for the plane's flight data and voice recorders as a child's game, posting and reposting such lines as: "Black boxes, lots of people are looking for you, don't hide!"

Intellectuals are largely united in loathing such baby-talk. But

as they respond to Mr Wang's recent online blast, several charge him with focusing on the wrong crisis. It is not the Chinese language that is dying, they suggest, but freedom of thought. Many young Chinese "have internalised the standards imposed by censorship and accepted them, and now use them to rein in other people," argues a journalist-turned-blogger. Rather than dig too deeply into why bad things happen, young Chinese have been trained to take refuge in shallow sentiment, "using feeling to replace thinking," adds the ex-reporter. As for bloggers with larger followings, they see profit and safety in simple, emotive posts that drive clicks and avoid trouble from the authorities.

This is a proxy argument, in other words. The Chinese language is not literally dying. With almost a billion people now regularly connected to China's strictly controlled internet, according to official figures, there has probably never been so much written Chinese in existence. Rather, older liberals, scholars and writers are showing that young people baffle and disappoint them.

Throughout the history of modern China, intellectuals have pinned high hopes on the country's youth. In the early 20th century, young writers and readers helped break the grip of stagnant, classical forms of Chinese, in favour of new and liberating vernacular styles. But there is a difference between youthfulness and childishness. Young radicals and revolutionaries have shaken modern China several times, from the nationalist May 4th Movement in 1919 to the Cultural Revolution unleashed by Mao Zedong from 1966 to 1976, and the bloodily suppressed student protests of 1989. In each of those moments of revolt, the young sought to be the equals of adults. Maoist Red Guards, some of them school pupils, were often cruel and fanatical, but they were not infantile. In 1989 hunger-striking university students repudiated the bonds of filial loyalty as they swore that they would die to secure freedoms for China, telling their parents: "Please forgive us. Your children cannot be loyal citizens and worthy children at the same time."

Baby-talk has its limits

As the Communist Party moved to reassert its authority after the traumas of 1989, it set out to redefine youth as a time for obedience, diligence and hard work for the Motherland, rather than rebellion. To that end, propaganda chiefs are not above using childish language themselves. In official media aimed at young people, the decades-long armed stand-off between China and the democratic island of Taiwan is sometimes presented as a family saga, with "A-Zhong Gege" (elder brother China) offering lessons to the little island "Wan Wan" (a diminutive for Taiwan). In President Xi Jinping's first years in office, officially endorsed songs and media posts talked of "Xi Dada", or Uncle Xi, though such informality is rarer today, replaced by deferential praise for the "people's leader". A mascot culture popular across East Asia has been co-opted by China's rulers, with umpteen outfits, from the Communist Youth League to the police force, creating wide-eyed, childlike cartoon characters to deliver the party line.

Especially online, many young Chinese may sound more conformist, nationalist and even childish than liberal intellectuals would like. Cut-throat commercial competition has combined with oppressive censorship to make much of the Chinese internet an increasingly shallow and cynical place. Still, it is unfair and unwise to dismiss all young Chinese as giant babies. These are grim times to be young in China, with the economy faltering and graduate jobs in especially short supply. If those without hope find a voice, their anger will not be safely ignored. ■



Enforcing sanctions

Spies like us

Outraged by Russia's war, anonymous tipsters are helping detect sanction-busters

NEVER BEFORE have Western economic sanctions proliferated in such numbers. More have been slapped on entities connected to Russia since its invasion of Ukraine on February 24th than had been applied to entities worldwide in the previous decade, says Paul Feldberg, a partner in the London branch of Jenner & Block, a law firm. Big money is at stake. In 2014 America fined BNP Paribas, a bank, nearly \$9bn for violating sanctions on Cuba, Iran and Sudan. But governments out to enforce the sanctions, and companies trying to stay on the right side of them, are finding the work devilishly hard. Many of the Russian entities subject to sanctions are much bigger, more complex and more deeply embedded in global business networks than previous targets in, say, Iran, Myanmar, North Korea, Syria or Venezuela.

Another challenge is that America and its allies have issued numerous "narrative" or "implicit" sanctions, which apply not just to cited entities but also to thicket of unspecified ones connected in shadowy ways. Labyrinthine business structures must therefore be carefully mapped, says

Christopher Stringham, a lawyer in Vienna with Refinitiv, a data firm that does just such mapping to help clients avoid steep fines. He tells the story of a London-based company his team identified as part of a sanctions-hit Russian energy firm. Searches in government registries had run "into the sand". Eventually, however, the team found, on page nine of a Russian-language prospectus not searchable in databases, an oblique reference to certain debt instruments issued by the London firm on behalf of the Russian company. That was enough for the British company to qualify as a subsidiary subject to sanctions.

Mr Stringham reckons that with a bit more effort the subsidiary could have ducked "completely under the radar". Russia's government seems keen to help firms and oligarchs do so. For years Russian authorities have tolerated corporate filings with falsehoods meant to sidestep Western sanctions, he says. In recent weeks Russia has also sharply restricted access to corporate registries and cut back on publishing data on energy production and trade. Rather than struggling with the trustwor-

thiness of information, Mr Stringham says, "now we just don't have access at all."

Relevant information is disappearing in other ways, too. Many Russian companies and tycoons have hastily sold or transferred assets like ships and stocks to entities unlikely to be hit with sanctions. Those deals can look legit. In many cases, however, legal documents have also been prepared to preserve the original owner's control. And, says Alexander Dmitrenko, an expert on Russia and Ukraine in the Tokyo offices of Ashurst, a law firm, "that paperwork isn't visible."

Given the opportunities for deceit, the deck might seem stacked in favour of those seeking to evade sanctions. But investigators trying to detect sanctions-cheaters—for government agencies, pressure groups, or insurers and other businesses—are encountering a surge of help from an unexpected quarter. Russia's attacks on Ukrainian civilians have stoked widespread outrage, in no small part because of the flood of shocking imagery on social media. As a result, people with visibility into business dealings involving Russia have begun to disclose, on the sly, details of transactions they suspect are improper.

It takes time for enforcement actions to play out, and these are early days. But consider the experience of Bellingcat, a muckraking outfit in Amsterdam. Christo Grozhev, Bellingcat's lead investigative journalist for affairs linked to Russia, says the horror of the Kremlin's war is leading people to reach out with tips about Russian ►

► wrongdoing. Someone who works in Russia for a company based in Paris recently sent Bellingcat internal documents that suggest a shipment of supposedly humanitarian goods actually contains gear for Russian soldiers. To protect the employee's identity, Bellingcat is working to prove the wrongdoing through other means. It has obtained phone records showing calls between Russia's Ministry of Defence and an organisation connected to the Paris firm.

Bellingcat's new informants are taking greater risks than once was customary, probably because Russia's war is generating such disgust. As Mr Grozov puts it, "Job security is taking a back seat." If the fighting grinds on, he expects the good tips from within Russia to multiply.

Oil leaks

One outfit that saw the opportunity to cultivate new sources of information early on is the Russian Tanker Tracking Group (RTTG). Hastily put together by Ukraine's government after the invasion, the RTTG serves as a clearing-house for tips from people knowledgeable about trade in Russian oil, from crew members to foreign officials, says Oleg Ustenko, one of RTTG's leaders. Mr Ustenko, who is also economics adviser to Volodymyr Zelensky, Ukraine's president, says the RTTG's network of unpaid informants has grown with revelations of Russian war crimes.

Though cagey about RTTG's informants, Mr Ustenko describes many as "ordinary people". Legions of Ukrainians, he notes, work on ships. (The International Chamber of Shipping, an industry body, recently tallied 76,442 Ukrainian mariners.) "They might be a good source," he observes. Mr Ustenko, who works from an undisclosed location in Ukraine, boasts that the RTTG has such detailed information that it often knows the breakdown of nationalities of the crew on a given run by an oil tanker.

The RTTG shares tips with Ukrainian and foreign authorities. But because so much of Russia's oil trade remains legal, the RTTG also publicises information about shipments in hopes of generating political and consumer pressure. The stench of association with Russia has led some insurers and Western energy companies to limit involvement with what Louis Wilson of Global Witness, a pressure group that works with the RTTG, calls "blood oil". Similarly, stories about multinationals still doing business with Russia are multiplying in the Ukrainian press and then being blasted out by Ukrainian public-relations firms to publications worldwide.

Russia has stopped publishing monthly trade numbers. But *The Economist* has estimated that Russia's imports have fallen by about 44% since it invaded Ukraine, while its exports have risen by roughly 8%, in

part because Russia is earning about \$1bn a day from the sale of oil and gas. Although it is not known how much banned trade may be under way, it is thought that Russians are particularly keen to import industrial machinery; advanced semiconductors; parts for aircraft, rockets and spacecraft; components for radio communications; and luxury goods such as cars and jewellery. Russian businesses are believed to be eager to illicitly export wood products, seafood and liquor.

Because trade is so decentralised and diffuse, conducted via closed shipping containers or in the form of fungible commodities, an informal, global network of low-cost or volunteer spies can be of particular value in spotting smugglers. Samir Madani is a co-founder of TankerTrackers, a firm with analysts in London and Stockholm. Much of the information his team parses comes from people paid to snap photos of tankers in and near ports (the hull's draught reveals how much oil is on board). But TankerTrackers also receives tips free from workers. The information sometimes includes pictures of falsified shipping documents. The scoops are typically sent to a "burner" smartphone that TankerTrackers keeps in its Stockholm offices, where Mr Madani works.

In the past, such tips have tended to come from sailors and port workers fed up with the dictatorships they live under. Tips about Iran's cheating on sanctions—Mr Madani calls it "wholesale obfuscation"—multiplied after Ebrahim Raisi, a hard-liner, was elected president last June. As Venezuela's economy fell to new lows several years ago, disclosures about the regime's illicit shipments of oil to prop up Cuba's government began to increase. Mr Madani expects more messages from Russian workers now that Mr Putin has gone "into full dictator mode".



The experience of a Ukrainian intelligence firm called Molfar, which has roughly 35 analysts in Kyiv and Dnipro, is illustrative. Since late February, it has been contacted by about ten employees of Russian payments companies who betrayed their employers' efforts to dodge sanctions. Molfar gave the information to a news organisation, AIN.Capital, which on May 3rd released on Facebook a list of 47 outfits suspected of illicitly moving money in and out of Russia. After the details were posted, one of the firms named as a "cheat service", Bankoff, a payments company, announced to its users that Visa and Stripe had notified it that "Bankoff Card services have been suspended due to the high volume of active users and transactions from Russia."

Some tipsters are motivated by anger at Russia over rising prices on staples like petrol and grains, says Ian Ralby, CEO of IR Consilium, a consultancy that focuses on maritime security and crime. IR Consilium advocates a "whole of society" approach to gathering maritime intelligence; its clients have included NATO, America's Department of Defence and the Oceania Customs Organisation, a body based in Fiji that helps 23 member countries and territories improve customs operations.

The rewards for cheating can be big. A London chartering manager who requested anonymity says outfits illicitly buying Russian goods are scoring discounts of up to 30%. Perhaps it's little wonder, then, that the manager's vessel brokerage sees more ships turning off their transponders—devices that broadcast a vessel's position, course and speed—long enough to duck in and out of Russian ports. Another sign of mischief is that fewer details are released about many transactions. In recent weeks a Russian shipping agent in St Petersburg began to send the London brokerage information about vessels breaking Western sanctions, including by turning off their transponders to reach St Petersburg. In exchange, the informant may be hoping for sweetheart deals when the brokerage resumes business with Russia.

The London brokerage keeps the information to itself, leaving its competitors to risk fines. For its part, TankerTrackers sells its information to clients that include banks and insurers, which sometimes sever a suspected wrongdoer's financing or insurance. Lawyers for such outfits regularly contact TankerTrackers to proclaim their innocence. It shows them the evidence, Mr Madani says, "and then they go quiet."

The potential of this ad hoc intelligence network has not gone unnoticed by America's Central Intelligence Agency. Early this month it took to Facebook, Instagram and YouTube to publish instructions in Russian for securely sending in tips. Russia's regime and its companies, in the end, may prove leakier than the sanctions. ■

**SPECIAL
REPORT:**

China in Africa

→ May 28th 2022

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- 6 Business and trade
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Unequal
partnership

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A partnership of unequals

To counter China's growing role in Africa the West must first understand it, say Gady Epstein and John McDermott

NO OTHER COUNTRY comes near the depth and breadth of China's engagement in Africa. It is Africa's largest trading partner, bilateral creditor and a crucial source of infrastructure investment. Chinese firms account for an estimated one-eighth of the continent's industrial output. Chinese-built digital infrastructure is critical to the platforms on which Africans communicate. Political, military and security ties are becoming closer. Understanding the China-Africa relationship is key to understanding the continent—and the global ambitions of Xi Jinping.

The modern history of this relationship has three phases. During the cold war China supplied aid, constructed the odd railway or parliament building and tried, mostly unsuccessfully, to export Maoism. But the main thrust of its relationship was political. China saw newly independent African countries as potential allies. In 1971, when the UN voted for China to take over its seat from Taiwan, 26 African countries sided with Mao. "It is our African brothers who have carried us into the UN," he said.

The second phase, from the 1990s, was defined by economics. For a booming China, Africa mattered. Oil and metals were imported from the continent; surpluses of money and manufacturing went the other way. To African countries that had just thrown off one-party rule and ended years of stagnation, China gave useful infrastructure. China went from net recipient of aid to "lender of first resort", notes a new book, "Banking on Beijing", by Axel Dreher and colleagues. From 2000 to 2014 Chinese aid and, espe-

cially, loans meant only America gave more development finance. More than half China's development projects were in Africa.

This period still shapes thinking about China-Africa relations. But, as Daniel Large of the Central European University argues in another book, "A New Era" has emerged under Mr Xi, who has made four tours of Africa as president and nine in all. He "has been remaking China's Africa relations in his own image," argues Mr Large. (Barack Obama was the last American president to visit.)

Economic ties still count. But since 2016 China's lending to Africa has shrunk. It builds fewer mega-projects, putting more emphasis on trade and investment. And politics has again become a driving force. China's attitude to Africa is part of Mr Xi's assertive foreign policy. His approach gives a greater role to the Chinese Communist Party, which has a membership larger than the population of all but four African countries.

The West is alarmed. Hillary Clinton, Mr Obama's secretary of state, spoke of a "new colonialism". Mike Pompeo, who was secretary of state under Donald Trump, talked of China's "empty promises". In 2021 the Biden administration proposed Build Back Better World (B3W) as an effort to counter China—a "values-driven" attempt to finance infrastructure in poor countries. The EU has launched Global Gateway, a similar plan. Ursula von der Leyen, president of the European Commission, says that, unlike China, the EU wants to create "links and not dependencies".

Yet these efforts have flaws. B3W is little more than a new label ➤

► for inter-agency co-operation in Washington. Global Gateway is vanishingly slight in detail. But the bigger failing in the West's view of China-Africa is conceptual. At times it reduces China's role to that of a giant construction company. And when not simplifying, the West exaggerates, ascribing more calculation to Beijing than it deserves, as in broad and misleading accusations that it deliberately pursues "debt-trap diplomacy".

The tendency is to see events in Africa as part of a great-power game. Some things China does warrant concern (building military bases, monopolising cobalt mining). But others do not (building airports, selling mobile phones). African politicians dislike being patronised and are sceptical of the West's motives. African leaders want it understood that they often have no option but to deal with China, which they do with their eyes open.

Most Africans think highly of China. A survey of 34 African countries last year by Afrobarometer, a research group, found that 63% of respondents felt China had a "very" or "somewhat" positive influence—more than the 60% who said the same of America. Polls in seven African countries for *The Economist* by Premise, conducted in April, found a similar result. In every country more respondents felt that China had a "good" than a "bad" influence.

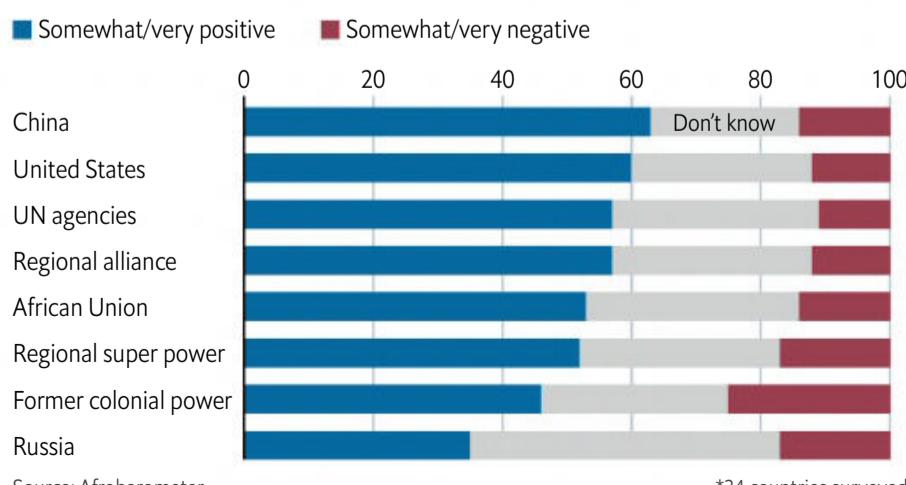
None of which means accepting China's propaganda. It is nonsense to claim it is motivated by altruism. China is ruthlessly self-interested. Although its mix of credit and construction has boosted growth, it has also fostered corruption and often propped up autocracies. Some Chinese firms mistreat African workers and harm ecosystems. Its diplomats work to block critical coverage in the media and dangle aid in return for support at the UN.

Analysts stress African "agency" in dealings with the Chinese. African governments try to negotiate better deals, with varying success. But agency cannot obscure the asymmetry in relations. Africa and China both have 1.4bn people but China is a single, brutally disciplined one-party state, and its economy accounts for nearly 20% of world output. Africa is a continent of 54 mostly weak countries, and its economy is worth only 3% of the world's.

This special report puts the case for understanding the China-Africa relationship. China wants to co-opt the global south. It is effective in "hardware"—infrastructure, trade, telecoms—but has a more malign influence on "software"—the institutions crucial to Africa's future. In Afrobarometer polls, far more countries list America than China as their preferred future model (23 against five). In our survey from Premise only two countries (Ethiopia and Tanzania) saw China more favourably than America. Put crudely: Africans appreciate China's economic role but prefer democracy and freedom to authoritarianism. ■

Popularity contest

Africa*, "What do you think about the economic and political influence of countries/organisations on your country?", 2019-21, % responding



Debt and infrastructure

Roads to somewhere

An era of big loans and big projects is coming to an end. How did it change Africa?

THE NAIROBI expressway curves 27km (17 miles) through Kenya's capital. Built by the China Road and Bridge Corporation, a state-owned enterprise (soe), the road will open later this year. Under its concrete pillars, Nairobians share their views of it. Samwel Juma, a student, calls it "a project for the future" that will unclog traffic jams. But Gabriel Kihoti, a hairdresser, questions why it was a priority when the cost of food and fuel is surging. Francis Muriu, a cab-driver, calls it "a road for the rich, not the poor".

The road symbolises a shift in a key China-Africa relationship: over debt and infrastructure. In the 2000s and 2010s China's state-backed banks lent African governments billions for roads, ports or airports built by Chinese soes. Some deals, as in Angola and Congo, linked repayment to the extraction of natural resources. State-backed lending has since dwindled, as China seeks new funding models. The expressway's tolls, which in theory should pay for the road, are an example.

Kenyans' attitudes reflect lingering ambivalence after two decades of Chinese construction across Africa. China says this has been "win-win" for both. African leaders say China was the only country willing to meet their infrastructure needs. Critics argue that China has built white elephants, fostered corruption and encouraged indebtedness. New research suggests China has been neither the benevolent partner of propaganda nor the scoundrel of the West's imagination. It also shows that Africans can get more out of the relationship, depending on how they negotiate.

Like the West, China substantially increased its development finance to Africa in the 2000s. Unlike the West, most of it took the form of loans at or near market rates, rather than aid. From 2000 to 2020 Chinese state financiers lent \$160bn to African governments. Whereas Western aid or World Bank lending is typically widely spread around, almost two-thirds of China's loans to Africa were for infrastructure. From 2007 to 2020, Chinese infrastructure financing for sub-Saharan Africa was 2.5 times as big as all other bilateral institutions combined.

In the 2000s African countries had more scope to borrow after debt relief from rich countries and a commodities boom. An adviser to one leader stresses the shift to multiparty democracy from the early 1990s. "You're stuck with this democracy thing and you're stuck with having to demonstrate to the voting population what you're bringing to the table." The easiest way to do this was to get China to lend and build.

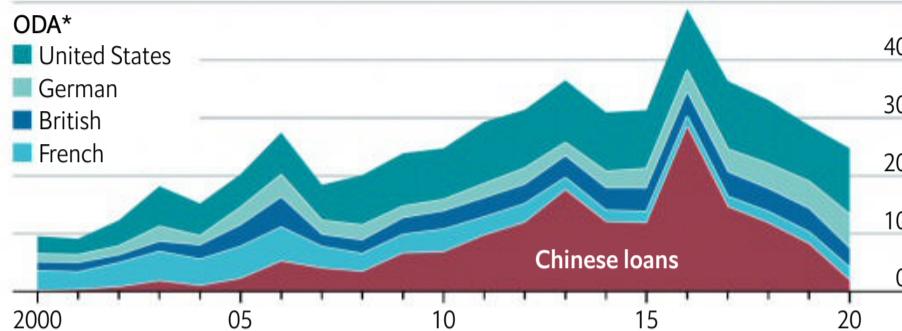
Yet Western criticisms are often based on misguided assumptions. China is a big lender but rarely accounts for most African countries' debts. In 2020, the most recent year with good data, Chinese loans accounted for 17% of the stock of public debt in sub-Saharan Africa, says the China Africa Research Initiative (CARI) at Johns Hopkins University in Washington, DC. That was more than all other bilateral official creditors combined, but less than the share held by the World Bank (19%) or commercial bondholders (30%). In a paper in 2020 CARI researchers noted that China accounted for more than a quarter of public debt in only seven of 22 countries classified by the IMF as suffering "debt distress".

There is little substance to claims of "debt-trap diplomacy", in which China hoodwinks borrowers so as to seize assets. It is more accurate to say that China's hard-nosed approach conflicts with its ►

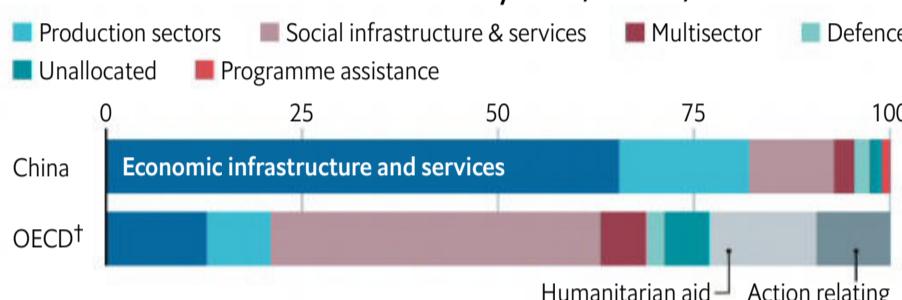
Infrastructure kings

Africa

Chinese loans and selected ODA* receipts, \$bn



Distribution of aid and loan commitments by sector, 2005-19, %



*Official development assistance †Development Assistance Committee

Sources: Chinese Loans to Africa Database, Boston University Global Development Policy Centre; OECD; Carnegie Endowment for International Peace; Zainab Usman; China Africa Research Initiative

▶ seemingly benevolent rhetoric. China may not be a duplicitous negotiator—but it is ruthlessly self-interested. Last year AidData, a research group at William & Mary University in Virginia, examined 100 contracts between Chinese entities and developing countries. The authors noted a “muscular” approach, with strict confidentiality clauses, requirements that China be repaid ahead of others and the use of escrow accounts. “One needs to go back to the 19th and early 20th century to find similar security arrangements in sovereign lending on the scale that we observe in our Chinese contract sample,” they concluded. In a follow-up paper, AidData found that a deal to expand Entebbe airport in Uganda required that all revenues generated by the airport for 20 years be used to pay back the loan.

Untransparent

Opacity is a big problem. A paper in 2019 co-written by Sebastian Horn and Carmen Reinhart of the World Bank estimated that 50% of Chinese lending to poor countries was “hidden” from the bank and the IMF, partly because loans between parastatals may not appear on public balance-sheets. Chinese creditors are increasingly fragmented. The Export-Import Bank of China and the China Development Bank, both state-backed, once dominated lending, but more recently they have been just two entities among many.

This has made it harder for governments to resolve debt crises. Under Zambia’s former president, Edgar Lungu, finance ministers were sidelined when contracts were agreed by his office. After Hakainde Hichilema replaced Mr Lungu last year, a study by CARI found that the debt Zambia owed China was twice previous estimates. It included debts to at least 18 different Chinese lenders.

When China renegotiates debts, it prefers pushing back repayment dates to taking “haircuts” on the principal. Angola, which has borrowed more from China than any other African country, has been granted a three-year stay, says Vera Daves de Sousa, its finance minister. China was “very open” about extending the term, “but very reluctant to adjust the payments”. Mr Horn and Ms Rein-

hart argue that China’s can-kicking risks hobbling African economies, much as Western governments did in the 1980s and 1990s.

A chapter in “Banking on Beijing”, co-written by Bradley Parks of AidData, suggests that the average Chinese project raised growth by 0.41-1.49 percentage points after two years—a large boost. The authors find that in areas around a project night-time light (a sign of economic activity) increased by 8%. Often the most effective projects are unglamorous, such as a road linking Nairobi to nearby Thika. Yet whether the loans could be put to better use is another question. China prides itself on a “demand-driven” approach: doing what African leaders want, to hell with technocrats in finance ministries. In Congo the “deal of the century” signed with Joseph Kabila in 2007 swapped mining rights for infrastructure projects. In Ethiopia China helped Meles Zenawi’s push for industrialisation. In Kenya China supported Uhuru Kenyatta’s “Vision 2030”, notably via the standard-gauge railway (SGR), its largest infrastructure project since independence.

African leaders say China works at a speed to match their needs, at least electorally. Abdoulaye Wade, a former president of Senegal, claims “A contract that would take five years to discuss, negotiate and sign with the World Bank takes three months when we have dealt with Chinese authorities.” The average infrastructure project in the Belt and Road Initiative (BRI), which 43 African countries have signed, takes 2.8 years, roughly a third of the time needed by the World Bank or the African Development Bank.

Yet indulging African politicians does not always produce optimal deals for citizens. The SGR “will never pay for itself”, says Kwame Owino, of Kenya’s Institute of Economic Affairs, a think-tank. Chinese projects favour leaders’ political bases, notes “Banking on Beijing”. A province from which an African leader comes typically receives 70% more funding from China than one that has no such luck. In election years it gets 134% more. World Bank projects show no such bias.

China also facilitates corruption. The “deal of the century” in Congo was reported to include millions of dollars for the family of Mr Kabila. The mix of venal African politicians and Chinese money can often be malign. In Zambia, say two sources, Chinese contractors have identified road projects with politically connected figures and inflated the cost to boost profits and kickbacks. That has affected the quality of the work. “You have the road,” says Caleb Fundanga, a former central-bank governor, “but not the road you wanted at the beginning.”

In a paper in 2018 Ann-Sofie Isaksson and Andreas Kotsadam looked at opinion-survey data from Chinese projects in 29 African countries. They found that local residents reported increases in corruption, which did not happen with World Bank schemes. The finding “seems to signify that the Chinese presence impacts norms,” concluded the authors.

Africans see their governments as responsible for corruption. “I blame ourselves for choosing bad projects; I don’t blame the Chinese,” says David Ndii, a Kenyan economist. Yet a Western diplomat reckons China has caused the “institutional degradation” of African countries. Mr Parks of AidData suggests that “There is a tension between efficacy and safety in Chinese development finance, and some countries are more effective than others at managing these risks and rewards.”

Since a peak in 2016 China has reduced lending to Africa. In 2020 just \$1.9bn in loans went to African governments, the lowest since 2004. This partly reflects the pandemic. But it also shows how both China and Africa now place more emphasis on other parts of their economic relationship: trade and investment. ■

China may not be a duplicitous negotiator—but it is ruthlessly self-interested

Business and trade

With African characteristics

Chinese companies have made their mark on the African continent, in ways good and bad

OUTSIDE A BAR in Fungurume, a mining town in Congo, men caked in dust spit peanut shells onto the floor. Inside, where Chinese New Year lanterns hang from the walls, Emmanuel (not his real name) explains how things changed after 2016, when a majority stake in the Tengwe Fungurume Mine (TFM) was sold by an American firm to China Molybdenum. He says the new owners tried to cut his salary and used subcontractors who recruit day labourers and eschew safety protocols. He says staff racially abused and hit Congolese workers. "We loved Americans," he says. "We are fed up with the Chinese. They treat us with total disrespect." In response, says Emmanuel, some colleagues went on strike and burned the Chinese flag. (China Molybdenum says it adheres to all Congolese laws and international labour standards, and that abuses "cannot possibly be happening within the TFM site.")

Around 70% of the world's cobalt, which is an essential mineral in the production of electric vehicles, is mined in Congo. China, which dominates cobalt refining, has a stranglehold over its production. In 2020 Chinese firms owned or had a stake in 15 of Congo's 19 cobalt-producing mines. American officials have tried to persuade President Félix Tshisekedi to loosen China's grip. But Chinese firms, supported by their country's diplomats, are canny in navigating Congolese politics, lobbying not just Mr Tshisekedi but powerful politicians in mining regions.

To ordinary Congolese, the arrival of Chinese miners is another

episode in a history of venal elites colluding with extractive firms to exploit the country's immense resources—and its people. But residents of Congo's mining towns seem to think Chinese firms are more ruthless than Western ones. "The Chinese don't really care about the people and the community," says Donat Kambola Lenge, a human-rights lawyer in Kolwezi. "They just care about having relationships with people in power."

Yet though Chinese mining in Congo is part of the story of Chinese business in Africa, it is not the only part. The extent of Chinese business interests has deepened and broadened in the past two decades. Some governments, like Congo's, fail to use the relationship to deliver benefits to ordinary people, but others do a better job. Viewed as a whole, China's business links reflect patterns of globalisation, not a new colonialism.

The data hint at China's growing footprint. Annual flows of foreign-direct investment (FDI) from China rose from just \$75m in 2003 to \$4.2bn in 2020. The stock of Chinese FDI in Africa (\$44bn) is lower than Britain's (\$66bn) or France's (\$65bn), but slightly higher than America's (\$43bn). The value of trade between China and Africa has risen from \$10bn in 2000 to a record \$254bn in 2021—more than four times that between America and Africa. For China that is just 4% of total trade, less than with Germany. But China has moved from being the main source of imports for just four of Africa's 54 countries to most of them.

Going shopping

African shoppers have also benefited from cheap Chinese products. In Kolwezi phone shops are emblazoned with logos from Infinix, Itel, and Tecno, all of them owned by Transsion, a Chinese firm whose phones account for almost half the sub-Saharan market, more than twice the share of Samsung, its nearest competitor. Unlike the South Korean firm's devices, or Apple's, Transsion's products are designed for Africans. Its cheapest phones cost \$20, have African-language keyboards and camera exposures that are adjusted for black skin. In 2015 Transsion launched Boomplay, Africa's most popular music-streaming service. Cobus van Staden of the South African Institute of International Affairs, a think-tank, says that firms like Transsion have normalised business in Africa. "They have changed the discussion about the nature of the African market itself, by showing you can make a shitload of money. That is where China is a game-changer."

McKinsey, a consultancy, estimates that there are 10,000 Chinese firms active in Africa—several times the number that are actually registered with the commerce ministry in Beijing. Almost a third of McKinsey's sample had profit margins greater than 20%. Whereas the largest are often SOEs, around 90% are private firms. About a fifth of them are in construction. Chinese companies are thought to win around half of all African construction contracts that are tendered to foreign firms. They may benefit from state subsidies, but many simply out-compete their rivals. One Kenyan bigwig contrasts the approach of French firms, which take months to do feasibility studies and put their staff up in posh hotels, with the urgency of the Chinese, who sleep three-to-a-room to keep costs down.

Roughly a third of Chinese firms are in ►



Mobile promise

► manufacturing. McKinsey estimates that 12% of Africa's industrial production is accounted for by Chinese companies. Some manufacturers use Africa as a base for exports, raising hopes of African leaders who believe that, as Asians get richer, Africa will lure more labour-intensive factories. But power, labour and logistics are generally too expensive in Africa. Chinese manufacturers tend to serve mostly local markets, rather than export.

In Nigeria Chinese firms are big in the furniture, ceramics and wig industries. Some are located in special economic zones launched by the Nigerian and Chinese governments. But many have had little public help, opting simply to cluster near Chinese entrepreneurs from the same province. "We have to do it all ourselves," one manufacturer told Yunnan Chen, a researcher for CARI, in 2020.

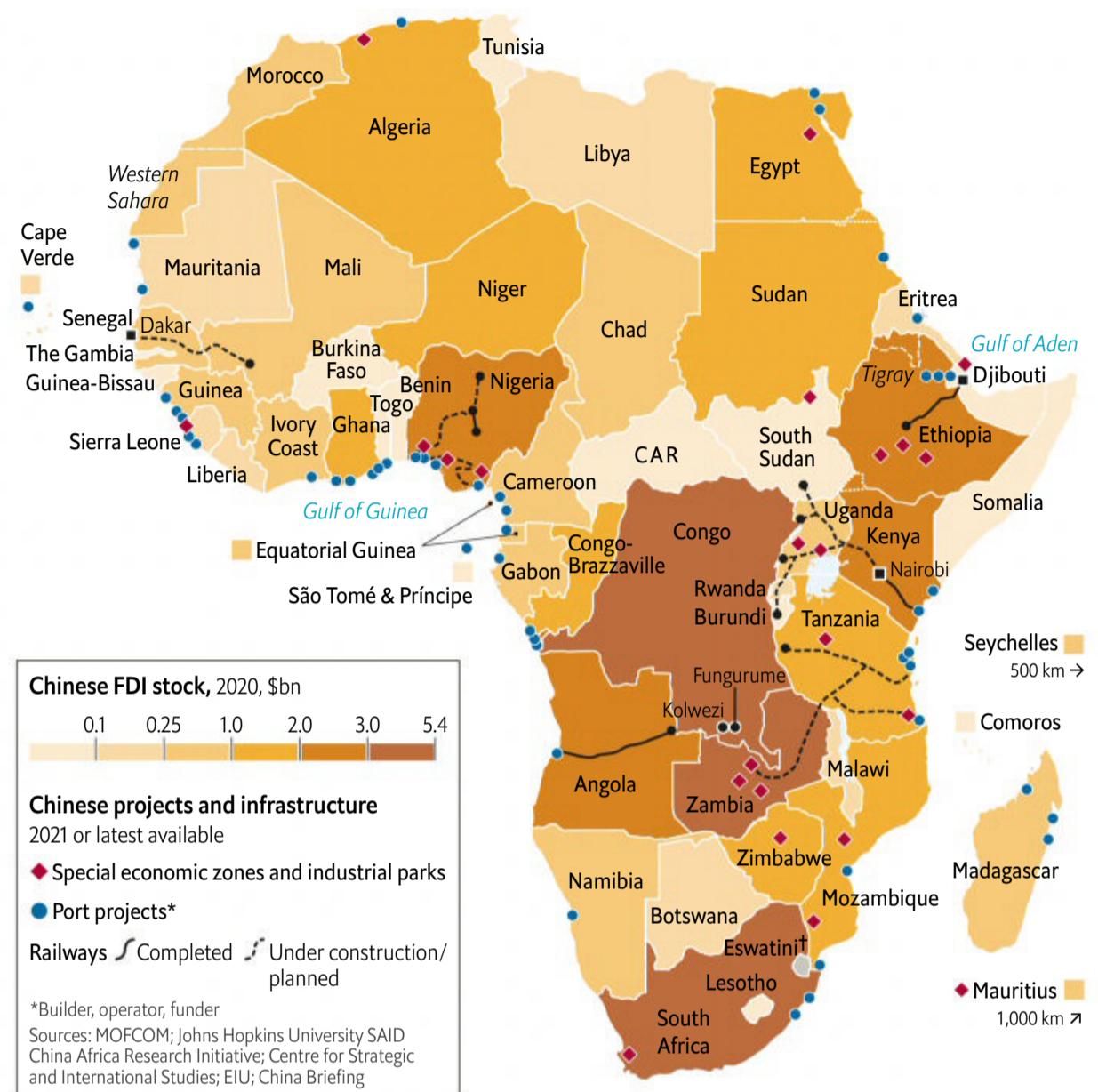
And Chinese firms have boosted local economies. A paper last year by Riccardo Crescenzi and Nicola Limodio of the London School of Economics used measures of night-time lighting to find a positive impact on economic activity in local areas 6-12 years after an inflow of Chinese FDI. There is also little truth in the myth that Chinese firms hire only fellow countrymen. African employees make up 70-95% of Chinese firms' workforces, according to a recent summary of the evidence.

Chinese firms help African ones. Joseph Ager, who runs a small construction firm in Nairobi, says Chinese investors are tough ("There's no bargaining; they give you the price") but "understand us Kenyans", seeing the need to give cash-poor firms payments in advance. They have boosted his social mobility, he says. "I'm not well-educated, I'm a second-born from a poor family. But I've been able to raise our living standards."

Much depends on African governments. In Benin, notes a paper in April by Folashade Soule of Oxford University, officials diligently negotiated a commercial centre for Chinese and local firms to ensure that its laws had primacy and that Chinese firms used the centre for wholesale but not retail selling, protecting local traders. "[The] successful negotiations on the business centre are an example of how African countries can sometimes exercise agency despite the asymmetrical nature of their relationships with China," says Ms Soule.

Yet not every government can push back. Africans find it hard to reach senior levels in Chinese companies. In Congo and elsewhere Chinese miners have fostered poor labour practices. In Nigeria Chinese cartels in ceramics and wigs have locked out local competitors. Environmental degradation is common. Tighter regulation of pollution in China, argues an Ethiopian businessman, is one reason why some Chinese firms move to Africa.

Africans want the Chinese to make things easier for exporters. Most countries have gaping trade deficits with China. Just three commodity-exporting countries (Angola, Congo and South Africa) accounted for 62% of Africa's exports to China in 2021. In December, at the triennial forum on China-Africa co-operation in Dakar, China pledged to raise imports from Africa, which stood at \$106bn in 2021, to \$300bn within three years. That will involve "green lanes" to help agricultural exporters.



The saga of the Kenyan avocado suggests that there is some substance to this pledge. Chinese fears of imported pests meant that, until recently, only frozen avocados were allowed in. But earlier this year China announced that it would accept fresh ones as well—expanding the number of potential exporters from two Kenyan firms with sufficient freezers to more than 100. Tiriku Shah, who runs a food company, is impressed by the help given by Chinese diplomats. "At first they were just helping the Chinese. Now they help Africans go to China as well."

Other African products have gained approval, such as Zambian blueberries and South African lemons. When Beijing imposed tariffs of up to 212% on Australian wine after Canberra's questioning of the origins of covid-19, AM Vineyards, a South African vintner, sent Shanghai hundreds of samples, tweaking the blend to find the right plonk for the Chinese palate. The first bottles arrived in China late in 2021. The internet allows Chinese consumers to buy products directly. After Alibaba hosted the Ethiopian ambassador to Beijing on a shopping live-stream, 11,200 coffee bags were sold in a few seconds.

All of which is promising. But the volume of exports remains small. China's approach to opening up African markets remains ad hoc and dependent on lobbying case-by-case. Only one African country, Mauritius, has a comprehensive free-trade deal with China. That is a reminder of how, for Beijing, its political relations with Africa are ultimately higher-priority than its economic ones. ■

Africans want the Chinese to make things easier for exporters

Political links

The price of friendship

China has much to offer African governments, but it also seeks much in return

IN 2019 YAW OSAFO MAAFO, a Ghanaian minister, spoke in Washington, DC, to his countrymen abroad. He was asked why a Chinese woman arrested for illegal gold-mining was sent back to China instead of being prosecuted. His answer became a national scandal. “We have a very good relationship with China,” he said. “So when there are these kinds of arrangements, there are other things behind the scenes. Putting that lady in jail in Ghana is not going to solve your economic problems.”

To Ghanaians like Bright Ackwerh, a cartoonist, the comments merely confirmed that China has too much political influence in Africa. The notion has inspired his art. In one poster he depicts a smiling Nana Akufo-Addo, Ghana’s president, being peeled off to reveal the smug face of Xi Jinping. In another, which the artist calls *we dey beg* (we are begging), Mr Xi pours polluted water into a bowl held by a supplicant Mr Akufo-Addo as the Chinese ambassador to Ghana gleefully displays a gold bar.

Mr Ackwerh’s art is suffused with the image of China as a skilled, ruthless practitioner of power politics in Africa. China’s fraternity with African governments, rooted in a Mao-era revolutionary alignment, has evolved into a new form of patronage. China in the 21st century is richer, but also more demanding than it was under Mao. It has more to offer, but wants more in return. Civil society in Africa frets about the implications.

For authoritarian regimes, Chinese patronage and ties to the political elite can be sources of strength. In Tanzania one member of the ruling party proudly calls his country the “entry door” for China into Africa. In Ethiopia China has weathered a tumultuous change in government, and won fresh goodwill from the ruling party by helping it in the fight against Tigrayan rebels.

China takes a more sophisticated approach in Africa’s multi-party democracies. It is not hindered by ideology. In places like Ghana and Kenya the international department of the Chinese Communist Party has spent years cultivating ties with not just the ruling party but with any rivals that have a chance of winning power. Joshua Eisenman of the University of Notre Dame found that, in Ghana, the department had courted the New Patriotic Party (NPP) even when it was out of government. That paid dividends in 2016, when Ghanaians voted the NPP into office.

Helping the powerful

Officials say China is more adept than Western rivals at helping politicians stay in power, especially by financing infrastructure projects. This is most obvious in one-party states, but even democratic leaders acknowledge it. Gabby Asare Otchere-Darko, a member of Ghana’s ruling party, argues that China helps governments respond to “the pressures of delivering in a democracy”. Yet polls suggest that ordinary Africans are less convinced. In a survey conducted for *The Economist*, Premise found majorities in seven countries (some authoritarian, some democratic) thinking that their country benefited from the relationship, but China gained more. In Ghana 62% of respondents agreed. Ghana also registered the second-highest share of respondents saying their country did not benefit at all, at 25% (against 35% in Congo).

Episodes like the minister’s comment about not prosecuting the Chinese gold-miner hint at some reasons for such discontent.

Tens of thousands of Chinese entrepreneurs have arrived over the years to conduct illegal gold-mining, often hiring Ghanaians. They have industrialised the practice, importing excavators, churning up earth and polluting rivers. Some Chinese miners are armed with guns, and there are occasional reports of firefights. Yet for years Chinese miners were rarely arrested or imprisoned (though in a rare crackdown in June and July 2013, 4,592 Chinese miners were deported).

This pattern is repeated elsewhere. In June 2019 another Chinese businesswoman was sent home, not prosecuted, for illegally stripping Ghana of rosewood. In the Gulf of Guinea Chinese trawlers have for years scooped up fish far beyond legal limits to ship back to China, depleting stocks for Ghanaian fishermen. In such cases, environmentalists say Chinese entrepreneurs break laws with impunity, exploiting weak regulators. Ghanaians have grown so used to this that, when the attorney-general announced last year that ten Chinese nationals arrested for illegal mining would be prosecuted and imprisoned, it made headlines.

Ghanaians might worry more about Chinese gold-mining and overfishing if their economy were not so shambolic, with high inflation and a depreciating currency. In the Premise survey, 74% of Ghanaians said their country was on the wrong track. For the ruling party, a boost of Chinese investment is politically helpful. “That’s when you go and see what you can negotiate. So you can get things done. So you can stay in office, you can deliver for the people,” says Mr Otchere-Darko.

Good-governance advocates worry that, although China’s political and financial clout may help to win elections, it weakens ►



A troublesome cartoonist

► democracy. If voters like Chinese-financed roads and power plants, that reduces pressure on political leaders to fix other problems. Many think China's money corrupts politicians and undermines democratic norms by coming without the strict conditions of Western aid. In 2017 a Ghanaian news outlet reported that China's embassy had urged a minister to "guide the media" to report more "objectively" on illegal gold-mining, for the sake of bilateral relations. The letter referred obliquely to "reports and cartoons that are defaming Chinese leaders". (Advertising firms have refused to put Mr Ackwerh's work on billboards, with one telling him they did not want to be dragged into political controversy.)

In authoritarian countries, Chinese diplomats mostly keep quiet except to praise governments. Before a Tanzanian election in 2020 that was widely seen as neither free nor fair, the Chinese ambassador praised the electoral system and repeated China's policy of "non-interference". Khalifa Said, an editor at The Chanzo, an independent news site, says Tanzanians have suffered from China's refusal to "interfere" and criticise, especially under John Magufuli, the president who died in 2021. When a newspaper is banned or an opposition figure disappears, "China does not care," he says. "You need people that your government respects, or can listen to, to say something, to say, 'no, enough is enough.'"

And China is increasingly willing to make political demands of its own. During the pandemic political leaders were prodded to declare publicly their gratitude for Chinese munificence in delivering vaccines and personal protective equipment. Such transactional diplomacy is even starker at the UN. Diplomats say that China has promised aid or financing in return for support at the UN, particularly over its treatment of Uyghurs in Xinjiang. China threatens reprisals against any governments that criticise its human-rights record, and seeks allies in making the global order more friendly to autocracy. In June 2021 no African country backed a critical statement on China at the UN's human-rights council. Indeed, 34 African countries signed a counter-statement in defence of China.

The numbers suggest that it pays to side with China. Scholars at AidData have conducted a statistical analysis comparing votes in the UN general assembly between 1999 and 2016 with official financial commitments from China. They found that, on average, a 10% increase in voting alignment with China yielded a 276% increase in aid and credit. They calculated that, if countries increased their alignment to Sudan's level of 93%, the yield would rise further. Cameroon's would more than quintuple; Ghana's would go up by 81%.

That may explain China's relatively robust support from African countries at the UN. But it also points to the risk of becoming too reliant on Chinese money. Such funding can easily vanish, putting a recipient country in a bind. Something like this may be playing out in Ghana. In 2018 the Ghanaian government struck a deal with Sinohydro, a Chinese SOE, for \$2bn in infrastructure projects. But the government hoped to raise the money by mining and processing bauxite, including from a sensitive reserve, the Atewa forest. Environmentalists sued to block mining in the forest. A plan to build a bauxite refinery may not prove feasible. If the government cannot show how it will repay Sinohydro, it is not clear how much of the \$2bn will materialise. Four years on just one project, a road interchange, has been completed.

Perhaps China will find another way to help Ghana as it faces deep fiscal woes. But this is a reminder of its leverage over African countries, which is well understood by their political leaders. If China can help them win elections in Africa by building roads, it can also cost them elections by not building them. ■

The media

China, meet Fourth Estate

China works hard to shape public opinion, but its lasting impact could be on the infrastructure of media

THE CALL came from the Chinese embassy. During a video meeting in March Joe Biden had warned Xi Jinping of "consequences" if China provided material support to Russia in its invasion of Ukraine. But China wanted readers in Africa to get their version. Xinhua, the official news service, supplies content free to many African media outlets. It made sure the story was available in time for Tanzanian deadlines. A Chinese diplomat alerted news outlets to the case, according to one journalist. The diplomat said the story was "important" to them.

At least one newspaper, the *Citizen*, used Xinhua's story. Readers did not see any hint of a warning from Mr Biden. Instead they read Mr Xi's admonition that NATO should talk to Russia to meet "the security concerns" of Russia and Ukraine. (They also learned that "China stands for peace and opposes war".) America's message was presented as deferential by comparison. Xinhua said Mr Biden wanted a "candid dialogue and closer co-operation". The account devoted much space to promoting China's line on Taiwan, twice mentioning Mr Biden's assurance that America does not support its independence.

Propaganda is promoted online as well. A handful of Tanzanian influencers with modest social-media followings are paid 50,000 to 100,000 Tanzanian shillings (about \$22-44) a month to retweet and like the embassy's posts on Twitter and Facebook, says Khalifa Said, editor of The Chanzo news site. The embassy pays to place op-eds in newspapers by the ambassador or by African academics promoting China's line. And diplomats try to suppress negative stories, from African news about Chinese nationals arrested for poaching to Western stories about the oppression of Uyghurs in Xinjiang. They may be unable to kill a story altogether, but they discourage follow-ups. "Sometimes they succeed, sometimes they don't," says one Tanzanian journalist.

Chinese officials are working more aggressively to shape African opinions of their regime and even the infrastructure of African media. The most visible push has been in content. Over the past decade Mr Xi has urged state media and diplomats to "tell China's story well" abroad, declaring that the Communist Party needed to improve its "discourse power". China has hugely expanded its state media, adding local bureaus and staff at Xinhua, China Radio International and CGTN, the official international TV news service, which opened its African headquarters in Nairobi in 2012. *China Daily* launched a weekly African edition in 2012. Last year People's Daily Online, the website of China's official mouthpiece, started a Swahili-language service.

More quietly China has cultivated relations to influence media, from heads of state to editors to young journalists. Chinese state media and diplomats have formal and informal partnerships with media companies, becoming suppliers of free content to most, reliable paying advertisers for many and even buying stakes in some. Propaganda officials call placing their content in these foreign outlets "borrowing the boats to reach the sea." Sometimes this happens without even hinting at China's involvement.

Young and old African journalists are brought to China for training in the state media's non-confrontational, more government-friendly approach to news. China brings officials from African countries to seminars on "cyberspace management". At one

► such event in 2017 Freedom House, a non-profit group based in Washington, DC, found that attendees were given a tour of systems for “public-opinion management”, including “real-time monitoring of negative public opinion” and tools to guide public opinion to be more positive.

As with African bridges and ports, Chinese firms are also building the physical infrastructure of African media. China has laid many digital pipes for transmission of content online and via satellite. The Chinese telecoms giant, Huawei, has built about 70% of Africa’s 4G infrastructure, supplying the know-how to monitor and censor networks. StarTimes, a Chinese satellite firm, is strong in digital television. Its public profile in Africa is as a TV provider, serving 13m subscribers in half of Africa’s 54 countries (plus 27m more customers across the continent who get content over the internet). Less visibly, it is helping 15 African countries migrate from analogue to digital transmission, according to a tally by Dani Madrid-Morales of the University of Sheffield.

In some countries StarTimes transmits the signal for competing channels (in Zambia the company took a 60% stake in the state broadcaster’s digital provider.) That raises worries about control of broadcast infrastructure akin to concerns over the dominance of Huawei in telecoms. “The risk is that then it becomes a choke point, so whoever controls that platform, controls essentially television access for the whole country,” says George Sarpong, executive secretary of Ghana’s National Media Commission, a regulator overseeing media outlets.

Polling suggests attitudes among Africans to China, while dipping slightly in recent years, are more positive than in the West. That may be due to significant Chinese-financed economic activity, which most Africans see as beneficial. But some stories about Chinese human-rights abuses may also get less play in certain outlets. (In 2018 a columnist at Independent Media, a South African media group in which Chinese state-backed firms hold a 20% stake, lost his column after writing about the Uyghurs).

Still, negative news stories about Chinese misdeeds in Africa routinely go viral on social media. On April 20th the sentencing of a Chinese businessman to 20 years in prison for whipping Rwandan workers was celebrated on Twitter. The occasional Xinhua account inside the local newspaper or in an embassy post that wins a

few retweets has less chance of turning people’s heads. A Tanzanian foreign editor says his newspaper cannot publish most material from Xinhua because it is so “one-sided”. He doubts readers are swayed much by the articles that do appear.

The example of StarTimes reveals a yawning gap between China’s potential and its actual impact. Like Huawei it is ostensibly a private company, but it is also clearly backed by the Chinese state. Mr Madrid-Morales notes that its founder, Pang Xinxing, travels in Chinese diplomatic delegations and has met at least 15 African heads of state or government. The StarTimes brand has spread across Africa with help from the Chinese government. StarTimes has provided free equipment (and at least a month of free content) to hundreds of rural areas under a Chinese initiative to deliver satellite TV to “10,000 villages” in Africa. In some countries, the lowest-tier StarTimes customers get international news predominantly from Chinese state media, either CGTN or Xinhua-controlled CNC World.

Of influence and power

Even so, not a lot of people actually watch CGTN. Just 9% of Tanzanians surveyed in April for *The Economist* by Premise had watched China’s flagship news channel in the latest month. By comparison 73% had watched the BBC. Across the seven countries Premise surveyed, CGTN did best in Congo, where 28% of respondents had watched it in the latest month. But 73% had seen France24. (The survey skews slightly to wealthier and more urban than average, but the ages of respondents are representative).

And in Ghana, where just 4% of people had watched CGTN in the latest month, Mr Sarpong accepts that the danger of StarTimes’ control over digital infrastructure is for now theoretical. But he says governments need to think harder about regulation to prevent it becoming real. He posits an incumbent ruling party that decides a certain TV station is crucial ahead of an election. Could they ask China to shut down the signal? “If you allow the Chinese, who have a culture of censorship, to own this infrastructure, you just endanger yourself.”

African countries have not adopted anything like the sophisticated opinion monitoring and censorship prevalent in China. Some governments have passed laws restricting online speech that echo its approach. But regimes have used blunter tactics when challenged, shutting down the internet or blocking social media. Eleven African countries did one or both of these last year, according to a report in January from 10VPN, a virtual private network. Many shutdowns were brief, imposed just ahead of elections or to stifle anti-government protests. Nigeria blocked Twitter for months after the service deleted a tweet by its president.

Yet some African regimes have made use of Chinese know-how to go after dissidents and journalists. The *Wall Street Journal* reported that in Zambia in 2019 the Cybercrime Crack Squad, a unit of the telecoms regulator, enlisted the help of Huawei to track down and arrest bloggers for an opposition news site. It also found that in Uganda in 2018 frustrated security officials had asked Huawei employees to help crack WhatsApp communications by the leader of an opposition movement. Huawei engineers penetrated a group chat, enabling Ugandan authorities to arrest the opposition figure and dozens of supporters and thwart plans for street demonstrations. (Huawei has denied that its employees conduct any such hacking).

The report suggests that Mr Sarpong’s hypothetical concern is no longer so outlandish. If an African government wants to use the tools and expertise that the Chinese supply to impose censorship, somebody from China will help. The long-term worry about Chinese influence may be less about how China uses African media, but more about how African institutions and governments use the media infrastructure that China has built. ■



Connecting the village

Defence co-operation

Ace of bases

China is on a path to becoming a global military power; that path goes through Africa

IN MARCH, NEARLY five years after it opened, China's military base at Djibouti had its first port call, the *Luomahu*, a supply ship. There was no pomp and circumstance about it. But the structure it docked at is of more consequence. Jutting 1,100 feet (335m) into the Gulf of Aden is a pier large enough, say American analysts, to take aircraft-carriers, amphibious assault ships or nuclear submarines. And in Tanzania China is also pushing to revive a \$10bn deepwater port that could take much the same hardware.

The Americans think China wants to extend the reach of its armed forces all round the Indian Ocean. Equatorial Guinea is in talks over a Chinese military base, they say. That would give China's navy a foothold on the Atlantic coast. The Chinese are also exploring other options. "They have placed bets from Mauritania in the north to Namibia in the south and in many countries in-between," General Stephen Townsend, head of Africa Command for the American army, told senators in April.

China clearly wants to be a global power. Since opening its base in Djibouti, ostensibly to support anti-piracy efforts, China has stepped up its military engagement in Africa. In 2018 its defence ministry hosted a China-Africa defence and security forum in Beijing. Almost 50 African countries attended, leaving with public commitments to increase co-operation. In the same year the Chinese conducted exercises in Cameroon, Gabon, Ghana and Nigeria. And in 2019 they conducted a joint exercise with Tanzania and a trilateral naval exercise with South Africa and Russia.

The Chinese are big arms suppliers, selling to 21 sub-Saharan armies between 2016 and 2020, more than did any other national supplier, says the Stockholm International Peace Research Institute. Sales include anti-tank missiles to Rwanda and armoured personnel carriers to Nigeria. Chinese military kit accounted for 20% of sub-Saharan Africa's arms imports by value, behind only Russia (30%), which sells bigger-ticket stuff to a shorter list of buyers. America's share was only 5%. China also donates older hardware as a sweetener. It has built military training facilities and barracks in Tanzania and Equatorial Guinea.

China is ready when America might be reluctant. "I had an African leader tell me a drowning man will reach for any hand," General Townsend told senators. "Many have challenges with violent extremist organisations and they need to secure their country. So they will reach to any offer. Frequently those offers are fastest from China and Russia." America's help, General Townsend says, often comes with "strings" attached, such as upholding democratic values. But democracies get help from China, too. One American official tried to discourage a West African leader from letting China build a training facility. "I know," the leader replied, "but I need that facility." American officials find the number of Chinese military attachés in Africa has grown fast.

The impact of all this military activity is unclear. China is nothing like the destabil-

ising force that Russia has been. It participates in UN peacekeeping missions, and has no rogue private army to match Russia's Wagner Group. China wants experience for its troops in Africa, but also the image of reliability as a partner. With economic interests in every African country, China seeks stability, not chaos.

China began expanding its role for the same reason that America and Britain once did: to protect economic interests, people and companies. The need for overseas expansion was obvious in 2011, when the navy helped evacuate over 30,000 Chinese citizens from Libya. And in March this year al-Shabab terrorists in Kenya shot five people dead and abducted two Chinese foremen, chopping both hands off one before they were released.

Yet China's army is not there to fight al-Shabab. "They're not putting skin in the game in Somalia," says William Zana, who was until recently commanding general of American forces in the Horn of Africa. "They're in the places where what they're doing in security is purely to feed their business interests." Partly that is because some African partners, including Kenya, prefer to work with American troops, who have expertise in battling Jihadists. But China's willingness to work without "strings" also draws it naturally to authoritarian states as security partners. Its ambitions may merely strengthen abysmal autocrats.

Ethiopia's war with Tigrayan rebels offers an example. A former American official talked of meeting a Chinese envoy early in the conflict and finding their interests overlapped. "China was deeply worried about the deterioration of the integrity of the state, as were we," he said. But instead of calling for peace talks, China apparently helped arm the regime of Abiy Ahmed with drones. "So their solution was probably different from our solution."

A policeman's lot

If the Chinese army wanted to convey the image of a selfless policeman, it did not get the best start in Djibouti. The original pretext for its base was to support anti-piracy missions in the Gulf of Aden. America has a base less than ten miles away in Camp Lemonnier, established after the September 11th attacks on a former garrison of the French foreign legion. It is the only American base in Africa. France, Italy and Japan also have bases in Djibouti. But the Chinese military presence has not meshed well with others. In 2018 American officials accused China of targeting military planes with lasers, causing minor eye injuries to pilots. China has now put a stop to that behaviour, which probably annoyed their hosts in Djibouti as much as the Americans. But American officials think China's presence at Djibouti is less about piracy and more about learning how to operate an overseas base and project power.

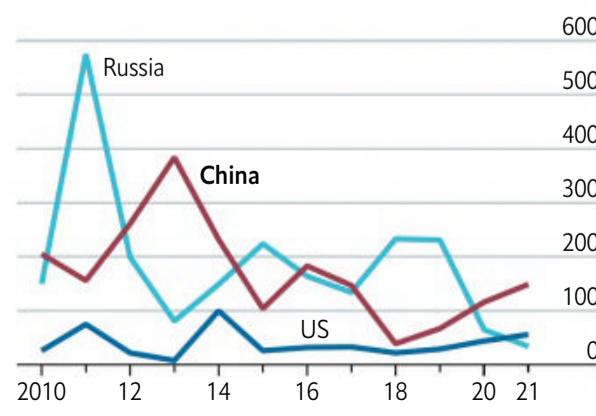
More bases seem sure to come. Hu Bo of Peking University wants to see the army "stepping out" to "distribute power on a global scale". Other Chinese analysts openly advocate a more aggressive "exterior" strategy of pushing into waters far from home. One aim, writes Ryan Martinson of the US Naval War College in Newport, Rhode Island, is to divert American attention from Chinese waters. Africa is a prime hunting ground for bases. China is involved in financing, building or operating 61 ports in 30 African countries, writes Isaac Kardon, also of the US Naval War College. Chinese warships have visited some of them. American officials are seeking to dissuade hosts from allowing much more than port calls.

Most African countries are not keen to alienate the world's biggest superpower. The president of Tanzania, Samia Suluhu ►

Arms to oblivion

Arms exports to sub-Saharan Africa

Trend indicator value*, m



Source: SIPRI

► Hassan, visited the White House in April. She told American officials that her country would not “engage in any activity that would compromise their sense of sovereignty”, says a senior official. Yet the Americans worry that Tanzania might allow China’s navy to use its ports even without a formal base. Equatorial Guinea has also denied agreeing to a Chinese military base, but it is a logical candidate. Piracy is a scourge in the Gulf of Guinea, giving China a pretext. A Chinese company has developed a deepwater port. And the corrupt dictatorship is in want of cash. The IMF approved a bail-out in 2019. And America and its allies have seized assets from the family of the president, Teodoro Obiang Nguema Mbasogo.

In the past seven months Jon Finer, deputy national security adviser, and Molly Phee, assistant secretary of state for Africa, have both visited Equatorial Guinea to press the case against a Chinese base. Their visits highlight what America believes it can offer that China cannot: a veneer of respectability. For a pariah dictatorship, embarrassed by accusations of corruption and human-rights abuses, that might be tempting. Then, just days after Mr Finer’s visit, Xi Jinping spoke by telephone with Mr Obiang.

For every good that China wants from the continent, African leaders can extract something of value to them. For each concern America expresses about China’s strategic aims, governments can play that to their advantage as well. China may be acting out of self-interest on the continent, especially when expanding its military presence. But Africa’s leaders say they deal with China with their eyes open, looking out for their own interests.

The Biden administration is not sure whether its lobbying worked on Equatorial Guinea. One official reports the regime as saying “unequivocally that they have no plans to move forward” with a Chinese base. After Ms Phee’s visit the vice-president tweeted his thanks for a gift of a compass. He did not say in which direction it was pointing. ■

The future

Countering China in Africa

The West must try harder to offer African countries alternatives to China

AFRICANS LIVE globalised lives. Those who travel to work on Chinese-built roads may do so in Japanese minibuses emblazoned with images of players from European football leagues, pinging messages on American social-media platforms. They worry about rising prices, a global pandemic gumming up supply chains and a Russian dictator’s decision to invade Ukraine.

China, against this background, is just one foreign influence among many. But it is seen differently. In April the survey *The Economist* commissioned from Premise, a pollster, asked Africans in seven countries, a mix of democracies and authoritarian states, which would be more powerful in a decade’s time: China or America. In all seven the answer was China. Overwhelmingly they also felt that China’s influence was favourable, as well.

Western countries instinctively see such views as warnings: ominous signs that they are losing a global battle for influence. There are certainly areas where it makes sense to think of China’s role on the continent as part of a broader struggle for power in the 21st century. The prospect of several Chinese military bases in African ports, a Chinese stranglehold over digital infrastructure and a grip on minerals that are vital to a greener future, the wooing of African political parties by the Chinese Communist Party: all of

these things potentially threaten Western interests.

China’s engagement with Africa represents an opportunity for the West as well as a threat. To seize it means resisting the temptation to see everything China does as part of a zero-sum game. Chinese lending, construction or other business activities are not inherently bad or dangerous. Its growing role also offers a chance to understand how the world looks from Africa. African politicians have appreciated not just material help from Beijing, but also the sense of not being patronised. They like seeing their economies treated as business opportunities rather than places to run randomised trials for foreign aid. Appreciating why China is seen as powerful and popular would help Western policy towards Africa.

Wisely, under Joe Biden, America has abandoned the Trump administration’s rigid approach of telling countries they must make a binary choice between America and China. The administration’s infrastructure programme, Build Back Better World (B3W), is seen as a response to China’s Belt and Road Initiative. It was followed more recently by the EU’s Global Gateway infrastructure-for-Africa plan. Although thin on detail, these may yet turn out to be well-timed, given that China’s lending has dropped in recent years. More is needed. Neither B3W nor Global Gateway has yet translated into any concrete or asphalt.

America and the West also ought to remember their strengths. If the West is unwilling to lend and build like China, it could encourage firms to invest in services, agribusiness and technology, and remove trade barriers that make it harder for African firms to export. It should redouble efforts to support democratic and civil-society institutions. It could be more generous in African debt crises. And it should welcome more African migrants.

China has more swagger in its dealings with Africa. Xi Jinping and his envoys engage with Africa routinely; at the triennial China-Africa summits, Chinese leaders like to make splashy promises of new money and programmes. America makes valuable contributions in Africa, but less visibly. Its armed forces help African governments fight extremist groups. It has invested massively to improve public health, providing Western-made covid vaccines that work better than Chinese ones (and are free). In April the administration gave more than \$200m in aid to the Horn of Africa, in response to a food crisis aggravated by Russia’s war in Ukraine. There is usually no harm in advertising Western efforts to support democracy, still the most popular form of government among Africans. And Mr Biden should also visit Africa.

A less patronising Western approach would be well-timed. African governments no longer expect huge loans and mega-projects from China. China’s indulgence of Vladimir Putin and its punitive approach to countries such as Lithuania are a reminder that it can be a bully, too. For 20 years China has been a main partner for African governments seeking to transform their economies. Most African politicians, and their citizens, have appreciated the benefits arising from this relationship. But turning to China was often the only option. The West should offer an alternative. ■

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**Eritrea**

Issaias's army

ASMARA

Why the path to peace in Ethiopia runs through the gulag state next door

IN THE CORNER of a quiet bar in Asmara, Eritrea's capital, Mulugeta (not his real name) hatches a plan to escape. He has made contact with the people-smugglers who say they will arrange the crossing to Sudan. His older siblings in America have paid the fee. From Sudan, he will travel to Libya—and then to Europe. But his voice is hushed: in Eritrea a young man needs permission from the army to move freely. Mulugeta fears being conscripted and sent to fight in Ethiopia. He does not want to die in another country's civil war.

Four years ago, young Eritreans caught a glimpse of a more hopeful future. Abiy Ahmed, Ethiopia's new prime minister, came to Asmara and embraced Issaias Afwerki, Eritrea's dictator. The two signed a peace deal ending one of Africa's longest-running conflicts, a bloody border war that had cost some 80,000 lives. It was fought most intensely about two decades ago for control of a few barren hillsides along the border with Ethiopia's Tigray region.

By late 2020 Eritrea was back at war. This time, however, it is as an ally of the Ethiopian government in its ferocious campaign against the Tigrayan People's Liberation Front (TPLF), the party-cum-militia which runs Tigray. Once again Eritrean conscripts were ordered into Tigray, where they murdered, raped and ransacked towns on such a scale that Asmara's streets nowadays thrum to the sound of stolen Ethiopian lorries.

Abiy, who at first denied that Eritrean troops were in Ethiopia, in March 2021 at last promised to have them withdrawn. Yet for more than a year his words proved hollow. Even after the Ethiopian army was

routed from most of Tigray in June last year, large numbers of Eritrean troops remained. Last year they helped enforce a blockade of most food shipments to Tigray, which has pushed almost 1m people to the brink of starvation. Now change is afoot. In March Ethiopia agreed to a fragile truce with the TPLF, raising hopes of an enduring peace in Tigray. More recently, Eritrean troops have pulled back towards the border (see map on next page).

The course of Ethiopia's civil war now depends to a great extent on when, and how, Eritrean troops leave Ethiopia. Issaias has nursed a grudge against the TPLF since he fought alongside it to topple Ethiopia's Marxist military dictatorship, which they did in 1991. Two years later Eritrea seceded from Ethiopia's federation. Yet because Issaias has long believed that the TPLF is bent on invading Eritrea and overthrowing him—a charge his government recently repeated—he is unlikely to withdraw his troops voluntarily without having first smashed the TPLF.

Nor is he likely to negotiate. "We have consistently offered to engage Eritrea on how to de-escalate," says a Western official involved in mediation between Abiy and the TPLF. "They have not demonstrated a willingness to." Some diplomats now worry that the TPLF might indeed risk attacking northwards to Asmara if Issaias continues to refuse to join talks.

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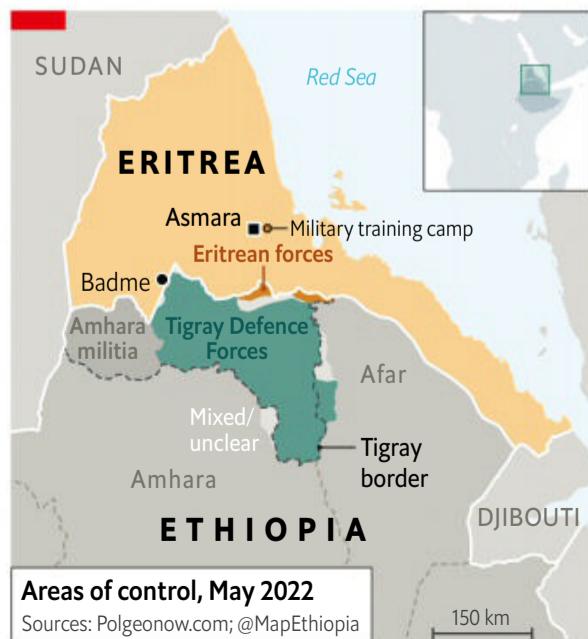
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► Behind all this the question arises: how much more can Issaias's long-suffering citizens endure? To answer this a reporter for *The Economist* recently travelled to Eritrea, which normally bars foreign journalists. Most people interviewed were sceptical about winning the conflict against the TPLF and blamed Issaias for dragging Eritrea into it. "We are tired of war," says a priest. "Our children are dying for something that has no benefit for us."

Cafés and bars once packed with young people are mostly empty. At the central market in Asmara piles of fruit are rotting in the stalls, while shelves in the shops are almost bare, save for what can be smuggled in from Sudan. With the outbreak of war the flow of contraband from Ethiopia abruptly stopped. Chemists are running low on medicine as basic as painkillers.

Even before the war, Eritrea's system of indefinite national conscription had turned it into one of the world's fastest-emptying countries. Few youngsters now leave their homes after dark for fear of being press-ganged. Military round-ups seem to be intensifying: a new training camp near Asmara opened in March. Every month hundreds of people flee across the border to Sudan. "Eritrea is like a giant prison," says Mulugeta. Emigration drains the pool of potential conscripts, but it also makes resistance to Issaias's rule—and his war—less likely.

Another question concerns the relationship between Abiy and Issaias. "Abiy wants the war to end, so Issaias is unhappy," says an Eritrean working at a foreign embassy in Asmara. In January, the day after Abiy released some TPLF leaders from prison, Issaias gave an interview in which he, in effect, claimed the right to intervene in Ethiopia to eliminate the TPLF's "troublemaking". Since then, Abiy has made several visits to Asmara, perhaps to persuade Issaias not to undermine the truce. "So long as Issaias continues to meddle in Ethiopia's domestic affairs, peace is unlikely," warns an Ethiopian diplomat.



One Eritrean aim may be to block Tigrayan forces from reaching the border with Sudan, which they could use to bring in supplies. "If the TPLF gets access, that means Eritrea's security will be compromised," says a soldier in Asmara. This also rattles officials in Amhara, a region to the south of Tigray, whose forces are battling to control territory along Sudan's border that they seized at the start of the war. Amhara's commanders have drawn close to their counterparts in Eritrea, who have hosted and trained thousands of Amhara militiamen. In the past week Abiy's government has arrested thousands of critics and militia leaders in Amhara, perhaps to reduce the risk of that region becoming a threat to the federal government.

Hopes for peace are still alive. Tigrayan and Ethiopian commanders are in regular touch. Hundreds of aid lorries are being let into Tigray, though not yet enough of them. This week the TPLF freed thousands of prisoners of war. Yet both sides are also preparing for another round of fighting. On May 2nd the TPLF said it expected a new offensive from Eritrea. A week later Ethiopian officials accused the TPLF of attacking Eritrean forces at Rama and Badme, the very site of the battle that sparked the border war in 1998. A single misstep could yet again lead to calamity. ■

B2B startups

Clicks and middlemen

TATU CITY

How e-commerce differs in Africa

TO THE UNTRAINED eye Wakulima market in Nairobi, Kenya's capital, looks like pandemonium. Scores of workers push handcarts laden with fruit and vegetables, jostling past heaving crowds. Buyers and sellers loudly debate the quality of a papaya or the merits of an onion. It seems chaotic. But not to James. The wholesaler (who asked that his surname not be used) gazes serenely as hirelings toss pineapples out of an open lorry, while others arrange the spiky fruit in a dozen piles of varying price, size and juiciness.

James is one of many middlemen keeping Kenyans fed. He buys produce from brokers, who have bought from farmers. Transporters take the goods to Wakulima, where James sells to informal retailers, who take the food to street stalls or kiosks, where they sell small amounts to customers. "This is a good business," he says. Does he not worry about competitors? He shakes his head. "Of course, we agree on prices."

Middlemen are crucial to shopping



The measure of the market

across Africa. Many consumers are too poor to buy more than a few goods at once, or to travel to large shops, so they rely on informal vendors. These account for about 90% of retail transactions in Africa. But it is too costly for these small-scale sellers to source directly from farmers or manufacturers, so they rely on middlemen, often buying at wholesale markets.

These supply chains ensure goods get to every nook and cranny. But research suggests that relying on middlemen means, at best, lots of mark-ups and, at worst, that middlemen act like cartels, keeping prices low for producers and high for consumers. More promisingly, these inefficiencies have created opportunities for e-commerce startups, which are disrupting traditional ways of doing business.

Academic evidence points to the market power of established middlemen. In a paper published in 2020, Lauren Falcao Bergquist and Michael Dinerstein, respectively of the Universities of Michigan and Chicago, studied Kenyan maize markets. To test the extent of competition among the traders who sell maize at wholesale markets, the researchers handed out a subsidy per kilogram sold by the traders. In a well-functioning market lower costs for sellers would mean lower prices for buyers. But the middlemen passed on just 22% of the reduced costs.

An earlier paper by David Atkin and Dave Donaldson, today both at the Massachusetts Institute of Technology, looked at the cost of getting goods from A to B in Ethiopia and Nigeria. They found that it was four to five times more expensive than equivalent journeys from wholesaler to retailer in America, a difference that largely remained after controlling for the quality of the roads. One reason for the gap was the role of intermediaries. The authors noted that when the prices of the relevant goods

► fell in world markets, most of the surplus was captured by middlemen.

"The price of food is a sign of how efficient markets are," says Peter Njonjo, Twiga's chief executive. The Kenyan e-commerce firm buys fresh produce directly from farmers and takes it to warehouses, where it co-ordinates delivery to informal retailers. The vendors place orders on the Twiga app, which gives the firm lots of data to match supply with demand. Mr Njonjo claims that Twiga has reduced the share of farmers' produce that rots from 40% to 5%. That means farmers and retailers both get better margins. In theory this should result in shoppers enjoying lower prices.

Twiga is one of several African e-commerce firms attracting tens of millions of dollars in venture capital. TradeDepot, which operates in Ghana, Nigeria and South Africa, has a similar model, focused on packaged goods. As Onyekachi Izu-kanne, its chief executive, explains, for clients such as Unilever, a consumer-goods conglomerate, "the economics of getting into millions of small stores doesn't make sense." Large suppliers have historically relied on middlemen to reach informal retailers. "Where we come in is to be able to aggregate a lot of demand, and to aggregate inventory from multiple suppliers."

On May 3rd Wasoko, a similar e-commerce firm operating in six countries, topped a *Financial Times* ranking of African companies based on how fast their revenues grew from 2017 to 2020. Its boss, Daniel Yu, says the growth of firms like his reflects their understanding of African retail. In markets where many shoppers buy sachets of shampoo or scoops of cooking oil, and live in hard-to-reach places, selling directly to them online is quixotic.

For all the talk of the African middle class, he says, "the reality is the Amazonian consumer does not exist." Mr Yu argues that is why, for instance, Jumia, a business-to-consumer firm once dubbed "the Amazon of Africa", has struggled to live up to its initial hype. The business-to-business e-commerce model, which has proved successful in parts of Asia and Latin America, may stand a better chance.

If Wakulima market typified the old way of doing business, then the new way is symbolised by Twiga's huge warehouse in Tatu City, a bespoke development 20km north of Nairobi. Among other modern features, it has Africa's largest facility for ripening bananas. Sprays of ethylene gas almost magically turn shelf after shelf of green fruit a lustrous yellow. It would not look out of place in rich countries, notes Tim Broekhuizen, a Dutch logistics expert hired by Twiga after 17 years running supply chains across Asia. The facility is the sort that African retail has long lacked. And it may be enough to worry even the most serene of middlemen. ■

The United Arab Emirates

The new man tips the scales

DUBAI

Abu Dhabi's old-new sheikh may jolt the rules of succession and federation

TRANSITIONS DO NOT get much easier. On May 13th the United Arab Emirates (UAE) announced the death of its president, Khalifa bin Zayed Al Nahyan. Though he had held the job since 2004, a stroke in 2014 pushed him largely out of the public eye. Running the country fell to his half-brother, Muhammad bin Zayed, the crown prince of Abu Dhabi, one of the seven emirates that make up the UAE and the one that provides its capital. On paper Muhammad was outranked by the ruler of Dubai, who is also the UAE's prime minister. In practice he was already the most powerful man in the country.

His *de facto* rule is now official. One day after Khalifa's death, the rulers of the seven emirates unanimously chose him as president. There will be no radical change in policy: the new boss is the same as the old.

Still, his ascent is not without its intrigues. First will be his choice of crown prince. The UAE's constitution sets a procedure for picking the president. Within each emirate, however, matters of succession are left to ruling families. They are of special import in Abu Dhabi, which has supplied all three of the country's presidents: today's heir-apparent will probably be tomorrow's head of state.

The new man's father, Zayed bin Sultan Al Nahyan, who ruled from independence in 1971 until his death in 2004, had 18 acknowledged sons by seven wives. He meant them to share power. The most in-

fluent are the six born to Fatima, his third and favourite wife. Muhammad is the eldest of that bunch; if he follows tradition, he will make a brother his heir. The front-runner is Tahnoun, the powerful national-security chief, who also oversees a vast business empire.

Though he has taken a more public role of late, he is still a quintessential man in the shadows. Yet he is a far more likely choice than Mansour, the former chairman of a sovereign-wealth fund tarnished by its association with a multi-billion dollar scandal to do with a Malaysian state-investment firm; he also bought Manchester City, a top football club. Another brother, Abdullah, has served as foreign minister since 2006, a big job but not the best practice for running the UAE's domestic affairs.

Many diplomats believe Muhammad ultimately wants his eldest son, Khaled, to replace him; he has been grooming him for years. But he need not rush. At 61, Muhammad can expect to rule for a while. Naming a brother would let his son grow into the role, perhaps as deputy; the line of succession can always be changed.

There is no deadline. Whatever Muhammad decides, there is unlikely to be much public drama. A century ago several members of the Nahyan clan killed their brothers to seize power. Abu Dhabi went through four rulers in the 1920s. The family's matriarchs are said to have asked their sons to swear off such strife. Today the Na- ►



Muhammad (left) and Khalifa (right): portraits of fraternal continuity

Nahyans are seen as one of the peninsula's more disciplined royal families, their disputes settled in private—a far cry from next door's fractious House of Saud.

The decision will one day affect everyone in the UAE. The constitution does not require that the president hail from Abu Dhabi: in theory the ruler of tiny Ajman could run the country. No one expects that to happen, but in the federation's early days some Emiratis thought the job might rotate between the Nahyans and the Maktoums of Dubai.

That notion may be dated. Flashy Dubai is better known outside the Arab world, but Abu Dhabi has the power. Though Dubai has the largest chunk of the emirates' 10m people, Abu Dhabi has almost all its oil and gas reserves and 87% of its land.

The other emirates worry not that Abu Dhabi holds the power, but how it uses it. For decades each sheikhdom had a lot of freedom to set policy. Dubai built strong economic ties with Iran. Saqr al-Qasimi, a previous ruler of Ras al-Khaimah, the northernmost emirate, refused to ban the local branch of the Muslim Brotherhood. Neither view was liked in Abu Dhabi, but the other emirates' rulers, particularly in Dubai, zealously guarded their autonomy.

That was eroded in 2009, when Dubai, battered by the financial crisis, needed a bail-out of \$10bn from the capital. The money bought a very public concession: the world's tallest building, meant to be known as the Burj Dubai, was renamed the Burj Khalifa, in honour of the president. Much the same happened in private, as the balance of power between the two largest emirates tipped towards Abu Dhabi.

Muhammad has since exerted greater control over foreign policy and security. The Nahyans have also built up their businesses, from banks to energy to entertainment. His views—hawkish, suspicious of mass politics, hostile to political Islam and Iran—set the tone. Questioning them is out of the question. Emiratis say the space for public discussion of government policy, let alone dissent, has shrunk markedly over the past decade.

Still, some grumble in private. The UAE's role in the war in Yemen became a source of discontent in the poorer emirates, which suffered a heavy share of the casualties. Abu Dhabi's enthusiasm for President Donald Trump's belligerent policy towards Iran annoyed Dubai and other emirates. Some Emiratis say they are dizzy by the pace of social change, including an abrupt decision to switch to a Monday-to-Friday working week (Friday, when Muslims gather for communal prayers, had traditionally been a day off). All of this seems to flow from Abu Dhabi, with little room for debate. It has always been *primus inter pares*. But it is ever harder to say the others are truly equal. ■

Genomes in the Gulf

Marriage markers

Better screening may make cousinly weddings safer

RESEARCHERS AT THE Qatar Genome Programme, a project paid for by the former emir's wife, say they want their Gulf state to become, in terms of genetics, "the Iceland of the Middle East". For a thousand years, Icelanders have kept detailed records of how everyone is related to everyone else. These leafy family trees and the country's genetic homogeneity helped Iceland become a pioneer in genomics. Qatar, a country with roughly the same population (excluding foreign residents), hopes to become a genetics powerhouse, too. Its neighbours are following suit.

The Qatar Genome Programme has already sequenced the genomes of nearly one in ten Qatars. It aims to sequence one in three by 2026. Saudi Arabia and the United Arab Emirates (UAE) are expanding their schemes as well.

The Human Genome Project first fully mapped human DNA in 2003. Since then, scientists have sequenced around 1m genomes, refining humans' genetic blueprint. But research has not been carried out evenly across the world. Most sequencing has been done on those of European descent. Far less than 1% of genomes sequenced are of Middle Easterners, though they make up around 5% of the world's population. A test for cystic fibrosis based on genomes from Europeans may miss the disease in an Arab patient. Sequencing Arab genomes will enrich the world's data.

Over half of Qatars and Saudis marry their relatives. In the UAE the share is nearly as high. Doing so keeps kinship webs tight and property within the family. Girls in conservative households may not be allowed to gallivant with boys outside of their family. Marrying a cousin is often a woman's only chance of wedding someone she knows well. And even when a Qatari or Emirati marries outside his or her family, the pool of potential partners is small.

Consanguinity causes a range of inherited disorders. Relatives are more likely to share genetic mutations, and if a child inherits two mutated versions of a gene (one from each parent), he or she may suffer from a disease. Some genetic diseases are so common in the region that doctors associate them with a particular tribe or family.

Couples who wish to wed in Qatar, Kuwait and Saudi Arabia must first get tested for mutations linked to a handful

of inherited diseases such as thalassaemia, a blood disorder. Those with risky results may choose not to marry, or have in vitro fertilisation with unaffected embryos (paid for by the government).

Sequencing the genomes of Gulf Arabs should make people healthier. Knowing patients' genetic sequences may one day help their doctors pick the best drugs and doses for them. And having a better picture of the region's genetic landscape may lead to fuller and more relevant premarital genetic testing. Today Qatar requires soon-to-be-wed couples to test for only a few diseases. But within the next two years, scientists in the country hope to roll out an affordable test that screens for hundreds. Saudi Arabia plans to expand its testing, too.

Those outside the region will also benefit from the research. A consanguineous population "is like an actual human experiment", says one geneticist in the UAE. Some rare diseases are found only in places where cousin marriage is common. Discovering rare diseases and mutations does more than just help those suffering from them. Such findings help scientists piece together how genes correlate with health outcomes. Cousin marriage is common elsewhere, in places such as Sudan. But few consanguineous countries outside the Arab Gulf have the spare cash to sequence genomes en masse. Better understanding of the region's genomes may allow cousin marriage everywhere to become a bit safer.



Screening and skyscraping



The war in Ukraine

When and how might the fighting end?

KYIV AND WASHINGTON, DC

Western allies are starting to split over the endgame, though neither side seems ready to stop fighting

THE WAR in Ukraine, says its president, Volodymyr Zelensky, will be won on the battlefield but can end only through negotiations. When to stop fighting, and on what terms? The West says that is for Ukraine to decide. Yet three months into the war, Western countries are staking out positions on the endgame.

They are splitting into two broad camps, explains Ivan Krastev, of the Centre for Liberal Strategies, a think-tank in Sofia. One is the “peace party”, which wants a halt to the fighting and the start of negotiations as soon as possible. The other is the “justice party”, which thinks Russia must be made to pay dearly for its aggression.

The argument turns in the first instance on territory: let Russia hold on to the land it has conquered thus far; push it back to its starting line on February 24th; or try to shove it even farther back, to the international border, to recover territories it seized in 2014? The debate revolves around much else besides, not least the costs, risks and rewards of prolonging the war; and the place of Russia in the European order.

The peace camp is mobilising. Germany has called for a ceasefire; Italy is circulating a four-track plan for a political settlement; France speaks of a future peace deal without “humiliation” for Russia. Ranged against them stand mainly Poland and the Baltic states, championed by Britain.

What of America? Ukraine’s most important backer has yet to set out a clear objective, beyond strengthening Ukraine to give it a stronger bargaining hand. America has spent nearly \$14bn on the war so far, and Congress has just allocated a further \$40bn. America has rallied military donations from more than 40 other countries. But this help is not unlimited. It has delivered artillery, but not the longer-range rocket systems that Ukraine is asking for.

Remarks by Lloyd Austin, America’s defence secretary, add to the ambiguity. After visiting Kyiv last month he embraced the justice party, saying the West should help Ukraine “win” and “weaken” Russia. Three weeks later he seemed to tack to the peace camp, calling for an “immediate ceasefire” following a phone call with his Russian

counterpart, Sergei Shoigu. The Pentagon insists there is no change of policy.

Another blow to the justice party was an editorial in the *New York Times* arguing that the defeat of Russia was unrealistic and dangerous. Then Henry Kissinger, a former secretary of state, said negotiations should start within two months to avoid “upheavals and tensions that will not be easily overcome”. There would ideally be a return to the line of February 24th; “pursuing the war beyond that point would not be about the freedom of Ukraine, but a new war against Russia itself,” he declared at the World Economic Forum, a talkfest in Davos. Russia, he said, had an important role to play in Europe’s balance of power; it should not be pushed into a “permanent alliance” with China.

For now, such cracks in the West are contained by the mantra that the future is for Ukrainians to decide. Yet Ukraine’s choices are in turn shaped by what the West will provide. “Europe, the world at large, should be united. We are as strong as you are united,” Mr Zelensky told a meeting at Davos. He said that “Ukraine will be fighting until it gains all its territory back.” But he also seemed to leave himself space for compromise. Talks with Russia, he said, could begin once it withdraws to the line of February 24th.

America, Europe and Ukraine have to keep adjusting their positions according to what each thinks the other will accept. “The Ukrainians are negotiating with their ►



► Western partners as much as, and probably more than, they're negotiating with the Russians," says Olga Oliker of the International Crisis Group, a think-tank. The fuzziness also reflects the uncertainties of war. Is Ukraine winning, because it saved Kyiv and pushed Russia back from Kharkiv; or is it losing, because Russia has taken Mariupol and may soon encircle Severodonetsk? The peace party worries that the longer the fighting goes on, the greater the human and economic cost to Ukraine and the rest of the world. The justice camp retorts that sanctions on Russia are just starting to bite; with more time and more and better weapons Ukraine can win.

Behind all this lie two contradictory worries. One is that Russian forces are still strong and will prevail in a grinding war. The other is that they are brittle. If routed, Russia could lash out at NATO, or resort to chemical or even nuclear weapons to avoid defeat. In the long term, says Emmanuel Macron, the French president, Europe will need to find a way of living with Russia. Estonia's prime minister, Kaja Kallas, retorts, "It is much more dangerous giving in to Putin than provoking him." American and European officials have quietly been helping Ukraine develop negotiating positions. One point is its demand for security guarantees from the West. Short of a promise to defend Ukraine directly, ideas include the ability to "snap back" any sanctions on Russia that are lifted; and rearming Ukraine quickly if it is attacked again.

Right now, Ukraine is reasonably optimistic. It has denied Russia an easy conquest, and new Western weapons are appearing on the front lines. But speaking from the sandbagged presidential headquarters, Mykhailo Podolyak, Mr Zelensky's chief negotiator, says he is increasingly concerned by the "fatigue" in some European countries. "They don't say it directly, but it feels like an attempt to force us to capitulate. Any ceasefire means a fro-

zen conflict." He also complained of "inertia" in Washington: weapons are not arriving in the quantities Ukraine needs.

When the war ends will depend in large part on Russia. It is in no hurry for a ceasefire. It seems determined to conquer all of the Donbas in the east, and talks of taking more land in the west. "The paradox of the situation is that both sides still believe they can win," says Volodymyr Fesenko, a political analyst in Kyiv. "Only if we really reach a stalemate, and Moscow and Kyiv recognise it as such, can any talk of compromise be possible. Even then, it is likely to be temporary." ■

Refugees in Poland

The tide turns

WARSAW

As Russia's invasion stalls, Ukraine's refugees start to return home

VALERIA, A FASHION consultant, and her mother, a housewife, escaped to Poland in early March, a week after Russian missiles began falling on Kyiv, their home town. Three months later they are returning. "It's hard to live a normal life when all you think of is your country," Valeria says, standing alongside a bundle of bags, and hundreds of other Ukrainians, at a train station in Warsaw, the Polish capital.

With Russian troops forced to retreat from the outskirts of Kyiv and Kharkiv, Ukraine's two biggest cities, many refugees reckon it is safe, or at least safer than before, to come back. In the two weeks to May 23rd, the number of Ukrainians heading back home from Poland (345,000) exceeded the number of those entering Poland (253,000). Neighbouring countries are seeing a similar trend. Many of those return-

ing say they simply want to see loved ones. Men of fighting age have not been allowed to leave Ukraine. As a result, 94% of the refugees in Poland are women and children. "I'm a bit scared," Valeria says, "but I need to see my dad and my grandma."

Poland has taken in 3.5m refugees from Ukraine since the start of the war, more than all other EU countries combined. Hundreds of thousands of the newcomers have moved farther west or returned home, but Poland's resources are still stretched to the limit. Large cities and towns near the border, where most of the Ukrainian refugees have settled, are bursting at the seams. A plan drawn up a few years ago by municipal officials in Warsaw had predicted that the city's population would grow by up to 250,000 by the end of this decade. It expanded by as much after three weeks of war in Ukraine.

As many as 600,000 Ukrainians are staying with Polish families. The rest live with friends or relatives, in dormitories, hotels and resorts or on their own. But problems are surfacing. In urban areas the influx has compounded a housing shortage and driven up prices. Rents in Warsaw are up by an average of more than 40% compared with a year ago, over three times the current rate of inflation. The supply of rental properties has plunged. Apartments listed one day are snapped up the next.

Municipal officials are desperately looking for new housing. Office buildings have been converted into temporary refugee shelters. Last month the city seized a hulking apartment block, which once housed employees of the Soviet embassy, from Russia. Warsaw's mayor says he plans to use the compound—popularly known, in honour of its former occupants, as Szpiegowo, or Spyville—to accommodate displaced Ukrainians.

The housing problem may worsen in the coming months. Polish host families and their Ukrainian guests may soon tire of sharing the same bathroom and washing machine. Once resorts or youth camps reopen for the summer-holiday season, the hundreds of thousands of Ukrainians living in them may have to look for other places to stay. With housing scarce and expensive, they risk finding none.

Jobs are not a big problem. Poland's economy grew by 8.5% in the first quarter of this year, compared with a year earlier. Unemployment is at 3%, the third lowest in the EU. At least 145,000 Ukrainians, and perhaps as many as 200,000, have already found work. "If you want a job, you can find one," says Ludmila, feeding ducks at a pond overlooking the derelict Szpiegowo compound; she now works at the hostel where she stayed after arriving in Warsaw.

Yet language barriers and bureaucratic obstacles to getting skills and diplomas recognised mean that refugees who held ►

► white-collar jobs back home are often pushed into low-paid work, says Myroslava Keryk of Ukrainian House, a group helping Ukrainians in Poland. The war has caused a shortage of workers in sectors like industry and construction. Of the 110,000 Ukrainian lorry drivers who worked in Poland before the war, some 40,000 have gone home to fight. At least some Ukrainian women may end up taking up jobs previously held by Ukrainian men.

Many Ukrainians do not want to get tied down, however, because they hope to go back soon, says Mrs Keryk. Only 17% of the refugees say they want to settle in Poland for good, according to one survey. Less than half have enrolled their children in Polish schools. The remainder continue to study, remotely, at Ukrainian ones. At least 500,000 Ukrainians have not applied for a Polish identification number. This would entitle them to social assistance, including a monthly allowance of 500 zlotys (\$114) per child, the right to open a business, and health care.

But even those heading back to Ukraine



acknowledge they may need to escape Russian bombs once again. "I know I might have to come back here in two days," says Natalia, a cosmetician, preparing to board the train to Ukraine. "But who knows?" For now, hope seems to be prevailing over despair. Tickets for the only direct train to Kyiv are sold out for the next month. ■

The EU's covid-19 recovery fund

So far, so good

BRUSSELS

The fund has changed the way Europe spends money

THE ADAGE that Europe is forged in crisis may be about to acquire a refinement. By the time a response to any given crisis is operational, which takes a while in a 27-country bloc, there is a good chance that the crisis will be more or less over. But the response might well turn out to be just in time for the next one.

Take the EU's covid-19 fund, the Next

Generation EU or NGEU for short. It was set up in the second half of 2020 to help weaker countries in eastern and southern Europe make a full recovery from the pandemic. There are several novel elements. For starters, it is big, at €807bn (\$958bn) in 2021 prices, almost half of which is paid out as grants (the rest as cheap loans). It is debt-funded rather than coming out of

member states' existing budgets, adding a considerable stimulus (see chart on next page). And most of its money is to be paid out only once countries have taken agreed reform steps and met investment targets, rather than as a simple transfer from richer to poorer regions.

This makes it a test of how the EU could operate in the future. So far, even generally hawkish members, such as the Dutch or the Germans, are uncharacteristically upbeat. The reform and investment plans are substantive, according to European Commission officials. Even in Poland the power of money seems to work: difficult reforms to the judicial system are expected to be built into the Polish programme, due to be finalised shortly. Some reforms, such as the labour market ones enacted by Spain at the end of last year, are already showing signs of success in generating more permanent jobs and fewer precarious ones.

But many of the early milestones in the plans are comparatively easy to pass; they typically include such things as opening tenders or starting legislative processes. Some of them are even retrospective: relevant projects that were started as far back as February 2020 can be included, even if already completed. It is only when the implementation gets harder, costs overrun or governments with different priorities come into office that the recovery fund's governance will really be challenged.

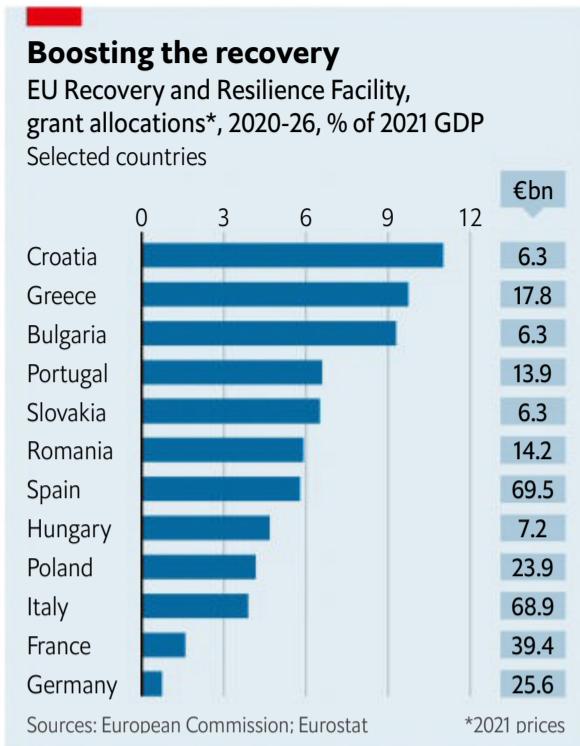
Italy may well become a test. Voters will have to go to the polls some time in the spring of 2023, bringing to an end the government of national unity currently led by Mario Draghi, whose core policy is the implementation of the programme. The next government may be less enthusiastic about the plans. The disbursement schedule for Italy seems to expect trouble: the three biggest chunks, of €11.5bn each, are scheduled to be paid out before the election. The current impasse over a competition reform, held up on—of all things—the liberalisation of bathing establishments, foreshadows how easily reforms can get stuck, in Italy and elsewhere. The commission has the task of judging compliance. Like the southern European countries that are getting most of the cash (see chart), the commission has an interest in making the recovery fund work, so as to act as a model for future plans like it. Bend the rules too much, though, and the support of the flinty northerners will vanish.

Implementing the current plan is only part of it. Another issue is whether the fund can be adjusted to tackle today's most pressing issues: the war in Ukraine; the resulting dash for alternative sources of energy to Russia; and inflation.

Start with the last of those. The number-crunchers in Brussels had assumed 2% inflation when drawing up the fund. With annual price increases for many raw mate-



Ursula von der Leyen's huge plan



rials and energy well into double digits, some countries' agreed investment targets may already be out of reach. Rewriting the plans is possible (under strict conditions) but considered a last resort. The commission is hoping that national governments will use their own funds to plug the gaps, or employ unused European money already at their disposal.

Whether the scheme is contributing to inflation or helping to curb it is a tricky question. Some argue that recovery-fund investment, combined with competition-enhancing reforms and digitalisation, will reduce price pressures over the medium term. But at the same time the additional European money allows recipient countries to spend more on supporting the economy, which could add to inflation.

The energy crisis is the second challenge. Climate change featured heavily in the fund's original mandate, and at least 37% of each country's allocation has to be spent on "green" projects (many countries are going higher). But the Russian assault has changed priorities: energy security now comes first. Many of the approved green projects, such as home insulation or renewable energy, will also make Europe less dependent on foreign fossil fuels. But others that are needed to boost energy security, such as LNG terminals, are difficult to square with the fund's guidelines.

In response to the war, the commission has put together a new programme, called REPOWEREU. Countries are being invited to add a new energy-security chapter, for which looser standards apply, to their plans. The problem is how to fund it. The commission cannot simply borrow when it wants to, as a sovereign government can. Instead, it has to "mobilise" money—Brussels jargon for either reshuffling existing funds or using small amounts as leverage for raising private investment. The loan compartments of the recovery fund have

Spain's monarchy The return of the king

MADRID

Spain's former monarch is a headache for his son

"EXPLANATIONS? OF WHAT?" With three words, the former king of Spain, Juan Carlos I, ensured that his first trip home for two years would make waves. Asked by a journalist if he would comment on the allegations that have dogged him for years, he suggested he had nothing to answer for.

Juan Carlos arrived on May 19th in Sanxenxo, on the west coast. He attended a regatta, waved to admirers and stayed with a friend, trailed by "more cameras than at my wedding", his daughter quipped. Only after a long weekend did he visit Madrid, and his son, the current king, Felipe VI. Juan Carlos spent 11 hours at his old home, but not the night—apparently at Felipe's request.

The former king has lived in Abu Dhabi since 2020, under a cloud of legal and personal scandal. He recently paid Spain €4.4m (\$4.7m) in back taxes. But he is accused of taking a "commission" for helping a Spanish consortium win a high-speed rail bid in Saudi Arabia, which he denies. Spanish prosecutors have dropped the charges against him, saying that the events either have passed the statute of limitations or occurred when he was covered by his constitutional immunity as king.

But he has been unable to explain a \$100m gift from the Saudi royal family, and the role he might have played in the rail contract. A former lover, Corinna Larsen zu Sayn-Wittgenstein, says he gave her €65m in 2012, then asked for it back. When she refused, she says, she was harassed by the Spanish intelligence service, for which she has sued him in London, where she lives. Earlier this year, a judge there threw out his claim of immunity and let her suit proceed.



Nothing to see here

so far been requested by only seven countries, leaving €225bn in the pot. Redirecting that money to the energy-security chapters offers one way out.

The third challenge is the war itself. The EU's treaties do not allow the bloc to spend EU money directly on defence. But there are ways around that. If research or the strengthening of the internal market is involved, the EU can contribute to defence-linked projects. In response to the war, the commission has proposed bolstering joint European procurement, but with just €500m over the next two years.

What EU treaties fully provide for is financial assistance to third countries. In

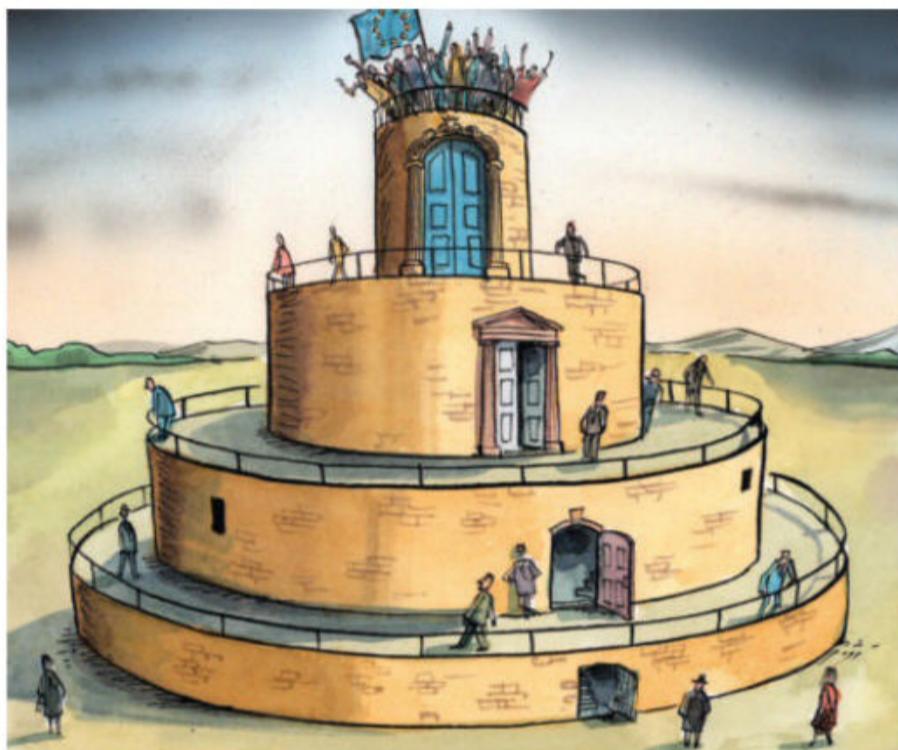
Commentators and politicians sputtered at Juan Carlos's visit. The radical-left Podemos party reiterated its call for a republic. The right-wing parties treated criticisms of the former king as an attack on the monarchy itself. The Socialists, who head the government, tried to walk a line between the two, saying Juan Carlos had missed a chance to explain and ask for forgiveness, while praising Felipe for his transparency (he recently disclosed his personal assets).

The king is described in the constitution as a symbol of unity. Felipe tries hard to play the part. His father, long remembered for a heroic role in Spain's transition to democracy, as well as for his common touch, is now apparently past caring who is annoyed by his antics. He says he wants to "normalise" his visits to Spain, and will return in June—for another regatta.

other words, for rebuilding Ukraine. The commission is considering a new reconstruction fund for Ukraine based on Europe's own recovery fund, and has suggested commonly issued bonds as one funding option. National capitals are not all in favour, but the scale of the problem may well call for a European response. Jacob Kirkegaard of the Peterson Institute for International Economics, a think-tank, argues that there is now a European scale of severity of crises. "Europe will use common, debt-funded spending at scale if a certain crisis threshold is reached. And Ukraine will be such a threshold, just as the pandemic was." ■

Charlemagne | Tiered and emotional

Reheated plans for a multilevel Europe revive familiar suspicions



NO SPORTING TROPHY is of as dubious value as the UEFA Cup, handed to the club whose quest for European footballing glory started with failure to qualify for the more prestigious Champions League. Recalling who won this year's lesser tournament is already the stuff of pub quizzes (Eintracht Frankfurt this month beat Glasgow Rangers on penalties: ten points). In contrast, hundreds of millions across the world will watch Real Madrid and Liverpool vie for one of football's top prizes on May 28th. Triumph in the Champions League is a career highlight for even the most adulated player. Winning the UEFA Cup is an invitation to do better in future: beyond an oversize trophy, Frankfurt's greatest reward for its success is the right to play in the Champions League next year.

Tiers are a brutal necessity to keep football tournaments manageable in Europe, home to over 1,000 professional clubs from Reykjavik to Donetsk. Now something similar is being mulled to help organise the continent's politics. Depending on where you draw the line, there are 40-50 countries in Europe. Each is either qualified for the main show in town—the EU, with 27 members plodding towards ever-closer union—or sits outside it. France's President Emmanuel Macron and Charles Michel, a Belgian who chairs meetings of EU leaders, are among those pushing for a looser continental grouping that could include all those currently outside the bloc. Plenty fear this "European Political Community" would be a UEFA Cup-style consolation prize for countries still pinning for the top tier. Diplomats are mulling the question ahead of a European summit in June, where Mr Macron will flesh out the idea in France's last few days in the bloc's rotating presidency.

Proposals to split Europe into concentric circles have a long pedigree. After the Berlin Wall collapsed, François Mitterrand, another French president, suggested eastern European countries formerly under Soviet control might join a looser "European confederation"—the subtext being that they would not soon be welcome into the inner sanctum. (Most putative members demurred and countries such as Poland and Romania held out for membership of the union proper.) Some organisations cover the whole continent, but focus on specific things, like singing competitions (Eurovision), football (UEFA) or monitoring human rights (Council of Europe). Tiers within the union have also emerged over time.

A majority, but not all, of EU countries use the euro or allow passport-free travel, for example. Take these different concentric rings together and the continent's arrangements start looking like a towering wedding cake, or something out of Dante.

The recently re-elected Mr Macron is keen on adding levels both within and outside today's EU. On May 9th he spoke of integration being forged by countries in "avant-garde circles", a phrase more often used by art historians describing groupings of louche painters. Selective deeper integration is broadly fine with everyone, not least because such pioneering schemes usually struggle to get off the ground. More contentious is the idea for an outer tier. Many in eastern Europe see a diluted extended circle as a replay of the ploy that aimed to keep them out a generation ago.

Part of the problem is the messenger. As Mr Macron floated the idea of a wider community, he also suggested it would take decades for Ukraine to qualify for full EU membership. Its putative accession is the source of tensions within the bloc. Eastern Europe is pushing for Ukraine's courage under fire to be recognised with rapid membership, or at least formal candidate status. France has long been dubious about enlargement, which in its eyes makes the bloc unwieldy and incapable of further integration.

As in the 1980s, the problem with outer tiers is that nobody wants to be in them. In theory this new community would be separate from the EU, perhaps with its own headquarters far from Brussels. In practice whatever was decided by those in the continent's inner core would have to be accepted by everyone else.

And who would agree to that? Three groups of countries would be obvious candidates for Mr Macron's UEFA Cup tier. The first is those who are outside the EU but don't fancy joining, for example Norway (a member of the EEA, through which some small countries attach themselves to EU decisions) or Switzerland. But their arrangements for dealing with the EU are tailor-made and work well. The second is Britain, the only member ever to have left the union, and to which Mr Macron alluded specifically as a potential outer-tier member. Its relationship with the continent is still a movable feast, and it has said it is not interested. Third, and most numerous, are countries that want to join the EU, from the Balkans to Georgia and Ukraine. They are being egged on by eastern Europe to stick to their demands for full membership, some of which have been in the works for years. Volodymyr Zelensky has said Ukraine would not "compromise" on joining the EU proper.

Offside!

Making an outer tier attractive to outsiders will be tricky. One possibility is to turn the wider grouping into an on-ramp to the EU instead. As things stand, membership of the bloc is binary. Countries work for years to join but only enjoy the fruits of their success—free movement of their citizens, university exchanges and so on—once the process is finished. Mr Michel has suggested that countries within the outer tier that had, say, reformed their energy markets, could then take part in summits of EU energy ministers. Fail to keep up reforms and you would get booted out.

That will raise concerns among some member states, particularly those like Hungary that constantly clash with the club over falling short of EU standards. For a rejigged European political space with lots of different tiers is one where the possibility of being booted from one tier to another will surely come up. Currently being a member of the club is like a guaranteed berth in the Champions League year after year. For existing EU members, the idea of relegation is best left to sporting competitions. ■



Partygate

Neither black nor white

Sue Gray gives a strikingly patchy account of the Downing Street parties

ON MAY 25TH Sue Gray, a senior civil servant, published a report into gatherings that had taken place in Downing Street during the pandemic. Nine photos are included, depicting two events: a drinks party in November 2020 (shown above) for a departing official, and a gathering in the Cabinet Room in June 2020 to mark the prime minister's birthday. In parts the images are pin-sharp, capturing tins of lager, emptied wine glasses and Boris Johnson holding a plastic beaker aloft. Much of them are a blur, the identities of Mr Johnson's fellow partygoers obscured.

This blend of precision and pixelation characterises Ms Gray's report into events that scandalised Britons. The revelations that politicians and officials had been breaking pandemic-era restrictions had already resulted in 126 police fines for 83 people, including one each for Mr Johnson, his wife, and Rishi Sunak, the chancellor. But Ms Gray's long-awaited report was meant to clear up what had been going on. Ministers had vowed that her report would be

"independent": a former head of government propriety and ethics, she is known for having no-nonsense grip.

Yet she is also a civil-service veteran, an insider's insider with a reputation for foiling freedom-of-information requests, now called upon to pass judgment on her colleagues and her ultimate boss, Mr Johnson. Expectations for her report veered between forensic exposé and artful obscurcation.

In the end, she delivered both. The re-

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port is an embarrassing portrait of a government which, while confronting the worst pandemic in a century, seemed remarkably preoccupied by a schedule of leaving drinks, Christmas parties, garden receptions and "Wine Time Friday". But elsewhere its gaze is cloudy and incurious. As a crime report, it logs the blood, fingerprints and weaponry, but the perpetrator is no more than a silhouette.

One bash on June 18th, fuelled by pizza and prosecco, spilled through the Downing Street complex from 6.30pm until the last attendee left at 3.13am. Helen MacNamara, then the deputy cabinet secretary, produced a karaoke machine. One attendee drank until they vomited. Two others fell into a "minor altercation". At another "crowded and noisy" bash, a panic alarm was triggered, prompting the police to arrive. Ms Gray found "multiple examples of a lack of respect and poor treatment of security and cleaning staff". The scandal exposed those involved not to be particularly wicked, but callow, self-absorbed, almost bored by high office.

Elsewhere, Ms Gray's gaze is much less piercing. She decided to identify by name only the most senior officials. There are curiously few references to the role of Dominic Cummings, Mr Johnson's anarchic chief aide for much of the period, who once declared that successful political operations are characterised by "hot women and beer and pizza and music in the office" ▶

► on Friday and Saturday night". Ms Gray declined to investigate a gathering in Mr Johnson's private flat on the night Mr Cummings resigned, in which celebrating special advisers were said to have blared ABBA songs. Some events Ms Gray found out about only through the press; she acknowledges she may have missed more.

Her conclusions are also rather coy: the closest she comes to censuring Mr Johnson or Simon Case, the cabinet secretary, is to declare that the "senior leadership at the centre, both political and official, must bear responsibility for this culture". She declares that progress has been made on overhauling Downing Street's management, and hopes junior officials "have taken the learning from this experience". It is a report that manages to satisfy two constituencies: a public that wants lurid detail and officials who hope to avoid the blame.

Mr Johnson's response to the report was a similar mixture of lucidity and evasion. He told the House of Commons that he was "humbled", and accepted "full responsibility" for his own breaches. Moments later he was rather less humble, accusing Sir Keir Starmer, the Labour leader, of a "saintimonious obsession". He was right to drop in on his staff's leaving drinks—one of the "essential duties of leadership" and a way to boost morale. As for the bacchanalia that later unfolded, he could not be responsible for he knew nothing of it.

That appears to be his defence for a forthcoming House of Commons inquiry into whether he lied to MPs about the affair. The principle of individual ministerial responsibility, by which ministers shoulder the errors of their unelected staff, whether they knew of them or not, has been out of fashion for some years. Mr Johnson has discarded it entirely.

Mr Johnson seems yet again to have dodged the immediate threat. If 54 members of the parliamentary Conservative Party declare a lack of confidence in him, a leadership ballot will be triggered. In the House of Commons, many Tory MPs declared themselves satisfied with Mr Johnson's apology. Libertarian types are thrilled that the affair makes it harder for a future government to introduce a lockdown.

Others see danger through the murk. According to YouGov, a pollster, 59% of voters, and 27% of those who voted Tory in the general election of 2019, think Mr Johnson should resign. Tobias Ellwood, a Conservative MP, told the House that he had lost faith in the prime minister. "A question I humbly put to my colleagues is: are you willing, day in day out, to defend this behaviour publicly? Can we continue to govern without distraction, given the erosion of the trust of the British people? Can we win a general election on this trajectory?" Ms Gray's report may not have cleared things up. The voters eventually will. ■

The cost-of-living squeeze

The wind changes

The Tories flip-flop on the merits of windfall taxes

ON MAY 24TH Britons got some grim but expected news from Ofgem, the energy regulator. In October their average annual energy bills will probably jump to around £2,800 (\$3,505), over twice as much as a year earlier. In the absence of more government support, two in five households would then be spending more than 10% of their income on energy (see chart). That support is now, rightly, forthcoming. Rishi Sunak, the chancellor of the exchequer, was set to announce a package of measures to ease the burden of rising prices as *The Economist* went to press. But in order to help fund it, it seemed certain that the government would apply a one-off windfall tax on energy companies' profits.

Proponents of a windfall tax, led by the Labour Party, have long argued that it is both fair and efficient. Fair, because shareholders of oil and gas firms should not benefit from high oil prices caused by Russia's war on Ukraine. Efficient, because a windfall tax is a one-off measure; affected firms would have neither the time nor the incentive to change their behaviour.

That logic is contentious. When a windfall tax was first mooted, the Conservatives themselves were opposed on the ground that it would chill investment just as energy companies should be committing more capital to combat climate change. Businesses would worry that the tax regime was becoming more arbitrary and less symmetrical, with a risk of additional taxes in good times and no relief from them in bad. "Unconservative," said some.

It now seems as though the government

has got over those concerns and will plough ahead with a windfall tax. That is principally for political reasons: the policy is wildly popular. But it helps that in 1981 Margaret Thatcher, no socialist icon, taxed elevated bank profits, which, she wrote, were the "result of our policy of high interest rates rather than because of increased efficiency or better service to the customer". Bernard Looney, the boss of BP, an energy giant, seemed to undermine the case against a tax when he told the *Times* that a windfall levy would not affect plans for up to £18bn of investment in Britain by 2030.

Yet the argument for a windfall tax remains unconvincing. To mute its deterrent effect, Mr Sunak was expected to outline a levy that will be lower for companies that invest in Britain. But it is not always easy for firms to put capital to work quickly. Alastair Syme of Citigroup, a bank, says that BP, for example, could put more cash into existing oil and gas facilities to raise capacity, but it's "at the margin stuff". New investments in the renewables sector are constrained by government-controlled factors like planning permission and licensing processes.

Even if a windfall tax could be designed in theory to preserve or sharpen incentives for short-term investment, it may still have a longer-term deterrent effect. Precise evidence in this area is frustratingly thin, partly because there have been so few windfall taxes but also because they are often introduced in unusual circumstances, making it tricky to tell what exactly caused any fallout. But there is plenty of research which shows that general uncertainty crimps investment.

The government has fuelled such uncertainty. On May 23rd a report from the *Financial Times* said that the Treasury was considering thwacking electricity generators as well as oil and gas producers. The share prices of affected firms like Centrica, SSE and Drax dropped steeply in response. Even if that idea ends up being ditched, the fact that it was considered will have introduced doubt about the stability of the tax regime into the minds of investors.

The question of how much any tax raises also matters. The most important feature of any cost-of-living package announced by the government is the extent to which it protects the most vulnerable. The best way of doing that would be to raise welfare payments: changes to benefits that came into effect in April amounted to a real-terms cut of £15bn in spending. But Labour's proposal for a windfall tax on oil and gas companies, for example, would raise only around £2bn.

It now appears certain that a windfall tax will be imposed. But it needs to be high to make a real difference, risking a more dampening effect on long-term investment incentives. Not very Conservative. ■

The cap doesn't fit

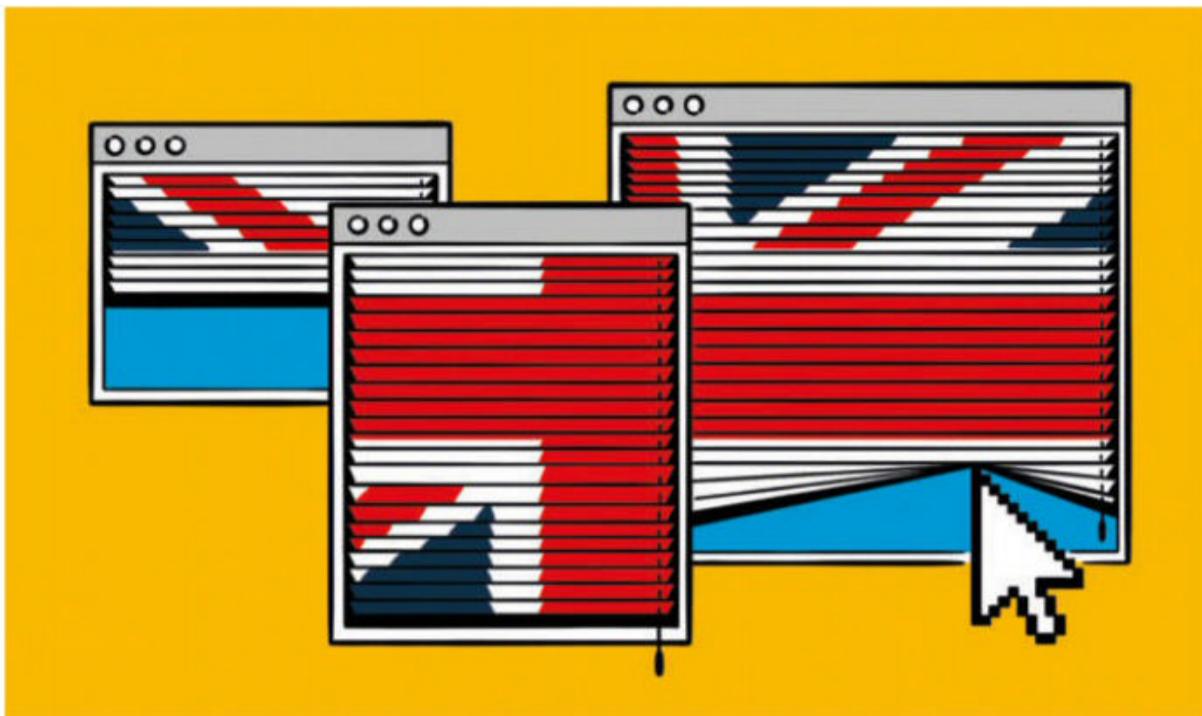
Britain, households in fuel stress*, %



Source: Resolution Foundation

*Spending more than 10% of income on fuel
†Forecast

‡Adjusted for household size



Internet regulation

Headline removed for your own safety

The Online Safety Bill promises huge changes to what Britons can do online

BRITAIN'S GOVERNMENT likes to trumpet the benefits of free speech. Announcing a bill designed to prevent stroppy students "no-platforming" speakers at universities, Boris Johnson told his millions of Twitter followers last year: "Freedom of speech is at the very core of our democracy." The Higher Education (Freedom of Speech) Bill was included in the Queen's Speech, which sets out the government's legislative agenda, earlier this month.

Outside the lecture hall, though, Mr Johnson's government is accused of censorship in its own right. Also in the Queen's Speech was the Online Safety Bill (OSB), a bumper piece of legislation that will impose sweeping new obligations on search engines, social-media sites, forums, video sites and the like. Ministers say it is "world-leading". At 225 pages, with 194 separate clauses, and with up to 25,000 firms potentially affected, everyone agrees it is ambitious. The arguments are about its consequences.

To its defenders, the bill—whose origins date back to Theresa May's time as prime minister—is designed to make Britain "the safest place in the world in which to use the internet". The OSB will impose a "duty of care" on tech firms, a concept that began in health-and-safety legislation for the workplace. Tech firms will be required by law to protect their British users from racism, death threats, sexual exploitation, dodgy adverts and much, much more.

Any site likely to be accessed by children—which, in practice, means most of

them—could demand identification to ensure visitors are over 18. The biggest sites will be required to scour everything their users upload for potential illegality—and perhaps also for things that, despite being legal, are deemed "harmful" in Whitehall. Penalties run to 10% of a firm's worldwide revenues, or even an outright ban.

Civil libertarians are not happy. A legal opinion commissioned by Index on Censorship, a charity, said the bill was likely to fall foul of the free-speech provisions of the European Convention on Human Rights (to which Britain remains a signatory). David Davis, a Conservative MP, has described it as a "censor's charter" that would "strangle free speech online".

The bill establishes several tiers of nastiness. The worst tier is reserved for things that are against existing laws, such as assisting suicide, making threats to kill or assisting illegal immigration. The biggest firms (the definition of "big" remains unclear) will have to proactively purge such things from their sites. The sheer size of big platforms (500 hours of video are uploaded to YouTube every minute) means that it is not feasible for humans to check every post. Firms will have to rely on automated enforcement.

But algorithms are blunt tools, says Mark Johnson of Big Brother Watch, which campaigns on civil liberties. They often struggle with nuance and context. "Is an algorithm going to be able to reliably tell the difference between someone encouraging suicide and someone with postnatal de-

pression posting about feeling suicidal on Mumsnet [a big web forum]?" With billions of dollars potentially at stake, he says, the risk is that firms will err heavily on the side of caution, leading to overzealous blocking of innocuous posts.

A second tier of content concerns posts that are not in themselves illegal, but which are deemed to be "harmful". Exactly what belongs in that category is unclear (it is left for ministers to decide later). But the government has talked about everything from vaccine scepticism and bullying to glorifying anorexia and hurling racist insults at England's football team. Sites will be required by law to minimise the chance that children see such posts. For everyone else, they will have to make an active decision about whether to block or downplay such content, or to carry on promoting and recommending it as they would anything else on their products.

Campaigners argue that these "legal but harmful" provisions amount to censorship by the back door, and create an entirely new category of speech in law. Ruth Smeeth, a former MP and the boss of Index on Censorship, calls them a "clusterfuck". The government has tried to reassure doubters by pointing out that tech firms will be free to leave such posts up if they so choose. Ms Smeeth is dismissive: "Can you imagine the political pressure on any platform that says publicly they're OK with this stuff?" Those that decide to suppress it will again depend on idiot-savant algorithms.

There are other doubts. A string of new communications offences rely on subjective definitions of psychological harm. Jonathan Hall, the government's independent reviewer of terrorism legislation, is unhappy with similar vagueness around definitions of terrorism. Some police officers worry that firms could destroy digital evidence of crime by deleting posts. But support in Parliament remains strong. Last year Sir Keir Starmer, the Labour leader, castigated the government for not moving more quickly. The bill looks likely to make it onto the statute books.

Online, off limits

That could have international repercussions. Tech firms may choose to try to apply the new laws in Britain only. If they decide that it is too difficult to create a new set of rules for a subset of their users, one option is to apply at least some of the OSB's provisions to their services anywhere. There is precedent: last year Britain brought in the Age Appropriate Design Code, which prescribes stricter privacy for children online. Google, TikTok and others made worldwide changes as a result. Another possibility is that some foreign firms, particularly smaller ones, may stop serving Britain entirely. In various ways, the price of safety may be silence. ■

Bagehot | The useless machine

How the Conservatives became an opposition in government



BELL LABS, the former research arm of AT&T, an American telecoms giant, invented large chunks of the modern world. Transistors, the silicon solar cell and the laser all started life at its laboratory in New Jersey. Engineers there also invented something utterly pointless. Nicknamed the Ultimate Machine, it was a small wooden box with a lid and a switch. The switch did one thing only: if turned on, an arm popped out of the lid and flicked it off again.

Watching a useless machine repeatedly turn itself off was “devastating”, wrote Arthur C. Clarke, a science-fiction author. “There is something unspeakably sinister about a machine that does nothing—absolutely nothing—except switch itself off.” A similar sense of dread occurs when examining the Tories’ record in power over the past 12 years. The Conservative government exists to undo the previous acts of Conservative governments.

It starts with the government’s flagship policy: “levelling up”. In theory, this is a fundamental reshaping of Britain, which will see economic largesse and political attention shift from a spoilt south-east to a neglected north and Midlands. In practice, it amounts to replacing some of the funding lost under David Cameron’s 2010-15 coalition government and its successors. In the decade to 2020, local government funding was halved in real terms.

Since some services, such as social care, are statutory, others were slashed to compensate. Parts of the public realm that make an area nice—the libraries, parks and emptied bins—suffered most. Now money removed by the Tories during austerity is being dribbled back, often to marginal Tory seats, in a weird form of political extortion: vote Conservative or the flowerbed gets it.

It is a similar story when it comes to dealing with rocketing energy prices. Ofgem, which regulates energy prices in Britain, said this week that the typical annual energy bill would rise by about £800 (\$1,000) to £2,800 this autumn. An alliance ranging from Labour to Martin Lewis, a personal-finance guru, have demanded more government action to support poorer households.

By heeding their calls, Mr Johnson will again be undoing previous Conservative Party policy. The cost-of-living squeeze is so acute in part because benefits have fallen steeply in real terms since 2010. An unemployed person is about £700 a year worse off in real terms than they were in 2010, according to the New Eco-

nomics Foundation, a think-tank. If the government wants to survive a chilly winter, generous support for Britain’s less well-off is almost obligatory. In order to stay in power the Conservative government will return money a previous Tory government removed.

Sometimes the self-cancelling action is as quick as the machine that so disturbed Clarke. No sooner had the government agreed the Northern Ireland protocol, part of the Brexit withdrawal treaty that keeps the province in the EU’s single market for goods, in early 2020, than it started threatening to undo it. Skip forward three years, and Britain and the EU stand on the brink of a trade war over the topic. Liz Truss, the foreign secretary, cranks up the rhetoric with Ireland, only for more soothing noises to emerge elsewhere from the British government. Click, whirr, click.

Policies change as times do. There is usually, however, a consistent thread when a party stays in power. Yet almost every feature of the Cameron era is being erased. George Osborne, the then chancellor, boasted of making Britain’s corporation tax the lowest in the G7. Rishi Sunak, the current chancellor, plans to return it to 25%, above the OECD average. Flagship policies of that period are now forgotten. New Schools Network, a government-backed charity that helped set up “free schools”, has shut down after the government cut its funding. The Health and Care Act passed this year unpicks the botched NHS reforms put forward under Mr Cameron.

Strategically, running against previous Conservative governments has merit. Mr Johnson can present his government as a new one, untarnished by the nine years of Tory rule that preceded him. Such political mid-air refuelling is hard to pull off. Labour did not manage it when Gordon Brown succeeded Tony Blair in 2007. The Conservatives themselves failed to do it after Margaret Thatcher was turfed out of office. A certain brazenness is required, which suits Mr Johnson to a tee. Humility would do no good. Facing a camera and proclaiming “Oops! Our mistake!” would not trigger a surge in Tory polling.

Politically, it makes sense too. Austerity was popular when it happened to other people. There is little innate love for Mr Cameron’s project of tight spending and social liberalism. In 2010 the Conservatives failed to win a majority on the back of an enormous recession. In 2015 they managed only a slim one of 16. By contrast, in 2019 big-spending authoritarianism helped win the Conservatives their first large majority since Thatcher. That Mr Cameron is Mr Johnson’s lifelong rival makes burying his legacy an enjoyable task. Inventing a pointless machine is fun; for parts of the government, so is trampling on its predecessors.

There is no alternative

Unfortunately for them, the Conservatives have been in power for so long that almost any problem can be laid at their door. Governments are usually kicked out when voters want fresh policies. But in the general election of 2019, a fusion of Brexit and Labour’s leftward tilt ensured that a Conservative government was returned with the pledge of doing something new. The Conservatives were handed the task of undoing Conservative policy.

Just as Clarke found a useless machine perturbing, there is something obscene about a government that has so much power but does so little with it. The government has become an opposition in office, railing against the actions of its predecessors. Useless machines are now sold as amusing toys on Amazon for £11.85. “They would make perfect retirement gifts for unsuccessful chief executives,” suggested Clarke. The Conservative prime minister does not need one; he can just look in the mirror. ■

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The recipe for the outperformance of corporate Switzerland

BIG CHEESES from the world of politics, business, academia, media and the arts descended on Davos on May 22nd for the first in-person bash of the World Economic Forum in more than two years (see next article). For over half a century the great and the good have used the annual get-together to chew over the world's most pressing problems. They feel at home in Switzerland. Just as the small mountain village punches far above its weight as a talking-shop, Switzerland has prospered as a haven for businesses far beyond what might be expected of a small, landlocked country with few natural resources. It is home to 13 of the top 100 European firms by market capitalisation and 12 of the top 500 worldwide. What is the secret sauce of the Swiss?

Something remarkable must be going on in the nation of mountains and valleys that before playing host to world-beating firms counted the invention of yodelling among its achievements. Relative to its GDP Switzerland has the highest density of Fortune 500 companies in the world (see

chart 1 on next page). Multinationals contribute around one-third of Switzerland's economic output, a much higher share than in other countries of comparable size. Foreign firms are drawn to Switzerland: Google set up its largest engineering centre outside America in Zurich. Swiss blue-chip firms outperform European rivals: the Swiss stockmarket index has risen by 29% over the past five years, compared with 3% for the Euro Stoxx 50, an index dominated by French and German behemoths.

Swiss firms' name recognition has spread far beyond the country's borders in

banking (UBS and Credit Suisse), insurance (Swiss Re and Zurich), pharmaceuticals (Roche and Novartis), food (Nestlé), commodities trading (Glencore and Gunvor), watchmaking (Richemont, Patek Philippe and Rolex), hotels (César Ritz was the youngest of 13 children of a Swiss farmer) and, inevitably, chocolate (Lindt & Sprüngli, and Barry Callebaut, the world's biggest chocolate-maker).

There are several explanations for Switzerland's corporate one-upmanship. One is that the country's defining characteristic is "common sense", says Paul Bulcke, chairman of Nestlé. This manifests itself in a unique political model that mixes federalism and direct democracy, a weak central government, light regulation, top-notch research universities, and rivalry in education and taxation between the cantons that make up the Swiss confederation.

For much of its history Switzerland was poor. Infertile soil, often covered in snow for most of the year, made the landscape inhospitable. So when Switzerland started to develop economically in the 19th century city-cantons such as Zurich or Basel began to specialise in high-value-added industries. St Gallen focused on textiles; Zurich on silk and spinning; Berne was the centre of the cheese trade; and Basel became a hub for budding pharmaceutical and chemicals industries. Watchmaking was mainly located in the Jura arc stretching from Geneva to Basel and the banking

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► and insurance industries prospered in Geneva and Zurich.

This endeavour was assisted by Switzerland's "eternal neutrality", granted at the Congress of Vienna in 1815. It was spared two world wars that devastated the rest of Europe in the last century. At the same time it benefited from an influx of skilled folk fleeing strife elsewhere on the continent and from the cash they deposited in Swiss bank accounts. For James Breiding, author of "Swiss Made: The Untold Story Behind Switzerland's Success", the vital ingredient is an openness to the world that attracts international talent, including persecuted minorities such as France's Huguenots in the 17th century and Germany's Jews in the 1930s and 1940s.

Foreigners have been central to Switzerland's business success. Henri Nestlé, the eponymous founder of the company, hailed from Frankfurt. Antoni Norbert Patek, the pioneering watchmaker and creator of Patek Philippe, was a Polish cavalry officer. Leo Sternbach, a Polish Jew who fled the Nazis, invented Valium, which became Roche's blockbuster tranquilliser. Nicolas Hayek, the co-founder of Swatch, a popular watchmaker, was of Lebanese descent. About half of the CEOs of Switzerland's biggest firms are foreign. Severin Schwan of Roche is Austrian, Gary Nagle of Glencore is South African and Vasant Narasimhan of Novartis is Indian-American.

Switzerland's welcoming of outsiders stands in stark contrast to relations within. The Swiss have no particular affinity for

their compatriots in other cantons. The country's city-states would doubtless have preferred to remain independent, only becoming a bigger unified entity to defend themselves against rapacious neighbours. But they joined together in such a way as to foster self-reliance and responsibility. "Like peasants buying cabbage at the market the city-states shopped around for the cheapest social contract they could find and ceded as little personal freedom for the greatest gain," says Mr Breiding.

This approach makes for light regulation from the top. The Federal Council, the federal government's executive branch, does without recognisable leaders. The cabinet has seven members who have equal power. Each of them spends a year as president, ensuring that no one remembers their names for long. While the council has few powers, the country's 26 cantons have plenty, as do its more than 2,000 municipalities.

Cantons run health care, welfare, education, law enforcement and fiscal policy. That allows them to compete to be attractive to businesses and their workers. Corporate taxes are low (see chart 2). Lucerne halved its rate in 2012. Zug has the lowest corporate tax rate at 11.9%. Only "offshore" financial centres such as Guernsey and Qatar have lower tax rates than those levied in the low-tax cantons, states a report by KPMG, an accounting firm. Compare that with France where the rate is 26.5%.

The competition doesn't stop at light taxation. Cantons help to fund top-notch

Alpine peaks

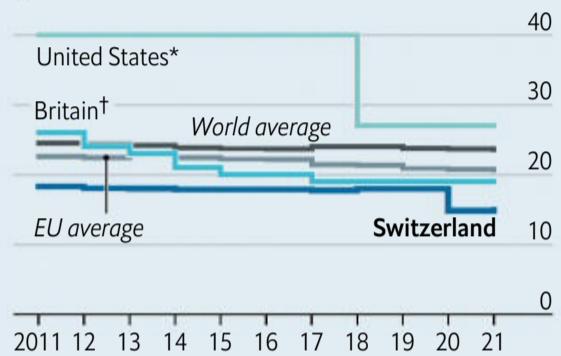
Stockmarket indices

January 1st 1990=100, \$ terms



Average corporate-tax rate

%



*Including state and local †Main rate
Sources: Refinitiv Datastream; KPMG

Credit the Swiss

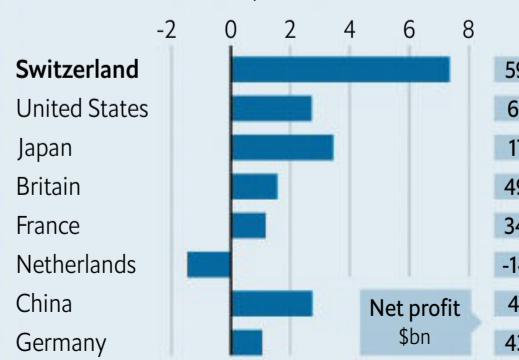
Stockmarket capitalisation as % of GDP

At May 20th 2022



Net profit as % of GDP

Fortune Global 500 companies, 2021



Sources: Bloomberg; Fortune; IMF

Revenues as % of GDP

Fortune Global 500 companies, 2021



Companies per 1m population

Fortune Global 500 companies, 2021



universities. Zurich's Eidgenössische Technische Hochschule (ETH), one of the two federal institutes of technology, is regularly ranked among the best universities in continental Europe. Strong links between business and academia mean that graduates have the right skills. For instance, in January 2020 Nestlé, the Ecole Polytechnique Fédérale de Lausanne (EPFL), the other federal institute of technology, the canton of Vaud and the Swiss Hospitality Management School in Lausanne launched the "Swiss Food Nutrition Valley", a research programme to promote innovation in sustainable food production. Logitech, a maker of software, and Cisco, a technology firm, have research centres on the EPFL campus.

Yet for all its success Switzerland has become less attractive as a hub for multinationals over the past three decades. In 1990 two-thirds of America's top 20 companies (including General Motors, Hewlett-Packard and IBM) had their European headquarters in Switzerland. In 1992 Swiss voters decided against following the Norwegian example and joining the European Economic Area with access to the EU's single market. As a result some of the world's most successful firms, such as Apple, Alibaba and Samsung, set up in Amsterdam, Dublin or other EU business hubs. Last year Switzerland missed another chance to gain smooth access to one of the world's largest markets when its government abandoned plans to convert 120 bilateral deals into an overarching treaty with the EU.

The World Economic Forum

Postcard from a world on edge

DAVOS

For all its flaws the plutocrats' talking shop has its uses

THE ANNUAL meeting of the World Economic Forum (WEF) is a study in contrasts: business and politics, East and West, north and south, a few insiders cloistered in wintry Davos and the billions of outsiders on whose fate they pontificate. This time around, as thousands of the world's movers and shakers belatedly descended on the Swiss ski resort between May 22nd and 26th, the big disparity was between the gloom about the state of the world and the joy of shoulder-rubbing in person (minus the snow) after a two-year pandemic hiatus.

The macro mood was sombre for good reason. High inflation doesn't feature in the Bible but other than that the list of CEOs' top concerns currently reads like the Book of Revelation: war (in Ukraine), pestilence (particularly China's destructive effort to stamp out covid-19 at home), famine (everywhere, if war and pestilence aren't staved off). On top of that, one Western boss after another got an earful from their emerging-market counterparts about the global knock-on effects of the American-led sanctions against Russia on food and fuel prices.

This apocalyptic backdrop helps explain why companies reined in the pizzazz. JPMorgan Chase, an American bank, cancelled its hot-ticket party. The one thrown by Salesforce, a business-software giant, was as raucous as ever but some other corporate dos looked virtually empty. The boss of one giant firm noted the lack of "vibrancy".

Attendance seemed down on previous years—by half or so, chief executives reckoned. Several American regulars were kept away by prior engagements (Amazon, BlackRock, ExxonMobil and Meta all hosted their annual shareholder

meetings this week). Russians were uninvited; Russia House became Russia War Crimes House, displaying images of atrocities committed by Vladimir Putin's troops. The absence of China, whose representation fell from hundreds to a handful owing to President Xi Jinping's zero-covid policy, made the talking shop less global—and less useful—than usual.

But not useless. This year's worthy panel discussions will not fix globalisation, avert climate catastrophe or foster inclusive growth. At the same time, in no small part because things were less hectic, attendees reported enjoying the frank back-room chats that are the WEF's main draw more than ever. Individually, these are about corporate self-interest. Collectively, they can add up to something meaningful. Davos needs the world more than the world needs Davos. That isn't to say there are no mutual benefits.



We mustn't stop meeting like this

► And much that accounts for Switzerland's corporate strength is in question. The war in Ukraine makes some Swiss ponder the country's neutral status; to widespread surprise, their government has joined Western sanctions against Russia. In the past, any tinkering with neutrality was considered a betrayal of the nation, says André Hoffmann, vice-chairman of Roche. Moreover, the country is still dealing with the rehabilitation of its wealth-management industry, which has been forced to clean up its act over the past 15 years after America declared war on Swiss banks that had helped its citizens dodge billions of dollars in tax. According to Mr

Breidling, wealth management remains under threat from lower investment returns and increasing international pressure for financial transparency. The pharmaceutical sector is grappling with the rapid rise in costs for drug innovation.

Yet the Swiss have shown in the past that they can overcome challenges with hard work and ingenuity. Swiss watchmaking seemed to be winding down the path to extinction until Swatch revived the industry by making cheap watches more fun and expensive ones more desirable. Chances are that the great and good of Davos will feel right at home in Switzerland for many years to come. ■

Technology

Broader still

SAN FRANCISCO

Will a chipmaking giant's \$60bn bet on software pay off?

A MARKET DOWNTURN is a good time for buyers. Look at the tech industry. The Nasdaq, a tech-heavy index, has fallen by 30% from its peak in November and a flurry of deals are under way. Microsoft is working on the \$69bn purchase of Activision Blizzard, a videogame maker. Since March, Thoma Bravo, a private-equity firm, has spent \$18bn on two enterprise-software firms. Elon Musk is—perhaps—about to purchase Twitter, a social network.

The latest big tie-up looks unusual. On May 22nd Bloomberg reported that Broadcom, predominantly a semiconductor maker, worth \$214bn, is planning to buy VMware, an enterprise-software firm. If the deal goes through, it could be worth \$60bn. A chipmaker buying a software firm may seem strange. But Broadcom has done the same thing in the past with striking success. Can it repeat the trick?

Broadcom is an odd beast. It started life as Avago Technologies, a chipmaker based in Singapore. That firm bought a number of other chipmakers, including Broadcom, from which it took its name. In 2018 it tried to buy Qualcomm, a rival semiconductor firm, for \$130bn. That would have been the biggest tech acquisition of all time. Donald Trump, then America's president, eventually quashed the deal on national-security grounds because Broadcom was a foreign firm (even though it was in the process of moving its headquarters to America).

After that, Broadcom changed tack. Later in 2018 it surprised the industry by buying CA Technologies, a software firm, for \$19bn. The following year it snapped up Symantec, a cyber-security outfit, for \$11bn. The motivation was not to link its semiconductors to its new acquisitions, but to run the software firms more profitably. Cost-cutting at both firms hurt future growth prospects but helped profits. Operating margins at Broadcom's software units ballooned from about 30% before the takeovers to around 70% today.

This private-equity-style approach has transformed Broadcom into a tech conglomerate. Today 26% of its revenue comes from software. With VMware that figure could grow to 45%. The shift into software has also boosted Broadcom's overall operating margins, which have grown from 15% in 2016 to 32% today, among the best in the semiconductor industry. Investors seem pleased. Broadcom's share price has nearly doubled over the past two years, compared

► with a 60% increase for the PHLX, an index of chip manufacturers.

In many ways Broadcom's most recent target resembles its previous success stories. Like CA and Symantec, VMware sells infrastructure software and controls a large share of that market. According to Gartner, a research firm, the company holds about 72% of the server-virtualisation market, a technology that it helped to pioneer. Another similarity is that its services are "sticky", notes Stacy Rasgon of Bernstein, a broker. It is hard for existing customers to switch away because they are

reliant on VMware's software to run their server infrastructure.

But Broadcom may struggle to repeat its past successes. Antitrust regulators are ever more wary of big tech mergers. And even though the two firms do not compete directly, America's Federal Trade Commission is already investigating whether Broadcom forced customers into exclusive agreements that make it difficult for them to shop around. Another risk is a cultural clash. Last year SAS Institute, another enterprise firm, rejected Broadcom's takeover bid. Part of the reason was that em-

ployees worried that its cost-cutting strategy would put an end to their office perks.

And some worry that Broadcom's pursuit of profits will mean that VMware misses out on a bigger prize. It is in the middle of its own pivot, planning to grow its subscription and cloud arms from 25% of sales today to around 40% by 2025. In doing so, VMware "has a shot at being the layer on which most companies use the cloud", argues Patrick Moorhead, a chip-industry analyst. Cutting investment and marketing would stifle such efforts just as cloud computing is booming. ■

Bartleby The power of small gestures

Showing appreciation is an art, not a science

WHEN LABOUR markets are tight, the perks tend to get better. Spotify is rolling out a new corporate-subscription package, enabling firms to offer the streaming service to their employees. If you are sufficiently high up at Goldman Sachs, you are now entitled to take as much holiday as you want (this is a nominal perk; no one who cherishes work-life balance gets to climb the ladder at Goldman in the first place). Salesforce has a ranch in California to which it can send workers for in-person get-togethers. If you work long enough for Blue Origin, you might get blasted into space.

For firms that don't own rockets or ranches, it can seem hard to compete. The good news is that small gestures of appreciation can have an outsized effect on employee satisfaction and loyalty. The bad news is that they are not meant to be scaled up.

Several pieces of research look at the effect that acts of thoughtfulness can have on staff. In one recent study by academics at King's College London and Harvard Business School, a group of social workers was randomly divided in two: members of one group got a letter of thanks for their work from their line manager, and members of the other got nothing. A month later, recipients of the letter reported feeling much more valued than their counterparts.

In similar vein, a study in 2010 found that university fundraisers who were personally thanked for their work by a senior member of staff made many more calls to ask alumni for donations in the week following this small act of recognition than they had in the week before. There was no statistically significant change for an unthanked control group.

Another study involved workers at a Coca-Cola facility in Madrid, some of

whom had secretly been told to perform acts of kindness to a subset of their colleagues (bringing someone a drink, say, or emailing them a note of thanks). Both givers and receivers of these acts reported feeling higher levels of job satisfaction; and the receivers ended up doing other colleagues more favours, too.

Such studies carry two lessons for employers. One is that recognition can have a meaningful impact on workers. The other is that this impact is amplified if shows of appreciation are personal and unexpected. In their haste to act on the first lesson, plenty of companies completely forget the second.

Many firms now run formal employee-recognition initiatives, from rewards programmes to award schemes. Vendors offer clients a variety of services, including internal noticeboards on which colleagues can publicly thank each other for their work and bestow points that can be redeemed for gifts and experiences. The website of one vendor offers managers advice on what to say to employees to make them feel recognised, because abso-

lutely nothing says "authenticity" like a script. (Sample quote: "Congratulations on your great victory! Only you could have pulled it off!", which sounds like a Hallmark card for Napoleon.)

Industrialising appreciation misses the point completely. Automated birthday and work-anniversary congratulations are about as personal as an invoice. Platforms on which peers publicly recognise the hard work of others are liable to encourage performative displays of praise. That is especially likely if every compliment shows up on an analytics dashboard for the boss; one employee-engagement firm tracks shows of gratitude and breaks these "recognition occasions" into a series of ghastly categories like "Owning the Results" and "Building Trust Like a Family".

Award schemes also require careful handling. They are great if you win and somewhat less motivating if you don't stand a chance. In one study from 2014, academics looked at the effect of an award programme on Zambian health-care trainees; they found that comparison with others worsened performance, especially for less able workers.

The secret to showing appreciation is that scarcity matters. It should involve effort: a handwritten note is better than an email, which is better than an algorithm. It should feel personal, not part of a scheme cooked up by the human-resources department. And it should be sufficiently rare to register as meaningful; thanking everyone for everything turns gratitude into a commodity. In other words, appreciation is not a big-data project. Individual managers can harness the power of small gestures to make a real difference to their teams. The best thing firms can do is to hire the sort of people who recognise as much.



Foodmaking

A taste of things to come

Plant-based proteins are increasingly popular with diners

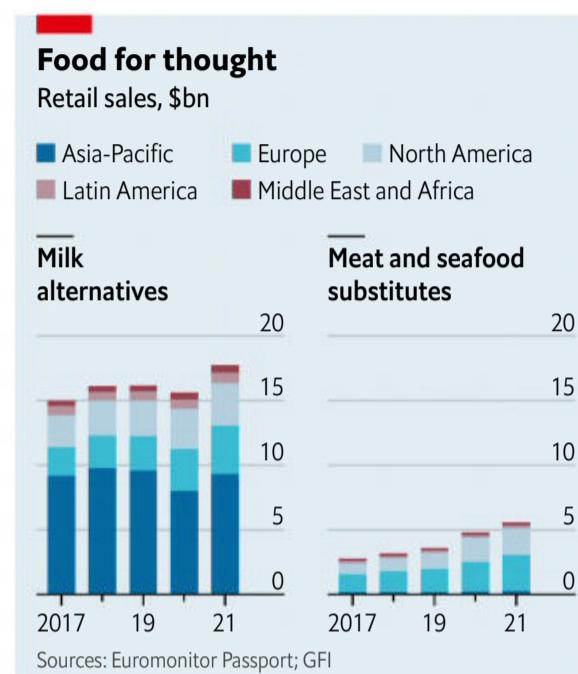
A GOOD VEGAN milk needs to look like milk and taste like milk, whether it's a fatty version, preferred by bakers, or a skimmed one, favoured by the health-conscious. And, for coffee-drinkers, it should ideally foam like the stuff from a cow. For years manufacturers have had trouble hacking this delicate imitation game. Rapidly rising revenues suggest that they are getting much better at it. In America alone, \$2.6bn of plant-based milk was sold in 2021, up from \$2bn in 2018.

Pseudo-milks are only one category in the growing assortment of passable plant-based alternatives to animal products. There are now convincing versions not just of meat but of cheese, eggs and even prawns. Burger King and McDonald's sell vegan patties; Chipotle has made a plant-based chorizo. Last year the world's largest producer of canned tuna, Thai Union, launched a plant-based line. Growing sales show the growing taste for this type of foodstuff (see chart). BCG, a consultancy, reckons that global revenues from alternative proteins could reach \$290bn by 2035—and that is a cautious estimate.

Eager investors have poured into the business like oatmilk into a latte. Alternative-protein companies lapped up \$5bn in investments in 2021, 60% more than in 2020. Oatly, a Swedish firm that makes plant-based milk, raised \$1.4bn on its Nasdaq debut last year. Impossible Foods, which makes meatless burgers, raised \$500m in November, valuing the firm at \$7bn. In February Nestlé, a packaged-goods giant, acquired Orgain, which makes plant-based protein powder, for an undisclosed sum rumoured to be around \$2bn. Can the feast last?

One reason to be hopeful is that alternative proteins have come a long way since the 1980s, when Quorn, a fungus-based meat alternative, first hit supermarket shelves. Silk, a soya milk, followed in the 1990s. Unlike those early products, which were neither terribly tasty nor particularly nutritious, the latest crop are often both. Clever processing improves texture, additives boost taste and a pinch of specially engineered peas and beans adds nutrients.

Firms are experimenting with ever more novel ingredients in search of meat- and dairy-like properties that will attract ever more shoppers. TerViva, an American startup, is using the oil of pongamia, an Asian tree, to mimic butter. ChickP, an Is-



raeli firm, is using chickpea extracts to mimic the texture and nutritional value of eggs in mayonnaise. Firms are also getting better at turning such bounty into consumer products. There are now ways of using corn protein to make plant-based cheese alternatives melt and stretch.

Better products and lower prices—the result of both improved manufacturing techniques and scale—have coincided with the rise of “flexitarians”, who forgo meat but not always. Some are trying to cut saturated fat for health reasons—a trend fuelled by the pandemic. Fitness fanatics on faddish diets want to develop bulging muscles without building up cholesterol.

Concerns about animal welfare and greenhouse-gas emissions from rearing livestock are driving the climate-conscious to limit their animal-derived intake; producing a gram of beef generates 25 times the volume of greenhouse-gas emissions as producing a gram of tofu.

For all the advantages, making a plant not taste like a plant takes work, and ultra-processed substitutes seldom match animal proteins in nutritional value. Plant-based junk food is still junk. Soya is a common allergen and can have a disruptive effect on hormones. Green-minded consumers are realising that plant-based does not necessarily mean sustainable. Farming almonds to make a milk-like drink, for example, uses huge quantities of water. As inflation rises, even diehard flexitarians may turn into omnivores, and pick either the real deal (cheaper than faux animal proteins) or veg (cheaper still).

Plant-based proteins are also a tough sell in giant markets like India, where diets are already plant-rich, or Nigeria, where meat-eating is a sign of wealth. That limits their global appeal. And animal products, including milk, are better for children's bone development and nurturing gut bacteria, though lab-grown versions of meat and dairy are becoming more nutritious.

All this suggests that alternative proteins have far to go to replace the animal kind. The limitations may be weighing on the firms involved. Oatly's market value has fallen by about 80% since its listing, partly because of production difficulties. That of Beyond Meat, whose burgers feature in McDonald's McPlant sandwich, is down by 90% from its peak in 2019. Sales slowed in 2021 and losses widened to \$100m in the first quarter of 2022, compared with \$27m a year earlier. Plant-based foods may no longer be only an appetiser in diets, but their makers remain one in the food business. ■



No animals were harmed in the making of this burger

Schumpeter | Chemical hazard warning

BASF, like its German homeland, needs to wean itself off cheap Russian gas



HERE IS NO better place to experience German efficiency than at Ludwigshafen, a site operated by BASF, the world's largest chemicals company, an hour's drive south of Frankfurt. Everything is joined together in this city-sized cluster of dozens of plants connected by 2,850km of twisting pipes, from two steam crackers, industrial cathedrals where a hydrocarbon mixture called naphtha is split into its components, to an immense incineration facility, where residues are put to rest. Despite the vast scale of Ludwigshafen everything is accounted for. Reuse and recycling ensure that barely a molecule is wasted. According to BASF's proud tour guide, 94% of the chemicals that enter this system make it into one of the firm's 45,000 products.

Yet BASF's success is not entirely home-baked. Another essential ingredient is cheap Russian gas, reliably delivered via pipeline. The complex in Ludwigshafen is Germany's biggest industrial consumer of the stuff, piping in about 4% of the country's total annual gas consumption, enough to heat millions of households through the coldest of winters. BASF uses about half to produce steam, the other half as feedstock. "There is no question that low-priced energy has brought wealth to Germany," says Martin Brudermüller, BASF's chief executive. "If prices had been higher, maybe parts of our production would already be gone."

Now this energy dividend is set to be curtailed, even if the war in Ukraine ends soon. For a generation at least, Germany's leaders will look to end their country's dependence on Russian gas and oil. As a result, Europe's largest economy not only faces a rethink about how much it needs to invest in defence, but an equally difficult economic reckoning. Its industrial titans have started to reconsider their finely tuned business models. BASF offers a revealing case study of this shift.

How severe a blow Germany's economy takes will depend on how quickly it can adapt to doing without Russian gas. A group of economists led by Rüdiger Bachmann of the University of Notre Dame recently estimated that the hit from a sudden halt of Russian energy imports would be "substantial but manageable", causing a decline in GDP of between 0.5% and 3%. That is less severe than the damage done by the coronavirus. But in some locales, such as Ludwigshafen, the shock of shunning Russian gas could

be far more dramatic. If pressure in the pipeline that feeds the giant complex drops below 50% of its normal flow, the whole place will have to shut down. That in turn will cause chaos further down the chemical-industry supply chain. "When Ludwigshafen stops," warns Mr Brudermüller, "there will be no more cars, no more pharmaceuticals and no more many other things."

BASF's boss says that he will try to keep the chemicals flowing by doubling down on the firm's existing plans to do away with hydrocarbons, hoping that he has time before a European gas embargo takes hold or Russia elects to cut off supply. The firm already aims to achieve net-zero carbon-dioxide emissions by 2050. As part of that process, last year it bought part of the world's biggest offshore wind farm, off the Dutch coast. It plans to acquire stakes in other such projects. That electricity will replace the gas that powers its steam crackers. Green hydrogen and heat pumps will be added to the mix in Ludwigshafen and at five similar sites that BASF operates around the world. As for the gas it needs as a feedstock, much will arrive in ships as pricey liquefied natural gas.

The second part of Mr Brudermüller's strategy is more surprising. The economic repercussions of the war in Ukraine are pushing his firm eastwards. Higher energy costs and stricter environmental regulations in Europe make China look ever more attractive, he says. Having lived in Hong Kong for a decade, he has long admired what he describes as the country's pragmatic authorities and dedicated workers. The firm's future looks less firmly planted in Ludwigshafen than in Zhanjiang in southern China, where it is investing \$10bn in a state-of-the-art site. The German titan has no alternative to continuing to expand in China if it wants to remain the world's biggest chemicals-maker. Greater China already represents about half the world market for chemicals and will account for more than three-quarters of its global growth in the next few years, he reckons. "Everything we know about how to make things with less CO₂ will be applied there," says Mr Brudermüller, adding that "the money we will make in China will be needed to pay for the green transformation in Ludwigshafen."

Chemistry lessons

The risks of such a strategy are clear. Although BASF has, in Mr Brudermüller's words, "never seen a theft of technology" since it started production in China in the late 1960s, few would be surprised to see the firm's know-how trickle into the Chinese chemicals industry. More importantly, the economic decoupling between China and the West may yet go beyond some elements of high tech, such as semiconductors, and reach areas in which BASF specialises. The danger is that, in trying to wean itself off one kind of dependency—on Russian energy—BASF may simply strengthen another. Relying on China might not pose such an obvious danger as a Russian finger on a gas pipeline's off switch, but banking on it for a big chunk of profits still leaves the firm vulnerable.

Mr Brudermüller looks like the most energetic of Germany's big bosses in his drive towards China. But many others are said to be tempted to turn more decisively towards the east. They should think twice before embracing a greater reliance on China and instead try to rekindle the spirit of Teutonic thrift and inventiveness that made possible the industrial wonder that is Ludwigshafen. BASF has done it before, albeit for a more dubious purpose. When the British navy blockaded Germany during the first world war, the firm built a new plant to make nitric acid without imported ammonia, thus ensuring the resupply of explosives. Necessity, after all, is the mother of invention. ■



China's financial markets

Empty promises

SHANGHAI

Foreign investors were ecstatic as Chinese markets opened up. Now they are fleeing

JING'AN CENTURY, a housing development with ponds and lush greenery in north Shanghai, should have been bustling as workers put the finishing touches on flats. Instead the area is silent. A two-month lockdown of the city of 25m people has forced Yanlord, the developer, to halt construction on the site. Homebuyers have been on edge for months as some of the country's largest developers default on bonds and struggle to deliver homes.

Now Yanlord, until recently deemed in decent shape, is telling customers they will not receive their properties on time. At least 20 housing developments across the city have announced similar delays. Many other projects have been forced to stop selling units. The lockdown has been so severe that roadblocks and police checkpoints have mushroomed. Workers, materials and sales agents have been unable to reach construction sites. Meanwhile, Yanlord's pre-sales of homes have slumped to less than 20% of the level a year ago.

China's property crisis is not new. But growing fears among foreign investors of a grand policy disaster are. The combination

of a nosediving housing market and Xi Jinping's uncompromising zero-covid policy is just one recent conundrum that has led foreign fund managers to question whether China is losing its pragmatic approach to managing the economy.

Mr Xi's insistence on using prolonged lockdowns to rid China of the Omicron variant and his backing for Russia's war in Ukraine strike many investors as ideological. Add in the timing of his crackdown on tech groups such as Alibaba, an e-commerce company, and on the leverage of property giants such as Evergrande, and it is not hard to see why some of the world's largest

investment groups are questioning the quality of leadership in Beijing. Many attribute this and other campaigns to preparations for this autumn's Communist Party congress, at which Mr Xi is expected to be granted another five years in office. The events of 2022 could shape how global investors view China for years to come.

In little over a year Mr Xi's policies have had a profound—and painful—impact on global markets. They have knocked \$2trn from Chinese shares listed in Hong Kong and New York. Chinese initial public offerings in these two cities have nearly ground to a halt this year. China's property firms have sold just \$280m in high-yield dollar bonds so far in 2022, down from \$15.6bn during the same period last year. Within China, the value of yuan-denominated financial assets held by foreigners fell by more than 1trn yuan (\$150bn) in the first quarter of 2022, the biggest drop ever. The Institute of International Finance (IIF), a bankers' group in Washington, forecasts that \$300bn in capital will flow out of the country this year, up from \$129bn in 2021.

Onshore markets were one of the linchpins of China's relations with the outside world. The belief that they would continue to open up helped to maintain links with Western financiers hoping to strike it rich. Even as relations between America and China soured during the Trump years, a craving for onshore securities took hold of many of the world's biggest financial groups. As a trade war dampened global sentiment, regulators in Beijing began ex-

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pediting long-promised reforms, eventually allowing foreign financial groups to wholly own their onshore businesses.

The policies were a clear sign that Beijing meant business. And the West reciprocated. In 2018 MSCI added Chinese shares to its flagship emerging-markets index. Other index inclusions followed, creating a flood of foreign capital into onshore Chinese securities. Between the start of 2017 and a peak at the end of 2021, foreign financial exposure to yuan-denominated assets more than tripled to 10.8trn yuan.

That elation has fizzled. Many foreign investors simply grew too enthusiastic about China and chose to ignore the risks, says Hugh Young of Aberdeen, an asset manager. But the market is waking up. The view from many investors is that, although China has never been more open to foreign capital, it has also not been this ideologically inflexible in recent memory.

China's support for Russia has fed concerns over its claim on Taiwan, which it vows eventually to take back by any means necessary. Geopolitical concerns such as this are part of a broad recalibration of the risks associated with China. "Policy risk has increased markedly," says Neil Shearing of Capital Economics, a research firm. That has led investors to demand a higher risk premium on Chinese assets.

Some leading investment groups are starting to air these views in public. BlackRock, a giant asset manager that has been expanding rapidly in China, said on May 9th that it had shifted its six- to 12-month view of Chinese equities to "neutral" from "modest overweight". Julius Baer, a private bank, said in April that it was ending a five-year call that Chinese equities would eventually become a "core asset class".

This shift has contributed to a foreign sell-off of onshore stocks and bonds. The unpopularity of yuan-denominated bonds has also been driven by a weaker currency and higher interest rates in America. The value of foreign-held equities in China fell by nearly 20% in the first three months of the year, or by about 755bn yuan. Much of



the drop was due to a fall in stock valuations; the CSI 300, a key index, is down by more than 17% since January. But foreign investors are also scaling back their exposure. Total foreign equity holdings have ebbed by about 2% so far this year, calculates Gavekal, a research group. As a share of China's stockmarket they fell from about 4.3% at the end of 2021 to just below 4% in March. An interest-rate cut by the central bank on May 20th did little to buoy sentiment. Several portfolio managers expect outflows to continue until there is more clarity around economic policy.

The gloomy mood has been painful for China's small and diminishing cohort of liberal technocrats, who are still promoting the idea of an open China that is at least mildly sensitive to the concerns of global investors. For years regulators have used carefully timed reforms to reward loyal long-term investors. As sentiment soured in April they succeeded in delivering long-awaited private-pension reforms in an attempt to woo asset managers. It was a salve regulators had been holding on to, in the expectation that sentiment would worsen early this year, says one fund manager.

Many investors see 2022 as a bellwether year for the direction of policy. The optimistic outlook is that this gloomy period of ideology, policy missteps and slow growth is part of the preparation for the party congress in the autumn. Once that passes, pragmatists will have more control of policy. Zero-covid will end. Support for the economy and tech firms will return.

This camp includes many of the investment managers who have slogged it out in China for decades. Global banks have been telling investors for 20 years that the Chinese market is a one-way bet. Only a war over Taiwan, or a hot conflict of that nature, could upset that narrative, says one foreign banker in China.

The pessimistic view is that Mr Xi is serious about the direction in which he has taken China over the past two years and that the future will be far more ideological. S&P, a rating agency, warned on May 19th

that policy shocks to education, housing, labour and social welfare could continue for years. Global investors have been slow to grasp the significance of China's policy changes, says Nikolaj Schmidt of T. Rowe Price, an investment manager. It is unlikely things will return to normal soon.

Mr Xi's zero-covid policy and the unrelenting lockdown of Shanghai have also raised concerns about China's leadership. Some investors worry that the country has turned its back on growth; that zero-covid could be a sign of a factional struggle in Beijing; or that it will eventually lead to one. "When investors hear they're getting dragged into politics, that's when they get nervous," says Sean Debow of Eurizon Capital Asia, an asset manager.

One probable outcome in the months ahead is a growing divergence between the investors outside China and those with large offices inside the country. Many groups that have worked for decades to open up in China are continuing to hire staff. Investors that have accessed the onshore market through Hong Kong, by contrast, may continue to reduce their exposure. If anything, investing in China will only become more divisive this year. ■

The Indo-Pacific economy

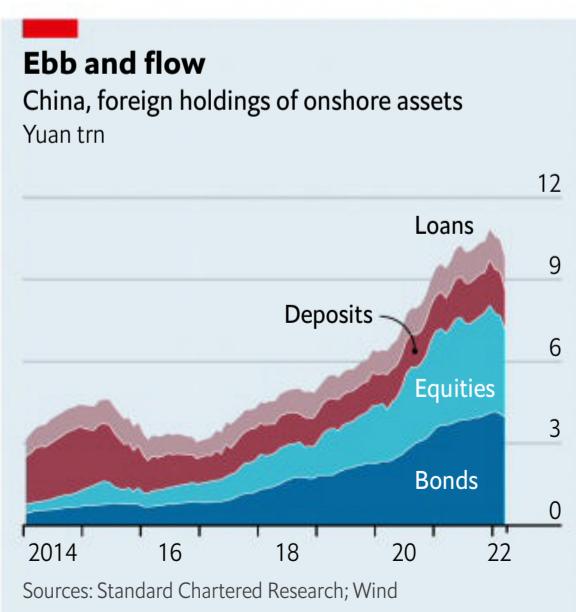
A new pact for Asia

WASHINGTON, DC

Just don't call it a trade deal

AMERE THREE days after being sworn in as president in January 2017, Donald Trump signed an executive order withdrawing America from the Trans-Pacific Partnership (TPP), a 12-country free-trade deal he had railed against on the campaign trail. On May 23rd, 488 days after his own swearing-in, President Joe Biden tried to reverse some of the damage by unveiling a new pact, the 13-country Indo-Pacific Economic Framework (IPEF). That Mr Biden took so much longer to launch his Asian trade policy illustrates one basic truth: it is far easier to tear up agreements than it is to craft them anew.

Inevitably, one way to look at the IPEF is by way of comparison to the TPP (which lives on in reduced form, absent America). Some bits sound rather familiar. One selling-point for the TPP was that it was a "21st-century trade agreement" complete with high standards for workers' rights and e-commerce rules. The IPEF is also "a 21st-century economic arrangement", according to Jake Sullivan, America's national security adviser. The original TPP members accounted for nearly 40% of global GDP, ►





▶ roughly the same share as the current IPEF partners. Most crucially, China is still excluded. The IPEF, like the TPP, is an attempt to build a trading structure in Asia that enshrines both America's economic principles and its economic power—welcomed by many in the region as a counterbalance to China's heft.

That, however, is where the similarities end. Mr Trump's success in winning support with his calls to stop countries "ripping off" America has made many in Washington leery of ambitious free-trade deals. So rather than starting work on a pact that would require approval from Congress, Mr Biden's team has designed a framework that is more malleable and may avoid that political death-trap. In announcing the launch, Katherine Tai, the United States Trade Representative (USTR), pledged to "keep Congress close" in shaping the IPEF—a far cry from putting it to a vote.

Malleability has a few big downsides. It limits what America can offer. A cut in tariff rates, a plank of most free-trade deals, is a non-starter because it would require congressional support. America still vows to push for strong labour and environmental standards but, unable to offer more access to its vast market, it lacks a key bargaining chip. The durability of the IPEF is also in doubt. Were Mr Trump to return to the Oval Office in 2024, he would not need three days to ditch the framework.

The Biden administration has tried to make a virtue of these limits. Rather than conceiving of the IPEF as a conventional deal, it has declared that the pact will rest on four pillars, with trade promotion just one. The other three goals are to make supply chains more resilient; to promote infrastructure investment and clean energy; and to form new rules on taxation and anti-corruption. It is tempting to dismiss such a wide-ranging agenda as too vague to amount to anything. But paradoxically, a

near-stumble at the launch of the framework illustrated that it could, in theory, have force to its contents: America had to tone down the language in its founding documents, otherwise some in Asia would have balked at signing them.

Matthew Goodman of the Centre for Strategic and International Studies, a think-tank, notes that the focus on topics such as digital trade, competition policy and bribery makes for a good menu for the IPEF. "These are issues that are very much in the interest of our partners in the region," he says. At the same time, breadth poses a challenge. Instead of just having the USTR as the lead negotiator, as in normal trade talks, the Commerce Department is in charge of the non-trade portfolio. That risks turning it into a multi-headed beast.

For now, many in the region are most pleased by the symbolism. The wounds from America's TPP exit are still raw. Since Mr Biden's election victory, allies have waited and waited for America to devise a new Asian trade strategy. At last it has arrived, even if it is more notable for its political constraints than its economic potential. "We are just happy to have them at the table," says one Australian official. ■

Housing markets

Home run

Wall Street's housing grab continues

SPRING WEATHER often brings a stampede of homebuyers. Blossoming flowers and gushing sunlight after the winter slog make homes look more inviting. Not this year, though. Across the rich world house-hunters perturbed by high prices and rising rates are holding fire on mortgage applications. In America new home sales have crashed to two-year lows.

One group of buyers, however, remains unfazed: Wall Street. What began as an opportunistic bet on single-family housing during America's subprime crash of 2007-10 has morphed into a mainstream asset class. Today all sorts of institutions—from private-equity firms to insurers and pension funds—are piling into the sector. They are unlikely to vacate it: being a rentier looks as appealing as ever.

One reason is that demand for rental homes will jump as home ownership gets costlier. American savers need on average \$15,000 more than they did before the pandemic to afford a 10% downpayment. Higher borrowing costs are forcing millennials nearing their peak buying years into longer leases. This coincides with a larger

trend fuelled by covid-19: a shift from flats towards suburban homes with gardens and office space—which many households cannot afford and must therefore rent.

A scarcity of housing will also help the rentiers. Despite a recent surge in investment, the market for single-family homes remains woefully undersupplied. America is short more than 5m homes for buyers and renters. England has more than 28 prospective tenants for every available property. Big institutions are building their way out of constrained supply. In America, more than one in four new properties added to the portfolios of single-family rental providers in the final quarter of 2021 were built rather than bought. In Britain, investors are projected to supply a tenth of the government's target for new housing in the next few years.

This helps explain the sector's resilience. While landlords of shops, bars and restaurants struggled to collect payments at the start of the pandemic, strong demand for single-family homes pushed rents through the roof. In America, they rose by 13% in the 12 months to March 2022. In Miami, they jumped by more than 40%. Rents held up relatively well during the global financial crisis; in some markets they even grew (see chart). That is helping to reassure investors as a recession looms.

There are risks. Asset prices will be sensitive to higher rates, particularly if inflation stays high. Yet it is the smallest landlords, with five homes or fewer, who look most exposed. They own nearly nine in ten single-family rental homes in America. John Burns Real Estate Consulting, a research firm, reckons smaller investors bought 28% of all homes sold in the country during the first quarter of 2022, compared with 6% for investors with more than ten homes. As Wall Street's home run continues, it is the lesser landlords who have their backs to the wall. ■

Safe-ish as houses

United States, Burns single-family rent index
% change following the Great Recession*



*Effective rent for new leases from peak to trough (2007-12)
Source: John Burns Real Estate Consulting

Corporate debt

Bloody but unbowed

Despite a painful repricing, the credit market hasn't cracked

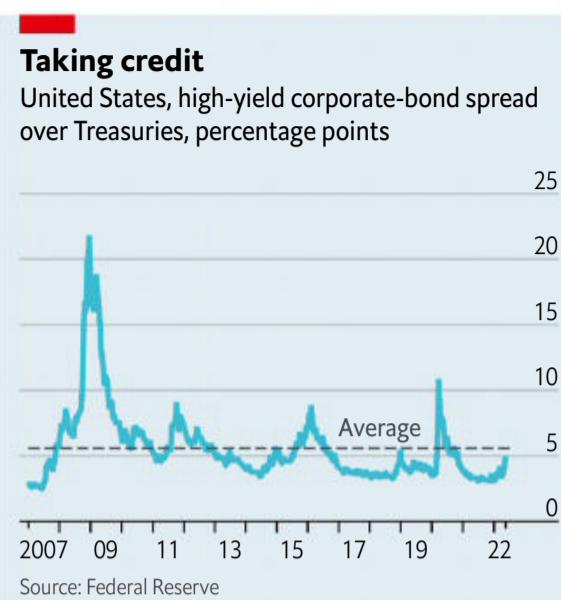
AT THEIR BEST, capital markets hold up a mirror to the real economy. They rise and fall in tandem with companies' fortunes, encouraging investors to direct money towards the firms most likely to make a return on it. But the arrow of causality can also fly the other way. A dysfunctional market can choke off the supply of capital even to healthy firms, forcing them into default for no better reason than that financial conditions have tightened.

The worst instances of this occur when the credit market comes unstuck, as it did in the financial crisis of 2007-09. That adds an ominous ring to the unusually sharp losses credit investors have endured recently. Based on total returns, American investment-grade bonds are down by 14% since September. European ones have dropped by around 10%, their worst peak-to-trough plunge. The credit spread, or premium paid by risky "high-yield" borrowers compared to Treasuries, has spiked from three percentage points in late December to nearly five, with around half that increase coming in May. Firms from Carvana, an American car retailer, to Morrisons, a British supermarket chain, have struggled to issue debt. Is it time to panic?

To understand why not, start with credit spreads. Those for American high-yield bonds began 2022 close to all-time lows. Even after their recent rise, they remain below their long-run average and far from the levels seen in 2008 and during the covid convulsion in 2020 (see chart). Jonas Goltermann of Capital Economics, a consultancy, says the tightening is more reminiscent of the growth scares of 2015-16 and 2018 than of a credit crunch.

A tsunami of corporate defaults remains unlikely. Few of the riskiest borrowers have to repay their debt in the next 18 months. Of America's \$1.5trn-worth of high-yield bonds, just 4.5% falls due before 2024; the figure is 6.4% in the euro zone. Most issuers need only worry about earning enough to meet their interest payments rather than finding new lenders to roll over their debt. Moody's, a rating agency, reckons the global default rate will hit 3% over the 12 months to April 2023—high-

Correction: The table in our story on housing ("Braced for a storm", May 14th) contained a mistake. The second column showed the share of households with a mortgage, not the share of homeowners with a mortgage. This has been corrected online. Sorry.



er than the 1.9% for the year to April 2022, but below the historical average of 4.1%.

Those firms that do need to refinance are likely to find a receptive market. A monthly survey by America's National Association of Credit Managers found financial conditions in April to be slightly tighter than in late 2021, but looser than at any time before that going back to 2004. As the Federal Reserve starts winding down its \$5.8trn portfolio of Treasuries from June

1st, some liquidity is likely to drain from the market. For now, however, cases like Carvana and Morrisons look like outliers.

Two risks remain. One is that corporate profits disappoint so much that borrowers are unable to pay even their interest. The bigger one is that risk-averse investors, perhaps spooked by fears of a recession, pull their money from bond funds en masse and hoard cash instead. That would leave such funds with less to lend to new issuers. Worse still, they may be forced to fire-sell existing debt to fund redemptions.

Should that happen, the experiences of Carvana and Morrisons point to a safety valve. Ultimately both firms managed to issue their debt by turning to private lenders and offering sweetened terms. Between 2008 and 2021 the assets managed by such lenders tripled, to \$1.2trn. Unlike traditional bond funds, they don't offer investors daily withdrawals, meaning they are less susceptible to swings in sentiment and more able to deploy capital when the market is stressed. They are sitting on more than \$420bn of "dry powder", or unspent cash. Daniel Lamy of JPMorgan Chase, a bank, does not expect them to hold fire for very much longer. ■

Carbon trading

Up in the air

Carbon markets are going global. Will they make a difference?

CARBON MARKETS, for years short of puff, have at last become one of the most widespread tools in the fight against climate change. By the end of 2021 more than 21% of the world's emissions were covered by some form of carbon pricing, up from 15% in 2020. Ever more businesses have to pay regulators for the right to release a tonne of carbon dioxide into the atmosphere. Investors are getting interested too: trading on these markets grew by 164% last year, to €760bn (\$897bn).

That is undoubtedly great news. Carbon prices ensure companies that burn more fossil fuels are at a competitive disadvantage while green innovation is rewarded. The revenue from the sale of carbon permits, meanwhile, can be reinvested in renewable energy or other virtuous ventures as governments see fit.

The problem is that very few markets work as intended. Of the 64 carbon taxes and emissions-trading systems (ETSS) that existed in 2021, only a tiny minority, covering 3.8% of emissions, priced the gas above \$40 a tonne, which the Carbon Price Leadership Coalition, a group of businesses and

governments, estimates as the minimum social cost of carbon (a measure of the damage done to global welfare by increasing emissions). And that may be too generous already: some economists put it at more than \$200. Many carbon markets are too cheap to make a difference.

Most schemes operate on the principle of "cap and trade". Regulators set a total level of permitted annual emissions—the cap—and auction these allowances to the companies included in the scheme. Businesses can then trade the allowances between themselves, putting a price on carbon dioxide. Some ETSS also allow financial firms such as hedge funds to trade, purely for profit, on their own account.

The best markets put a high price on carbon thanks to a low cap that goes lower over time, providing a strong incentive to go green. They also cover a broad spectrum of economic activity, allowing agents to trade off between burning petrol in cars, coal in blast furnaces or natural gas in power plants. The wide scope ensures that trading systems find the cheapest way of reducing emissions, lowering the overall

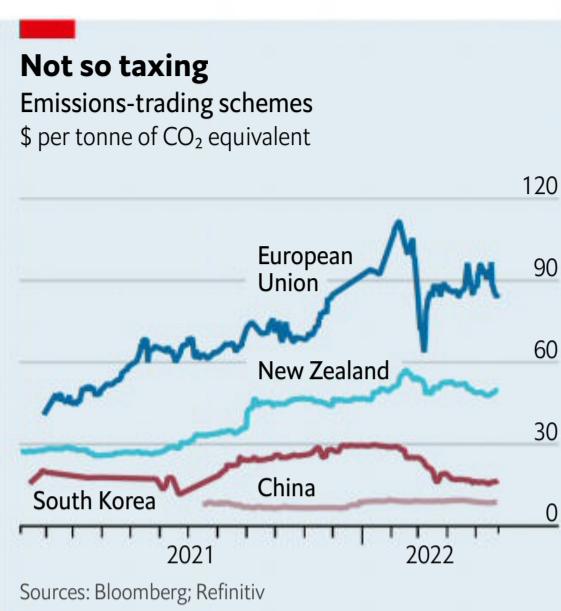
► cost to society of fighting climate change.

Many schemes, however, fall short on both counts. The reason is obvious: a well-functioning ETS demands political courage. Like taxes, carbon markets transfer resources from the private sector to the state, which irks those standing for small government. Higher carbon prices can also help to push up consumer prices, angering voters, while hurting the margins of firms that donate to political parties. How ambitious carbon markets are is “an expression of political will”, says Dallas Burtraw, who chairs the independent committee overseeing California’s trading scheme. All too often that will is missing.

Changing political winds have sometimes dealt a fatal blow to fledgling carbon markets. Australia, for example, jibed its own scheme in 2014 after the centre-right Liberal party made repealing the “carbon tax” a plank of its election campaign.

More often political heat leads governments to do all they can to keep prices low (see chart). On May 18th the European Commission, pressed by member states worried about soaring energy prices, said it would sell an extra 200m permits (there are currently 1.45bn in circulation). Carbon prices on the EU scheme, the world’s second-biggest, promptly fell from €90 (\$97) a tonne to around €80. Other schemes have been flooded with permits from the start. China’s ETS, launched last year, is the world’s biggest. But with a price nearing 60 yuan (\$9) it does little to reduce emissions, says Yan Qin of Refinitiv, a data firm.

The second problem is that swathes of the economy are often excluded. Industrial firms argue that including them in a robust ETS gives an unfair advantage to exporters from countries with a lower carbon price, which is why the EU and others offer home-grown champions a certain amount of permits for free. Although meant to prevent “carbon leakage”, where steel firms,



say, relocate from areas with strict emissions rules to those with looser standards, such perks make schemes less effective.

Consumers, too, are often shielded from high carbon prices. Transport and buildings, where higher costs would be passed on to voters directly, are excluded from the EU’s scheme. Others do better: the Californian system, the most comprehensive of the bigger ETSS, covers 80% of the state’s emissions. Proceeds from the sales of carbon permits are partly used to subsidise purchases of electric cars.

Other markets are even more limited in scope. The Regional Greenhouse Gas Initiative (RGGI), backed by 11 north-eastern American states, only covers power generation. So does China’s national system (given the size of the Chinese economy, it still covers 7.4% of global emissions).

Sometimes it is the way emissions are counted that is the problem. China does not put a cap on the total amount of emissions, which can still rise along with electricity demand, but on the carbon intensity of power generation. Its ETS is also bedevilled by poor data collection.

Making carbon markets work better is

more of a political challenge than an economic one. Neither lowering caps on total emissions nor covering more sectors requires a deep rethink of carbon markets’ designs. The difficulty, rather, is building and preserving support for measures that make most economic activities costlier. The same applies to other climate-friendly measures, notes Ben Caldecott of Oxford University: Britain has long failed to raise petrol taxes in line with inflation, costing the government billions.

Cheerfully, however, the momentum around carbon markets looks self-sustaining. The EU is considering what it calls a “carbon border-adjustment mechanism” which would see importers into the bloc pay the difference between the relevant foreign carbon price and the EU’s. Not only would that remove the justification for free allowances for manufacturing firms inside Europe; it would also encourage countries that want to export to the bloc to bring their carbon prices closer to the EU’s.

Creating bigger markets by linking two or more ETSS can also help plug carbon leaks. That is, of course, justifiable on scientific grounds: a tonne of carbon is as harmful in one country as it is in any other. It also makes carbon markets more liquid, which helps form truer prices. Accordingly, regional patchworks have emerged. California’s ETS has been linked with Quebec’s since 2014. Switzerland’s ETS merged with the EU’s in 2020. Pennsylvania will become the 12th state to join the RGGI in July. And although Britain chose to run a separate ETS after leaving the EU, rejoining the regional scheme should be rather painless.

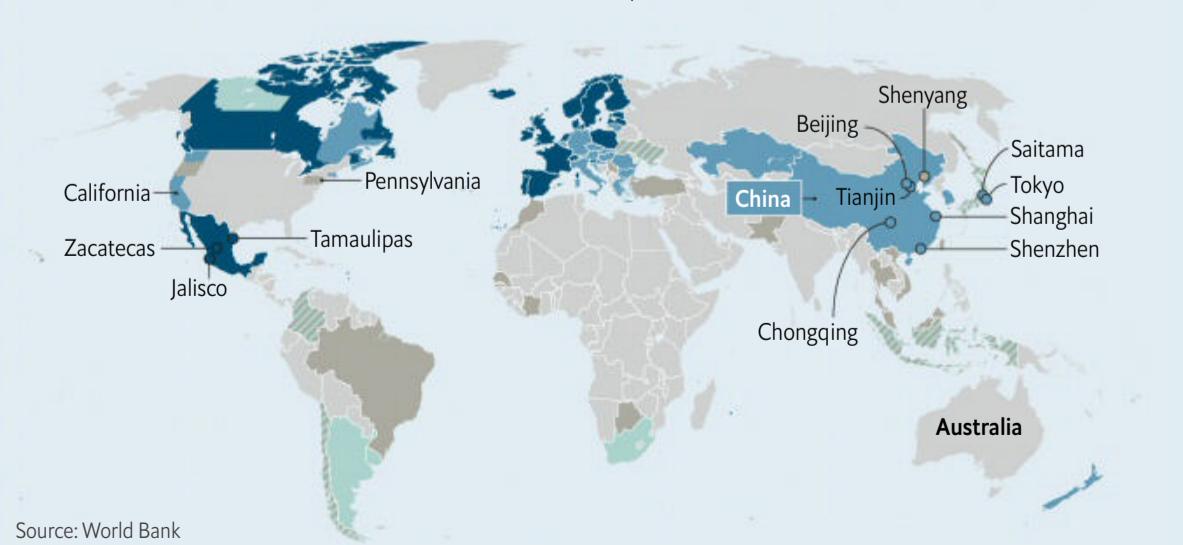
As more of the world economy is covered by ETSS and carbon border taxes gain favour, it will be laggards rather than early adopters that risk becoming uncompetitive. That threat seems to be working. After resisting for years, Japan is set to try out a national carbon market in September. Some American lawmakers are also starting to look again at carbon pricing, if only because their country tends to be greener than many of its trade partners, and carbon border taxes could be a handy excuse for protectionist measures. The key to building support for decarbonisation, says Mr Burtraw, is to “create winners”. In a country where China-bashing tends to be more popular than environmentalism, it will do no harm to the cause if points can be scored at the expense of an arch-rival. ■

Finance internships: We invite promising journalists and would-be journalists to apply for our 2022 internships, which are supported by the Marjorie Deane Foundation. Successful candidates will spend three months with *The Economist* in London writing about finance and economics. Applicants are asked to send a covering letter and an original article of no more than 500 words suitable for publication in the Finance & economics section. Applications should be sent to deaneintern@economist.com by 17th June.

It's a gas

Carbon-pricing initiatives, April 2022

■ Emissions-trading scheme (ETS) & carbon tax implemented ■ ETS implemented ■ Carbon tax implemented
■ ETS or carbon tax under consideration ■ Carbon tax implemented, ETS under consideration ■ None



Free exchange | The ties that bind

New research argues economic interdependence fosters alliances—and democracy



ON HIS WHIRLWIND tour of Asia, concluded on May 24th, President Joe Biden conducted himself with the awkward urgency of a man trying to correct a costly error. China may be reeling, but the ambivalent reaction, outside rich democracies, to America's late search for solidarity reveals how Washington's global influence has faded relative to Beijing's. Mr Biden's proposed Indo-Pacific Economic Framework, unveiled on May 23rd, seems an acknowledgment of why that is: for too long America had all but abandoned efforts to forge new economic ties in the region.

Establishing a causal link between economic interdependence and the balance of geopolitical power is no simple matter, however. That economies often trade more with countries that share similar political values and interests is clear enough. Yet it could be the case that strategic concerns tend to drive economic relationships, not the other way around, or that other shared features—such as income levels or culture—bring countries closer in both economic and political terms.

Two recent papers help to pick apart what causes what. A first, by Benny Kleinman, Ernest Liu and Stephen Redding of Princeton University, considers whether economic interdependence fosters greater political alignment. To answer the question, the authors build a model in which countries sometimes take costly actions, such as providing military aid to an ally, in order to boost growth in countries with which they share political ideals and aims.

For those benevolent countries, the incentive to be generous is partly rooted in the expectation that, as the economy of the allied country grows, they will receive an economic dividend. Yet in the world the authors depict, the reward is not fixed. If a country's economic fortunes become less entangled with some places and more with others, then the relative pay-off from making costly political investments in those places changes—and so, over time, will patterns of political friendship and enmity. Economic interdependence, in other words, causes political rapprochement.

The authors reckon that China's early liberalisation, by driving a one-off surge in the country's economic engagement with the world, provides evidence for this proposition. In assessing economic interdependence, they focus on one measure: how productivity growth in one country affects real incomes in others. Eco-

nomic heft alone does not ensure that other places' fortunes are bound up with your own. Instead, both rapid economic growth and extensive involvement in global supply chains can amplify a country's economic influence on its trading partners.

Though initially modest, China's global economic influence had, by the late 2000s, overtaken America's: the effect of Chinese growth on the incomes of its trading partners was larger than that of Uncle Sam (indeed, nearly double it by 2010). From 1980 to 2010, the paper finds, the more economically enmeshed a country became with China, the more political alignment ensued, as captured by patterns of UN voting, the forming of formal alliances and similar metrics.

The authors find further support for their model by looking at global trade shifts associated with collapsing air-freight costs. Because shipping by sea must flow around continents whereas aircraft follow great-circle routes, the falling cost of air freight in the three decades to 2010 had uneven effects on bilateral trade flows around the globe. This variation offers another way to test how growth in economic interdependence leads to political alignment—and the test, again, is conclusive.

This would seem to back oft-aired concerns that China's rise has not just redrawn the geopolitical map, but also helped to erode democracy worldwide. Yet here the news is encouraging. New work by Giacomo Magistretti of the IMF and Marco Tabellini of Harvard University also exploits falling air-transport costs to tease out the causal effect of trade on both attitudes towards democracy and the overall political orientation of a country. They find that stronger economic ties indeed facilitate the transmission of political values—but only if said values are democratic.

The effects are big. People who grew up during periods when their home economy traded comparatively more with democracies appear to be much more drawn to open regimes than those who came of age under opposite circumstances. The difference in attitudes is equivalent to that between the support reported by residents of Sweden (a bunch of hardcore democrats) and those of China (who are more tentative). Pro-democracy populations, in turn, translate into more open institutions. An 80% rise in trade with democratic countries over a five-year period raises a country's Polity score (which measures how democratic a country's governing institutions are on a scale from -10 to 10) by four points: the difference, roughly, between Russia and Britain. Strikingly, trade with autocracies seems to have no such effect. Excluding America or China from the analysis does not alter the results.

Bye America

Why should trade with democracies work this way? The data do not permit firm conclusions. But evidence suggests the spur to democratisation does not stem from faster economic growth or rising levels of education. Neither does it result from increased migration. Instead, the authors' favourite theory assumes that trade with democracies boosts a country's "democratic capital": it fosters an appreciation for the value of democracy which helps cement a social consensus in support of democratic institutions. That seems plausible, if perhaps a little vague.

Both trade and geopolitics will look different in the years ahead than they did during the post-war era of American hegemony and globalisation. But economic ties are likely to retain their capacity to cultivate allies and shore up support for democracy. If Mr Biden wishes to bolster America's national security, he might consider giving freer trade a chance. ■



Astrobiology

Life, but not as we know it

Until now, astrobiologists have been looking for aliens that resemble life on Earth. That will change

FOR DECADES, astronomers searching for life beyond humanity's home planet have had a simple strategy: follow the water. Water is the *sine qua non* of terrestrial life and as thousands of new planets have been discovered orbiting faraway stars, the greatest levels of excitement have usually been reserved for those in the "habitable zones" of their systems—in other words orbiting at a distance where liquid water could exist on the planet's surface.

The next step has been to look for biosignatures—molecules which might betray the existence of biological processes. These could include oxygen or methane in a planet's atmosphere. On Earth, those molecules persist only because living things constantly regenerate them.

The problem with both these approaches is obvious—they are restricted to finding life as currently known. But, as Natalie Grefenstette, an astrobiologist at the Santa Fe Institute in New Mexico, points out, "we don't know if other forms of life would necessarily have the same signatures, if they would have the same metabolisms, if they would be based on the same genetic

molecules or any of the same molecules at all." Life on Earth could have evolved in the way that it has because the specific chemistry of the planet at crucial times gave rise to selective pressures which might not be present on other worlds. "And so we've been thinking—if life were different, how do you even look for that?"

Exotic beasts and how to find them

From May 16th-20th, at AbSciCon, a biennial astrobiology meeting organised by the American Geophysical Union and held this time around in Atlanta, Georgia, astrobiologists including Dr Grefenstette considered that question and discussed ways to expand their searches in the coming decades, so that they might stand a better chance of recognising more exotic forms of life than are currently being sought. To do this, they will need several strategies.

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The first begins by imagining the various different chemistries which exotic forms of life might employ, and using those to devise a wider set of potential biosignatures. On Earth, the most important molecules of life almost all involve carbon atoms. These are particularly versatile because they can form chemical bonds with up to four other atoms, including other carbons, to create complex molecular structures. Carbon is the fourth most abundant element in the universe and the molecules it forms can survive for long periods in the sorts of temperatures and pressures found on Earth's surface.

An exotic lifeform might plausibly, however, rely on silicon instead of carbon. Silicon sits just underneath carbon in the periodic table and thus shares with it the ability to bond with up to four other atoms. Familiar examples of the results are most of the huge diversity of minerals which make up rocks, for silicon is the second most common element in Earth's crust. It is also the seventh most abundant in the universe, which means there is plenty of it available for potential silicon-based lifeforms to use.

Alien life might, though, have its roots in something yet more exotic. In the laboratory, metal oxides known as polyoxy-metalates have shown some remarkably lifelike abilities, such as being able to form membranes (dubbed "inorganic chemical cells" by Lee Cronin, a chemist at the University of Glasgow) and being able to assemble, with some chemical help, into ➤

► complex structures reminiscent of DNA.

Whatever its building blocks, though, life will need a solvent in which to function. On Earth, that solvent is water.

Water is a good solvent because it is a “polar” molecule, meaning its electrical charge is unevenly distributed. In a molecule of H₂O the oxygen has a slightly negative charge and the two hydrogen atoms are, by way of counterbalance, slightly positive. This polarity causes water molecules to stick to similarly polar molecules, making them good at dissolving other chemicals—which, in turn, once thus in solution, can interact with each other. That enables water to support the myriad functions of life, and no other abundant chemical on Earth matches this versatility.

Other chemicals can, however, fulfil some of the roles water plays. Life elsewhere might, perhaps, have found a way to employ ammonia. This, like water, is polar, and therefore good at dissolving things. It is not quite as good at doing so as water, though, and it also stays liquid (at terrestrial atmospheric pressures, at least) only between -78°C and -33°C. But that would make it available in liquid form in frigid places such as Europa, a moon of Jupiter, and Titan and Enceladus, moons of Saturn, where water itself would be frozen.

Possible solutions

Titan in particular is believed to host vast ammonia-rich underground lakes which might act as cradles for chemically exotic life. But other possibilities exist there, too. Dr Grefenstette says astrobiologists are also intrigued by the lakes of liquid methane that cover Titan’s surface (the average temperature of which is -179°C). Methane exists on the surface of Titan in much the same way that water does on Earth—in liquid, gaseous and solid forms.

Methane is not a perfect solvent for life. It is not polar and therefore not as versatile in that regard as water. And it remains liquid (again, at terrestrial atmospheric pressures) only between -182°C and -161°C. Since chemical reactions proceed more rapidly at higher temperatures, on Titan’s surface they would be pretty slow. But astrobiologists hypothesise that life composed of different materials to those on Earth—smaller hydrocarbons and nitrogen, for example—could feasibly eke out an existence there.

Perhaps the most promising general-purpose alternative to water is formamide, a colourless organic liquid composed of carbon, hydrogen, oxygen and nitrogen (all elements common in the universe) that can dissolve many of the same chemicals as water—including proteins and DNA. It can also stay liquid at up to 210°C, making possible a large range of chemical reactions on planets with more extreme surface temperatures than Earth’s. Forma-

mide is such an intriguing alternative to water that some astrobiologists even argue that it might have been the main solvent used by the earliest forms of terrestrial life. This chemical has been located in vast clouds at the edge of the solar system and also in more distant nebulae where stars are forming, according to Claudio Codella, an astronomer at the Arcetri Astrophysical Observatory in Florence, Italy. Finding it definitively on another world would surely pique interest among those searching for exotic forms of life.

The units of life on Earth—cells—are contained within lipid membranes. These keep the chemical reactions which sustain life concentrated inside a cell, and the exterior world outside it. Such membranes would not be stable in a medium such as liquid methane. But exotic lifeforms on Titan might instead build membranes from structures called azotozomes. These are molecules, currently hypothetical, made from nitrogen-rich organic compounds, according to Paulette Clancy, a chemist at Cornell University who came up with the idea. They would, she thinks, be capable of operating in the ultra-low temperatures of a place like Titan.

Or perhaps there could be life without any membranes at all. Lifelike chemical reactions have been shown to occur on the surfaces of certain minerals, including pyrites and various clays. These often contain networks of pores and cavities that could serve the compartmentalising function of lipid-based cells. Or biological reactions might be contained within drops of liquid floating in planetary atmospheres.

Finally, life needs to store information about itself and pass that information on to its offspring. Terrestrial organisms do this using molecules called nucleic acids. These employ four different molecular units known as nucleotides to carry a code of instructions that can build 20 different



amino acids, which then link up in various combinations to form proteins. But laboratory experiments and samples from meteorites show that many more nucleotides and amino acids than these exist. Though they have not been incorporated into life on Earth, they could form the basis of alternative systems of genetic information.

Identifying exotic life forms made from different materials is thus a matter of widening the search from Earthly biosignatures—oxygen, methane and so on—to include chemicals that might be made by various imagined biochemical systems. One tool for this search is the mass spectrometer, a device that ionises samples and then filters those ions by mass.

Mass action

Mass spectrometers have been the eyes and ears of decades of space exploration, said Luoth Chou, an astrobiologist at Georgetown University. Successive generations of these devices, flown into space, have permitted researchers to characterise chemicals everywhere from the surface of Mars, via the atmospheres of Venus and Titan, to the plumes of water ejected from geysers on Enceladus.

The next generation of mass spectrometers, though, will be smaller and yet more powerful. And they will be carried aboard a range of missions far and wide into the solar system. *Dragonfly* will hop around the surface of Titan in the mid-2030s and take a close-up look at the molecules there. *DAVINCI* will orbit Venus in 2031. The Jupiter Icy Moons Explorer will explore the Jovian satellite system, starting in the early 2030s. And *Europa Clipper*’s mass spectrometer will provide a high-resolution characterisation of that body, beginning at the end of this decade.

If exotic life does exist, however, it could use chemistry that goes way beyond anything astrobiologists can currently imagine. To get around that means thinking of biosignatures which depend not on chemistry but rather on the patterns of behaviour associated with life.

There is no universal definition of life. But astrobiologists often default to NASA’s operational definition of “a self-sustaining chemical system capable of Darwinian evolution”. Living things self-replicate and make large amounts of specific complex molecules (for example, proteins or DNA). They also draw energy and consume resources from their environments to fuel their metabolisms. Based on these ideas, so-called agnostic biosignatures could include looking for excesses in certain elements or isotopes in an environment, or for specific patterns within groups of chemicals that cannot be explained by abiotic processes alone. Peter Girguis, an evolutionary biologist at Harvard University, told the AbSciCon meeting that this new

► class of biosignatures would be “indirect proxies for a living organism”.

One example would be to search for gradients in an environment—zones of sharp change in, for example, heat or electrical voltage or chemicals. According to Dr Girguis, “all living organisms that we know of establish gradients of one kind or another to maintain themselves at a kind of disequilibrium from the environment.”

Some of these gradients occur at cellular and microscopic scales, and can be incredibly sharp and therefore distinguishable from non-biological processes. Others are larger-scale. In marine sediments on Earth, for example, microbes work together to oxidise methane, a process tied to the chemical reduction of sulphate ions. “We see gradients in methane and sulphate concentration over centimetres, and they’re really pronounced,” says Dr Girguis. “This is a biological manifestation of their activity and yet this is detectable by simply making abiotic measurements.”

Another tactic would be to study the complexity of the molecules at a particular location. Biological molecules are selected and shaped by evolution to do specific jobs within an organism, such as assembling or disassembling other molecules, or signalling between cells. That often requires unusually energetic chemical processes, which in turn need the help of catalysts. On Earth, these catalysts are protein molecules called enzymes which are, themselves, the product of evolution. Finding complex molecules of any sort might thus be considered a potential biosignature.

A related concept is what Chris McKay, a planetary scientist at NASA Ames Research Centre, calls the “Lego principle”. The idea here is that life is recognisable by its use and reuse of a selected set of molecules. Abiotic samples scooped up from an alien world would be expected to contain a wide array of organic molecules, some of them in fairly small amounts. A biological sample, by contrast, would contain large numbers of just a few distinctive molecules. Molecules that are chemically similar (left-handed and right-handed versions of an amino acid, for example) might have markedly different concentrations if they came from a biological sample, whereas they would probably be present in near-equal numbers in a non-biological one. Spotting patterns like these would be independent of the specific biochemistry involved.

The past as a clue to the present

Such methods would widen the astrobiological search wherever it was possible to obtain a sample—in other words any world in the solar system to which researchers can send a probe—and apply to it tools such as miniaturised, space-hardened mass spectrometers. For planets going around other stars, though, things are ob-

viously trickier. Few people think human beings or their machines will visit any of the rapidly expanding population of these exoplanets anytime soon. Astrobiologists are instead considering other ways to search for new agnostic biosignatures. Michael Wong, an astrobiologist at the Carnegie Institution for Science, in Washington, DC, presented a technique that applies what is known as network science to data about exoplanets’ atmospheres. These data can be gathered using telescopes on, or orbiting, Earth.

Any chemical system, the chemicals within an atmosphere included, can be represented by a so-called network diagram, in which molecules that react with each other in some way are connected by lines. Dr Wong showed that, when compared with those of other planets in the solar system, Earth’s atmospheric network stands out like a sore thumb. In fact Earth’s network more closely resembles those of biological systems, such as marine food webs. This technique is a work in progress and Dr Wong said it would need a lot more development before astrobiologists could

include it in their life-detection toolkit. But it is an intriguing approach.

Dr Girguis told the meeting that future searches for exotic life in the universe would do well to learn from mistakes made by explorers searching for life in Earth’s oceans in the 19th century. In one expedition, for example, Edward Forbes, a prominent naturalist from the Isle of Man, was dredging in the Aegean Sea. He noticed that the farther plants and animals were from the water’s surface, the less well they thrived. In 1843 he extrapolated his incomplete data to propose his azoic hypothesis, which stated that life would not exist at all below 550 metres.

It took several decades to prove him wrong, an effort that involved some of the first scientific endeavours designed to explore the deep ocean—such as the *Challenger* expedition that sailed from 1872 to 1876. These, said Dr Girguis, were some of humanity’s earliest life-detection missions. “Let’s not be too quick to extrapolate,” he warned his fellow astrobiologists. “And let’s never underestimate the capacity of living organisms.” ■

Gene banks

A close-run thing

Ukraine’s agricultural-research establishment is threatened by the war

IT WAS A moment of horror. In a video posted on the internet on May 14th Sergey Avramenko, a researcher at the National Gene Bank of Plants of Ukraine, the world’s tenth-largest such facility, ran his fingers through bags of charred seeds. “Everything turned to ashes,” he grieved.



Also good for towing tanks

It later emerged that only an outpost of the bank had suffered the shelling which caused this destruction. The main trove of seeds remains safe in an underground vault. But it may have been a close-run thing. The bank in question is in Kharkiv, Ukraine’s second city, and that city’s defenders have only now repelled the Russian forces which were besieging it.

The Kharkiv gene bank’s precarious situation underscores the importance of protecting and conserving genetic material from crops, as climate change and a growing, prospering human population drive demand for novel approaches to plant breeding. It started as an experimental station in 1908 and is now one of more than 1,700 such repositories around the world.

The purpose of gene banks is to archive crop biodiversity. Mostly, this is done by dehydrating and freezing seeds. The UN’s Food and Agriculture Organisation estimates that, over the 20th century, the diversity of planted crops shrank by 75% as commercial farmers concentrated their efforts on a few reliable varieties. But the varieties abandoned as a consequence may still conceal valuable properties, and modern genetic techniques, such as genome-►

► wide association studies (which look for synergies between different parts of a genome), may be able to excavate and make use of these.

"It's like insurance to be able to plant in the future," says Lise Lykke Steffensen, the director of the Nordic Genetic Resource Centre, which operates one of the biggest and best-known seed banks, the Svalbard Global Seed Vault, in the eponymous Norwegian archipelago. Besides the obvious risks of higher temperatures and more frequent droughts, climate change may also encourage new pests and diseases. To prepare for such events, breeders will need a formidable genetic arsenal to pick from.

Though Kharkiv's vault remains intact, the attack has sparked worries. Even with Russian troops now driven back, the 150,000 samples of 1,802 species representing 544 types of crop which it hosts are still at risk while the war rages. So are collections of crops such as strawberries and grapes that are propagated by cuttings rather than seeds, and are conserved by the bank in open fields.

Moreover, Kharkiv's is not the only facility affected by the war. In March, for example, Ukraine lost access to a plant-irrigation institute in Kherson when that city fell to Russian forces. And, as Olga Trofimtseva, an agriculture expert at the Ministry of Foreign Affairs, observes, many agricultural-research workers have joined the army, while others have left the country.

A need for diversity

Such problems are not unprecedented. In 2002 Afghanistan's national seed bank, in Kabul, was destroyed in combat and looted. A year later the same happened to Iraq's seed bank in Abu Ghraib. And a collection of seeds from dry areas based in Aleppo, Syria, closed in 2012 as the civil war began, and had to be re-established in Lebanon and Morocco.

It has thus become good practice in all countries to back up seed collections abroad. The Svalbard vault, for example, holds some 1.1m samples, many of them on behalf of other institutions. Even so, many gene banks, Ukraine's included, lack the resources to turn out the extra seeds required to back their collections up completely. As a result, only 2,800 of Ukraine's 150,000 samples have duplicates in Svalbard's permafrost.

The country does store some duplicates elsewhere, but unfortunately "elsewhere" includes the Vavilov seed bank in St Petersburg, now enemy territory. Ms Trofimtseva hopes that after the war is over Ukraine's agricultural-research institutions, until now hard-wired into networks developed in Russian-imperial and Soviet times, will diversify their connections by also plugging themselves into other institutions of agronomy all around the world. ■

A new outbreak of disease

The spread of monkeypox

It is not covid mk2. But it needs to be nipped in the bud

SINCE BRITAIN reported a case of monkeypox on May 7th, more than 300 further instances have been noted across the world. The disease, which is usually confined to Africa, is now present in at least 17 countries in Europe and five other non-African ones (see map).

The symptoms (fever, exhaustion and pustules which spread across the face and body) are similar to those of smallpox, a disease that once plagued humanity but has now been exterminated. Some researchers suggest that, by ending routine anti-smallpox vaccination, this extermination may have opened the door for monkeypox to spread.

The World Health Organisation (WHO) says the illness rarely kills healthy adults if treated early, but can be dangerous for children, pregnant women and the immunocompromised. Those caveats are important. There is no recorded case of anyone outside Africa having died of monkeypox. But in that continent, where health care is often poor, it is fatal 3-6% of the time. Also, a strain prevalent in Congo is much more likely to kill than the west African variant now spreading outside the continent.

Previous European outbreaks have been limited to travellers from Africa, or their close contacts. The first case found in Britain this month involved someone recently arrived from Nigeria. Since then, the disease has spread more widely. By May 25th Britain had diagnosed 71 cases. Spain had reported 119. Portugal, 39. Argentina, Austria and Denmark confirmed infections on May 23rd.

Monkeypox is most frequently trans-

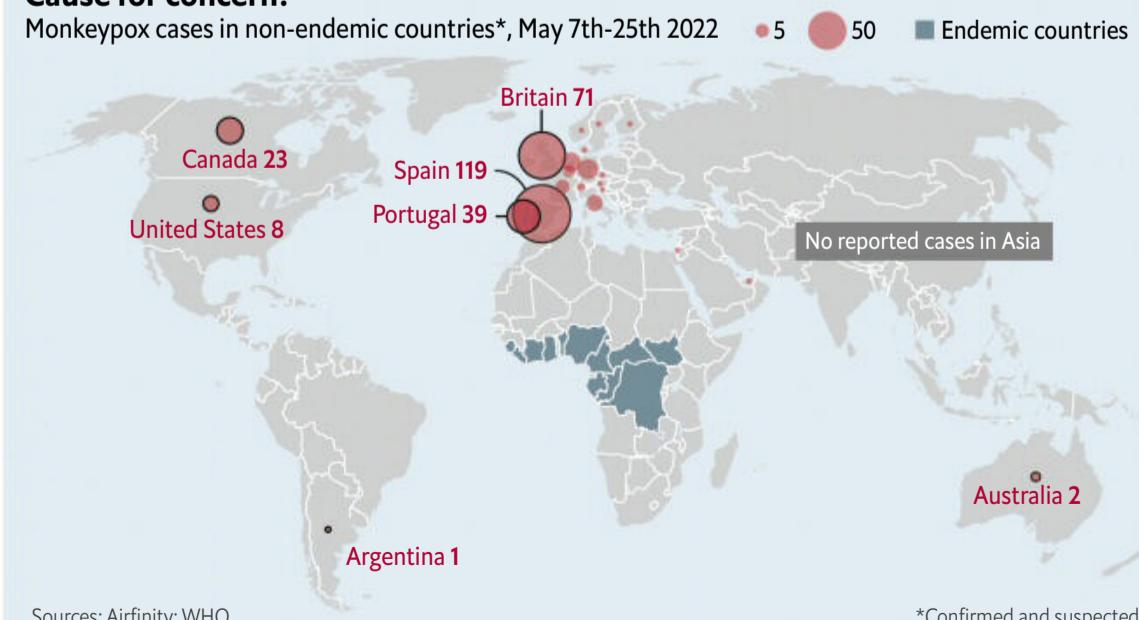
mitted by skin-to-skin contact, bodily fluids or contaminated material such as clothes and bedding. Many of the recent European infections have been linked to big events, including a gay-pride parade in Spain and a fetish festival in Belgium. Hans Kluge, the WHO's regional director for Europe, has warned that "transmission could accelerate" during the summer months, fuelled by festivals and parties. He recommends thorough hand-washing and protective equipment for health workers. Infected people and their contacts have been advised to isolate for 21 days and health authorities are using contact-tracing to minimise the spread.

But the virus is not as rapidly transmissible as SARS-CoV-2. Nor does it mutate as quickly as coronaviruses are prone to do, reducing the risk of it suddenly becoming more dangerous. And Western countries know how to deal with it. The last big outbreak outside Africa was in 2003, when monkeypox-carrying prairie dogs caused more than 70 cases in America. That incident was quickly contained.

Vaccination can help people recover even after they have been infected, and smallpox jabs (of which many countries retain large stocks) are estimated to be 85% effective against monkeypox. Some places are already "ring-vaccinating" the personal contacts of those infected, both to protect the individuals in question and to break the chain of infection. So, although the number of cases will probably continue to rise for a while, monkeypox is most unlikely to lead to lockdowns in the way that covid-19 did.

Cause for concern?

Monkeypox cases in non-endemic countries*, May 7th-25th 2022



Sources: Airfinity; WHO

**Archaeology in Turkey**

The rest is history

SANLIURFA

Mysterious temple mounds shed light on the beginning of civilisation

EVEN AS A boy, Ismail Can, a Turkish shepherd, knew that the large mound outside his village, known as Karahan Tepe, contained wonders. Flint fragments, once used as tools, littered the mountainous area (about an hour's drive from Sanliurfa, a city in southern Turkey). Large slabs of limestone, clearly hewed and shaped by human hands, emerged from the earth.

Mounds like Karahan Tepe had been largely ignored until the 1990s, when Klaus Schmidt, a German archaeologist, began excavating a similar site about 50km to the west. That mound, known as Gobekli Tepe, or Potbelly Hill, was previously assumed to be a Byzantine graveyard. It turned out to be a monumental complex, adorned with reliefs of animals and containing scores of giant T-shaped monoliths. Arranged in circles, like people huddled around a fire, the monoliths are thought to represent humans or human-like gods. Carbon dating revealed that the site preceded the Byzantines by some 10,000 years and Stonehenge by 6,000. Gobekli Tepe has since shot to fame as the world's oldest temple.

When, for the first time in millennia, its artefacts began to see the light, Mr Can understood that the ones buried near his home would prove no less remarkable. He and other village boys showed foreign and Turkish archaeologists around the surrounding hills. For long years, until the official excavations began, his father protected the place from treasure-hunters and looters. The digging began in 2019. The site was opened to the public earlier this year; Mr Can now works as a guide.

Karahan Tepe has pried open another window into the early Neolithic era—and what may have been the beginning of hu-

man civilisation. The rectangular slabs Mr Can saw poking out of the ground turned out to be the tops of large T-shaped pillars, like the ones at Gobekli Tepe, which were used to prop up a series of round enclosures. The two sites are roughly contemporaneous, both dating back to the tenth millennium BC, though Karahan Tepe may be younger by a few hundred years.

The similarities are striking, but the differences may be more important still. The focus at Gobekli Tepe seems to have been on the animal world. Stone foxes, scorpions and snakes, as well as animals such as leopards that have long vanished from the region—all of them male—appear poised to pounce from the monoliths.

By contrast, at Karahan Tepe (pictured) people begin to take centre stage. Human eyes glare from reliefs and carvings. A small room, reached via a narrow opening, contains 11 statues of phalluses. Along the walls runs a channel that delivered a stream of liquid, possibly blood or semen, to a receptacle in the adjacent enclosure. A snake with a human head overlooks the scene. The room seems to have been used for some kind of initiation ceremony.

The finds at Gobekli Tepe were revolutionary. Historians had assumed farming was a precondition for human settlement, which in turn preceded organised religion. Gobekli Tepe upended that theory.

Archaeologists found no traces of agriculture or husbandry in the vicinity. The hunter-gatherers who constructed the

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walls, and worshipped inside them, seem to have discovered religion long before they discovered farming. This sequence may also explain why they eventually buried and abandoned the temple. With time, the monoliths and enclosures of Gobekli Tepe became smaller and the workmanship sloppier. Perhaps, as hunting and foraging gave way to agriculture, the old gods gave way to new ones.

Karahan Tepe contains more clues about the transition. The people who built Gobekli Tepe saw themselves as part of the animal universe. Those behind Karahan Tepe already appear to have considered themselves a separate, superior species. "We see this as a turning-point," says Necmi Kurul of Istanbul University, who has led the excavations. "Here, man starts to place himself at the centre of the cosmos."

Signs and wonders

On the road to Karahan Tepe, between empty expanses and hills strewn with rocks, villagers collect wild herbs. Olive trees catch the spring breeze. Flocks of sheep block advancing cars. The dry ground under their hooves may hide yet more wonders. Surveys have confirmed the presence of at least 16 prehistoric ritual sites in the area, says Mr Kurul. Besides Gobekli Tepe and Karahan Tepe, excavation is ongoing at six of them. The countryside around Sanliurfa may contain many more.

The T-shaped pillars and reliefs at the sites unearthed so far suggest the people who congregated in their shadows shared a common religion or culture. For a while, Gobekli Tepe was thought to be both the focal point and the pinnacle of that culture, a sort of cathedral among churches, or a pilgrimage site. With the discovery of Karahan Tepe, which may be even bigger (only a fraction of each has been excavated), that view is now being revisited.

The rest is a mystery as inscrutable as the monoliths themselves. What inspired groups of people living at the end of the ice age to build temples by hauling huge blocks of limestone up mountains, and who presided over the back-breaking labour, is anyone's guess. Other than the fact that it was deeply patriarchal—the giant phalluses speak for themselves—there are few clues as to how their society worked.

Whatever brought the hunter-gatherers of Upper Mesopotamia together endured. Gobekli Tepe was used more or less continuously from 9500 to 8000BC, the same span of time as between the collapse of the Roman Empire and the advent of space travel. The temples seem to have lived and died with their architects. Every few generations, the enclosures were buried, along with the monoliths, only for new ones to be erected next door. No one knows why. Today, one shovel of dirt at a time, they have begun to come back to life. ■

Aroma therapies

By the noses

Scent: A Natural History of Fragrance.

By Elise Vernon Pearlstine. Yale University Press; 272 pages; \$28 and £20

IN LOSING THEIR sense of smell, victims of covid-19 realised just how much they relied on it. Unlucky patients told of the disorientating experience of anosmia, as the condition is known. Food was sapped of its flavour, nature of its beauty.

As Elise Vernon Pearlstine chronicles in "Scent", humans have long derived pleasure from the smells of the natural world. For the most part, though, *Homo sapiens* is not their target market. For plants, fragrances are a way to interact with insects and other animals. Their attraction for people is merely fortuitous.

In chemical terms, most natural fragrances are made up of volatile organic compounds, or volatiles—so called because of their tendency to change states suddenly. Volatiles evaporate easily, drifting into noses. One example is limonene, a simple citrus-smelling compound. Santalene, found in sandalwood, is another: a heavier compound, it takes longer to evaporate, providing the long-lasting "base" notes in many fragrances.

In plants' reproductive processes, smelly volatiles attract pollinators. But their natural applications are much more varied. Frankincense and myrrh resins protect wounded tree bark, forming a sort of odiferous scab that helps fend off infection and attack. If an insect chews through the leaves of some *Bursera* plants, out

shoots a sticky, smelly resin to trap them. Coyote tobacco plants are even more crafty: upon sensing the secretions of hungry caterpillars, they produce volatiles that attract predators to dispatch the pests.

Ms Pearlstine stresses just how wily plants can be in deploying their aromas for reproduction. White flowers often emit their scent at night, to attract nocturnal pollinators such as moths. They produce a dilute nectar that encourages moths to keep moving, rather than linger at a single bloom—all the better to increase pollination. Other flowers change their fragrance after being successfully pollinated, as a signal for insects to go elsewhere.

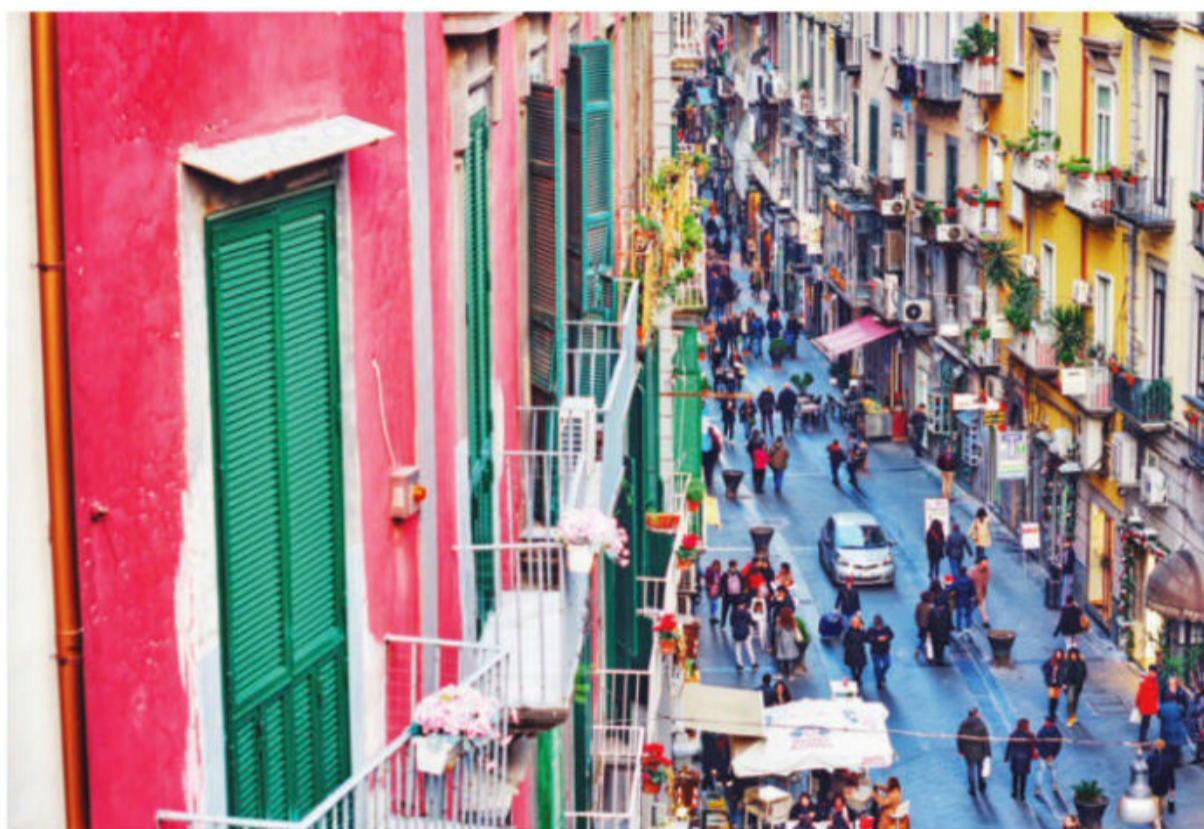
But though "Scent" is a story of plants' ingenuity, it is also a tale of the human kind. People have long commandeered fragrances for their own purposes, particularly for use in religious ceremonies: perfume recipes on the walls of an Egyptian temple in Edfu demonstrate just how long ingredients have been mixed in pursuit of an optimal blend. So highly prized were some scents that, to scare off competitors, Arab traders spread a legend about giant eagles that reputedly guarded cinnamon.

Eventually scientists no longer needed natural sources for fragrances. In 1866 an aroma molecule was synthesised for the first time. Sixteen years later Houbigant Parfum released Fougère Royale, which Ms Pearlstine calls the first "modern fantasy perfume" as it creates an imaginary scent rather than replicating a natural one. Nowadays fragrance-making is dominated by synthetic compounds, which can be reliably and affordably produced in bulk.

That has led to the proliferation of smelly products, from toilet paper to toothpaste. Scent is accordingly big business. Syrmise, a fragrance and flavour manufacturer that claims people interact with its products up to 30 times a day, had sales of €3.8bn (\$4.5bn) last year. ■



The sweet smell of success



Urban adventures

The living and the dead

A portrait of Naples captures the beguiling city's peril and allure

The Serpent Coiled in Naples.

By Marius Kociejowski. *Haus Publishing*; 464 pages; £20. To be published in America by University of Chicago Press in September; \$27.95

FINDING HIMSELF under increasing scrutiny from no fewer than seven cardinals," Raimondo di Sangro, prince of Sansevero in the 18th century, "had them killed and from their skin and bones ingeniously fashioned seven chairs." It is, as Marius Kociejowski soon concedes, "terrible to begin a chapter on a lie or what may be construed as a cheap ploy in order to grab the reader's attention". The same doubtless applies to the start of a review. Mr Kociejowski at least has a purpose: to illustrate the "black legend" surrounding one of the many extraordinary characters who flit through the pages of his equally extraordinary book.

A Neapolitan alchemist, Freemason and inventor, di Sangro mastered eight languages, made fireworks that for the first time included "several shades of the colour green" and invented a waterproof cape, a double-barrelled arquebus and—why, oh why, did this not catch on before the advent of Twitter?—a punctuation mark to denote that the preceding sentence is to be taken ironically. He also dabbled in palinogenesis (the reconstruction of bodies from

their ashes), one of several reasons for the belief that there was something supernatural behind the astonishing, veiled statues he commissioned for his family chapel, the Cappella Sansevero.

To write about Naples, you really need to be a poet—or, even better, an antiquarian bookseller. Mr Kociejowski is both and has produced a delightful work that is as eclectic, labyrinthine, ironic and shocking as the city itself.

The idea of "a door leading to another door and yet another serves perfectly as a way to understand Naples", he remarks. And that is what, metaphorically, awaits his readers. "The Serpent Coiled in Naples" opens with a discussion of an utterly futile tome. "De Regia Theca Calamaria" ("On a Royal Inkpot") was published in 1756 by Jacopo Martorelli, a Neapolitan professor who devoted 738 pages to the said inkpot before it was shown unequivocally to have been a jewellery box—a discovery that unsurprisingly tipped him into a "profound existential crisis".

That is merely the first of Mr Kociejowski's doors. Others introduce readers to the theory that "much of what we take to be Greek culture was in fact exported from ancient Italy"; to a rap band that has compressed into a five-minute song the entire history of Naples; and to the incisions in the façade of the church of Gesù Nuova that are claimed to be Aramaic letters used in

the 15th century to represent musical notes. The score they produce yields a 45-minute piece that apparently, and rather disappointingly, sounds like "the soundtrack to a low-budget horror film".

There is perhaps no city in Europe in which the living and the dead co-exist so intimately as in Naples, none in which paganism is so inextricably entwined with Christianity, and none in which the past—including the very remote past—is so much a part of the present. Among the places Mr Kociejowski visits is another church, San Pietro ad Aram. The current structure was built in the second half of the 17th century. But "it replaced an earlier church built in 870 or thereabouts. This in turn was erected over an earlier paleo-Christian church and, beneath that, an ancient Greek temple."

That paleo-Christian church leads Mr Kociejowski to the first bishop of Naples, St Aspren, to whom believers pray to fend off migraine. Bayer, a German pharmaceutical firm, adapted the saint's name for its wonder drug, aspirin—or so Mr Kociejowski avers. But the headache-relieving divine does not feature in Bayer's explanation of its product's name, which it says comes from the Latin name of the plant from which salicylic acid, the aspirin precursor, is derived. Nor was Raffaele Piria, the chemist who first isolated salicylic acid, a Neapolitan, as the author states. Rather, he was born in Calabria. Every so often, the romantic in Mr Kociejowski gets the better of the rigorous (indeed, heroic) researcher.

To write his book, he lived in Forcella, one of the dodgiest districts in the home-town of the Camorra, the Neapolitan Mafia. Forcella means "fork", as in "bifurcation" or "Y". "Dig deeper and what comes up is the symbol of the Pythagorean School that was located somewhere in the area," he writes. A digression on the use of the Y-cross in medieval art (and on the priest's chasuble) arrives at a group of stones near a division in the road in Forcella, probably dating from the 3rd century BC, when they formed part of the ancient wall of Greek Neapolis or an equally venerable gate. On a railing around the stones hangs a sign "calling upon passers-by to remember Maikol Giuseppe Russo, a young father of two, who became yet another innocent bystander fallen to random gunfire."

Naples is populated by Italy's friendliest, cheeriest, most welcoming citizens. It is a magically seductive place in which it can often feel as if the wisdom of an older, emptier world is tantalisingly within reach. Yet it is also a city in which you can find, as Mr Kociejowski did one night on the main thoroughfare, the body of a drug addict shot dead through the eye.

As he notes, it is quite possible to become Neapolitan. "Whether it is to be recommended is another matter." ■

The glory of cycling

Handlebars of history

Two Wheels Good. By Jody Rosen. Crown; 416 pages; \$28.99. To be published in Britain by Bodley Head in August; £25

IN 1896 ONE of Joseph Pulitzer's most influential newspapers, the *World*, reported a classic tabloid story about a broken home. "Henry Cleating and his wife once lived happily together...but now they have gone to the divorce court," the paper relayed, "and all on account of her bicycle and bright red bloomers." Cleating was upset because his wife was "taking long bicycle rides and neglecting her household duties". Eventually, after she returned from an especially long jaunt, her husband "got an axe, and smashed the bicycle into a snarl of bent spokes, gashed tyres and ruined tubing", bringing the marriage to an end. The bloomers "will serve as exhibits in the divorce suit".

This excerpt comes from a collection of clippings from the late-19th and early-20th centuries assembled by Jody Rosen, a New York-based journalist, for his new book about the bicycle. He promises to reveal "the history and mystery" of the most popular form of transport ever known to humankind except for its own two feet. For that is what the bicycle is. More are manufactured each year in China alone than automobiles are made worldwide. Globally, almost half of households own a bicycle, far more than have a car. As Mr Rosen argues, "the cities and towns we inhabit, our economies, our laws are designed for cars; we hop between continents on airplanes. Yet we live on a bicycle planet."

Nevertheless, though every business student knows how Henry Ford brought motoring to the masses, and how that development changed society, far fewer people realise quite how transformational the bicycle has been. At the end of the Victorian age, for instance, it allowed young women to get about alone, permitting an age of sexual liberation long before the pill.

As Mr Rosen recounts, bicycles also transformed warfare. During the Boer war Afrikaner scouts pioneered their use in hit-and-run attacks against the British; 70 years later, the Viet Cong relied on them to move supplies through the jungle to defeat America. In Tiananmen Square in 1989, protesters carried banners on bicycles. In response, the Chinese Communist government crushed

hundreds of wheels under tank tracks. Shortly afterwards China switched to encouraging four wheels over two.

Road-hogging, fume-spewing motorists may not realise it, but they too owe their preferred means of travel to cyclists. Air-inflated rubber tyres were first invented to be used by bicycles, not cars. Ford's first car was called a "quadricycle", and it was the League of American Wheelmen that pushed for the first nationwide network of roads in their country. Mr Rosen's book ranges across this history, as well as into more niche topics such as Nepal's cycling king, the bike-porn fetishists of Portland, Oregon, and Danny MacAskill, a genius Scottish stunt cyclist.

Readers hoping for a sustained argument as to why the bicycle deserves a more glorious reputation may be left a little unsatisfied. Love for two-wheeled transport runs through every sentence in the book, but its structure is often frustratingly scattershot, and the most exciting elements are underplayed. In particular, Mr Rosen could have said far more about the inventors and popularisers of cycling, and the impact of their innovation on the world, and somewhat less about bikes and sex.

Meanwhile the hostility of non-cyclists towards the contraption—the late P.J. O'Rourke called the very existence of the bicycle "an offence to reason and wisdom"—is laid out but left unexplored and unexplained. Still, anyone who goes about mostly on two wheels, in defiance of the ever larger, ever more numerous powered vehicles on the road, will enjoy this entertaining ride.



They wanted to ride their bicycles

Pirate lives

Shark bait

Born to be Hanged. By Keith Thomson. Little, Brown; 384 pages; \$32 and £25

TWO DECADES ago a famous sociology paper by Steven Levitt and Sudhir Venkatesh analysed the economics of drug-selling gangs in America. It argued that, despite the supposed glamour and mythical rewards of the career, most dealers were enticed more "by the prospect of future riches" than the presence of current ones. Most earned a bit above the minimum wage—a top-up more than paid back in the risks they ran.

Reading "Born to be Hanged" by Keith Thomson, it is hard to suppress the feeling that the pirates he chronicles would have benefited from a thorough perusal of that paper when choosing their vocation. Even without the gold teeth, the two groups had notable similarities. Both faced terrible perils; both were drawn on by the lure of distant jackpots. And for both, the outcomes were usually disappointing.

The pirates in this book depart for the New World towards the end of the 17th century to find treasure. Rarely do they succeed. Loitering around the coast of South America, they fail in one way then another. Boats sink; they are burned on pyres; gold is elusive; almost everyone gets scurvy. The pirate motto promises "A merry life and a short one." The second part frequently comes to pass; the first—as Mr Thomson's title implies—much less so. His book is rich in such phrases as "their blood ran down the decks in whole streams", "he took up the amputation knife" and "it fester'd so that it pleased god he died."

Part of the problem was that "me hearties" were often much less than hearty. For all the famed drama of the pistols and cutlasses, Mr Thomson points out that "scurvy killed more sailors than storms, shipwrecks and combat combined." These pirates spend much of their time suffering from a panoply of repulsive conditions. Poisonous plants sting them. Insects lay eggs in them. Their gums turn purple and "soften to the consistency of a sponge".

But they are pleasingly piratical. In an era of historical revisionism, in which the Dark Ages are to be considered enlightened, the Vikings seen as unfairly maligned and Nero as quite nice after all, it is reassuring to find historical characters who conform so closely to stereotype. They are almost the Platonic form of the species. They drink themselves to death, lose legs,

Back Story Talk to him, Goose

In the sequel to "Top Gun", Tom Cruise feels the need to speed into the past

HE IS BACK, and so are his accessories—the motorbike, the fur-collared jacket worn in the Californian summer, the Ray-Ban shades which, after "Top Gun" came out in 1986, were as trendy as its soft-rock soundtrack. To recap the plot for the uninitiated: against his commander's better judgment, Pete "Maverick" Mitchell, a wild-card naval pilot played by Tom Cruise, was sent to an elite aerial-combat school in Miramar. Much of the dialogue was a variation on "Goddammit, Maverick!" or "Damn, this kid's good!" His buddies loved him, his superiors forgave him, he earned his rivals' respect. After some high jinks, he won the dogfight and got the girl.

It isn't just the cold-war fashion sense and Mr Cruise that return in "Top Gun: Maverick", a much-delayed follow-up released this week. So do the nosebleed-inducing cockpit footage, the haze above the runways, the sweat on anxious faces in the blue-lit control rooms. Maverick again races a fighter jet on his bike; his new girlfriend seems to live in the same neighbourhood as his old one. The lost element is his best pal, Goose (Anthony Edwards), who died in the original. But Goose's son, Rooster (Miles Teller), is one of the whizz kids whom Maverick, back in Miramar against everyone's better judgment, must train for an impossible mission in an unnamed rogue state. After some high jinks, he faces a dogfight and—you get the picture.

As in many film franchises, "Top Gun: Maverick" is both sequel and homage, sampling its predecessor's catchphrases and remixing vintage motifs and scenes. But amid the mimicry there are differences, and they are telling: about then and now and the distance in between.

Maverick's Eighties-style courtship technique, for instance, looks like ha-



rassment today. Glimpsing his love interest, played by Kelly McGillis, in a night-club, he bet Goose \$20 that he could have sex with her on the premises. Rebuffed, he chased her into the ladies' room; she was soon charmed. In what seems a kind of apology, when latter-day Maverick visits a bar, two young pilots are making another \$20 bet—over a harmless game of darts.

But the relationships at the heart of both films are between the testosterone-addled fly-boys. Both are stories about men growing up, in the process learning to be nice to each other. Electrifying the first, however, was the friction between Maverick and his fellow hotshot Iceman (Val Kilmer), who traded entranced stares in the locker room as they vied to be number one. Their embrace on the deck of an aircraft carrier was the drama's real climax. The new movie has a game of beach football in place of a memorably oily volleyball match, but the tingle of homo-eroticism is gone.

As for headline politics: "Top Gun: Maverick" tries to glide over them and through an airtight world of entertain-

ment. Yet recent history is visible as a negative impression, like the shadow of an enemy jet on the clouds.

Famously, in 1986 navy recruiters waited at American cinemas to sign up the would-be Mavericks and Icemen whom "Top Gun" inspired. The adrenalin and elation of the new film are again infectious. Watch it, and when you next bring home the shopping, you half-expect your family to erupt in cheers, like crewmen high-fiving over Maverick's landings. In Goose's tear-jerking death, though, the original let darkness in on the idyll. Its successor offers the same simple vision of heroism, the same fantasy of benign American power, only even more innocently, as if answering a deeper need for reassurance.

Changes were inevitable: nostalgia, after all, is another name for loss. Nobody, not even Maverick, can jump into the same cockpit twice—though, come to think of it, he does. As the new story begins he is test-piloting a hypersonic jet, after which his rides become ever-more antiquated. He makes a getaway in a plane from the Eighties and winds up in one from the second world war, borne back ceaselessly on the wings of the past.

His real enemy now is the passage of time, with all its barely mentioned but inescapable wars, failed leaders and political rancour, all the accumulated disillusionment with America, its heroes, even its fading movie stars. Sequels, of course, always have an eye on the rear-view mirror. So, in fact, did the original "Top Gun", glancing back to Vietnam where Maverick's father had died. Yet in 1986 Maverick outflew history and the future opened out on the horizon. Now history is his destination. "Let go," he is told, and replies, "I don't know how." He is not alone.

get stuck in the doldrums and even possess parrots—which, naturally, can be bought and sold for pieces of eight. The only disappointment is that they do not say "Arrrrgghh!" Real pirates apparently preferred "Damn" or "Huzza". Those sound a lot less menacing, which is perhaps why in 1950 the film version of "Treasure Island" discarded both and opted for "Arrrrgghh!" instead.

There are some surprising moments. Some of the pirates could be thoughtful, even literary. One called William Dampier wrote an account of his trip that became an

instant bestseller. His description of the New World was so rich in new terms that the Oxford English Dictionary credits Dampier for having introduced around 1,000 words into the language. It is a pleasing irony that many vegan-cookbook staples were first itemised by a pirate. The next time you smash an avocado, stir-fry a cashew or dip a finger into guacamole, raise a toast to Dampier, as all were recorded by his pen.

Despite its seasoning with such details, the book can lag. The paper on drug-dealers queried whether they were all that good

at "optimising decision-making". Mr Thomson is an engaging and enthusiastic writer, but these pirates are so hopeless that his narrative can feel less like a well-structured story with a point, and more of a litany of dreadful decisions.

But then the book changes course and you come across a literary pirate like Dampier, or a successful one. For those who do not die, at least, do finally find that gold—enough, in fact, that earning it in a normal job would have taken them "five years on the straight and narrow". Huzza, as they once said on the high seas. ■

Economic data

	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago latest	quarter*	2022†	% change on year ago latest	2022†	%		% of GDP, 2022†	% of GDP, 2022†			10-yr gov't bonds latest,%	change on year ago, bp	per \$ May 25th	% change on year ago
United States	3.6	Q1	-1.4	2.3	8.3	Apr	7.7	3.6	Apr	-4.2	-5.8	2.8	119	-	-
China	4.8	Q1	5.3	5.0	2.1	Apr	2.2	6.1	Apr‡\$	2.3	-6.2	2.5	§§	-38.0	6.67
Japan	0.2	Q1	-1.0	2.8	2.4	Apr	1.8	2.6	Mar	1.3	-6.1	nil	-8.0	127	-14.5
Britain	8.7	Q1	3.0	3.9	9.0	Apr	6.7	3.7	Feb††	-3.2	-5.3	1.9	97.0	0.80	-11.2
Canada	3.3	Q4	6.7	3.8	6.8	Apr	5.7	5.2	Apr	1.2	-3.6	2.8	131	1.28	-5.5
Euro area	5.1	Q1	1.1	3.2	7.4	Apr	5.2	6.8	Mar	2.4	-4.1	0.9	112	0.94	-12.8
Austria	5.5	Q4	-2.0	2.6	7.2	Apr	6.5	4.2	Mar	-1.3	-4.4	1.5	146	0.94	-12.8
Belgium	4.6	Q1	1.2	2.0	8.3	Apr	9.2	5.6	Mar	-1.3	-3.8	1.5	137	0.94	-12.8
France	5.3	Q1	-0.2	2.7	4.8	Apr	5.4	7.4	Mar	-1.2	-5.7	1.5	129	0.94	-12.8
Germany	3.8	Q1	0.9	1.6	7.4	Apr	6.8	2.9	Mar	5.9	-2.9	0.9	112	0.94	-12.8
Greece	7.4	Q4	1.7	3.0	10.2	Apr	6.6	12.9	Mar	-5.1	-4.9	3.6	267	0.94	-12.8
Italy	5.8	Q1	-0.7	2.0	6.0	Apr	6.3	8.3	Mar	1.5	-5.9	3.0	200	0.94	-12.8
Netherlands	7.0	Q1	0.1	2.5	9.6	Apr	9.6	3.2	Apr	5.9	-3.0	1.2	127	0.94	-12.8
Spain	5.5	Q4	1.3	4.0	8.3	Apr	7.2	13.5	Mar	0.8	-5.7	2.1	154	0.94	-12.8
Czech Republic	3.7	Q4	2.8	2.2	14.2	Apr	11.9	2.4	Mar‡	-2.5	-4.8	4.7	286	23.1	-10.2
Denmark	6.8	Q4	-0.4	2.1	6.7	Apr	6.9	2.5	Mar	8.2	1.0	1.3	115	6.97	-12.9
Norway	4.8	Q1	-3.8	3.3	5.4	Apr	3.6	2.9	Mar‡‡	9.2	2.6	1.4	76.0	9.61	-13.5
Poland	8.0	Q4	6.6	4.5	12.4	Apr	10.1	5.2	Apr§	-2.2	-3.7	6.5	476	4.32	-15.3
Russia	3.5	Q1	na	-10.0	17.8	Apr	18.0	4.1	Mar§	5.6	-4.5	9.5	223	59.1	24.2
Sweden	3.5	Q1	-1.6	2.4	6.4	Apr	5.1	8.2	Apr§	4.1	0.4	1.6	120	9.87	-16.2
Switzerland	3.7	Q4	1.1	2.6	2.5	Apr	2.1	2.2	Apr	6.1	0.5	0.7	83.0	0.96	-6.2
Turkey	9.1	Q4	6.2	3.0	70.0	Apr	62.2	11.4	Mar§	-4.2	-3.6	23.1	548	16.4	-48.4
Australia	4.2	Q4	14.4	3.2	5.1	Q1	4.5	3.9	Apr	1.8	-3.1	3.2	166	1.41	-8.5
Hong Kong	-4.0	Q1	-11.4	0.9	1.3	Apr	4.2	5.4	Apr‡‡	0.1	-6.8	2.7	153	7.85	-1.1
India	5.4	Q4	13.6	7.2	7.8	Apr	6.0	7.8	Apr	-1.4	-6.4	7.3	134	77.5	-6.1
Indonesia	5.0	Q1	na	5.2	3.5	Apr	4.2	5.8	Q1§	0.3	-4.8	7.1	72.0	14,634	-2.1
Malaysia	5.0	Q1	na	4.0	2.3	Apr	2.9	4.1	Mar§	2.8	-6.2	4.2	97.0	4.40	-5.9
Pakistan	6.2	2022**	na	2.7	13.4	Apr	13.0	6.3	2021	-5.3	-7.0	12.9	†††	323	201
Philippines	8.3	Q1	7.8	6.0	4.9	Apr	4.6	6.4	Q1§	-3.0	-7.7	6.9	292	52.4	-8.1
Singapore	3.7	Q1	2.8	3.6	5.4	Apr	4.9	2.2	Q1	17.4	-0.9	2.6	106	1.38	-3.6
South Korea	3.1	Q1	3.0	2.7	4.8	Apr	4.0	3.0	Apr§	3.3	-2.0	3.2	104	1,265	-11.3
Taiwan	3.1	Q1	6.4	4.5	3.4	Apr	3.8	3.7	Apr	13.9	-1.2	1.1	66.0	29.6	-5.7
Thailand	2.2	Q1	4.7	2.9	4.6	Apr	5.0	1.5	Dec§	0.1	-4.8	2.8	117	34.2	-8.4
Argentina	8.6	Q4	6.3	4.2	58.0	Apr	60.1	7.0	Q4§	0.8	-4.3	na	na	119	-20.9
Brazil	1.6	Q4	2.2	0.8	12.1	Apr	10.2	11.1	Mar§‡‡	-0.5	-7.1	12.5	312	4.83	9.9
Chile	7.2	Q1	-3.0	2.1	10.5	Apr	10.2	7.8	Mar§‡‡	-4.5	-3.4	6.4	242	835	-11.8
Colombia	8.2	Q1	4.0	4.2	9.2	Apr	9.8	12.1	Mar§	-3.6	-4.8	11.3	395	3,948	-5.4
Mexico	1.8	Q1	4.1	1.9	7.7	Apr	7.5	3.5	Mar	-0.9	-3.5	8.6	190	19.8	0.3
Peru	3.8	Q1	8.1	2.5	8.0	Apr	7.1	7.4	Apr§	-3.3	-2.5	7.8	283	3.70	3.2
Egypt	8.3	Q4	na	5.2	13.1	Apr	11.6	7.2	Q1§	-6.3	-6.4	na	na	18.6	-15.8
Israel	9.6	Q1	-1.6	4.1	4.0	Apr	4.0	3.5	Apr	3.0	-2.0	2.6	142	3.34	-3.0
Saudi Arabia	3.2	2021	na	6.7	2.3	Apr	2.3	6.9	Q4	14.9	10.1	na	na	3.75	nil
South Africa	1.7	Q4	4.7	1.9	6.0	Apr	5.8	35.3	Q4§	-1.6	-6.1	9.8	91.0	15.8	-12.0

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. Source: Haver Analytics

Markets

In local currency	Index	% change on:			index	% change on:			index	% change on:		
		May 25th	one week	Dec 31st 2021		May 25th	one week	Dec 31st 2021		May 25th	one week	Dec 31st 2021
United States S&P 500	3,978.7	1.4	-16.5		42,012.7	-2.4	-5.8					
United States NAScomp	11,434.7	0.1	-26.9		3,179.6	-1.4	1.8					
China Shanghai Comp	3,107.5	0.7	-14.6		2,617.2	-0.3	-12.1					
China Shenzhen Comp	1,944.9	0.2	-23.1		16,104.0	-1.2	-11.6					
Japan Nikkei 225	26,677.8	-0.9	-7.3		1,625.2	0.3	-2.0					
Japan Topix	1,876.6	-0.4	-5.8		91,271.7	0.5	9.3					
Britain FTSE 100	7,522.8	1.1	1.9		110,579.8	4.1	5.5					
Canada S&P TSX	20,383.8	1.4	-4.0		51,717.1	2.6	-2.9					
Euro area EURO STOXX 50	3,677.1	-0.4	-14.5		10,247.4	-2.1	-14.0					
France CAC 40	6,298.6	-0.9	-11.9		1,890.7	-5.0	-8.8					
Germany DAX*	14,007.9	nil	-11.8		12,588.9	-1.0	11.1					
Italy FTSE/MIB	24,250.5	0.7	-11.3	</								

From Main Street to Wall Street

Stimulus cheques buoyed retail investors' favourite stocks

AMERICA'S STOCKMARKET enjoyed a steady bull run between 2009 and 2021. Although the advent of the covid-19 pandemic briefly sent stock prices down, the rebound was substantial: \$10,000 deposited into a fund tracking the S&P 500 in March 2020 would have grown to \$21,416 at the market's peak in December 2021.

Many retail investors performed much better. Tales of newly minted meme-stock millionaires who got rich backing GameStop, a video-game retailer, prompted some observers to reconsider the skills of retail investors. Might they have some strategic advantage over the pros?

One explanation may be significantly less sexy: \$800bn of stimulus cheques. A new paper by Robin Greenwood of Harvard and Jeffrey Wurgler and Toomas Laarits of New York University explores how big the effect was. They observed that from January 2020 to April 2021 an equally weighted portfolio of stocks in which retail investors were most active gained nearly 150%, against 38% for the overall market.

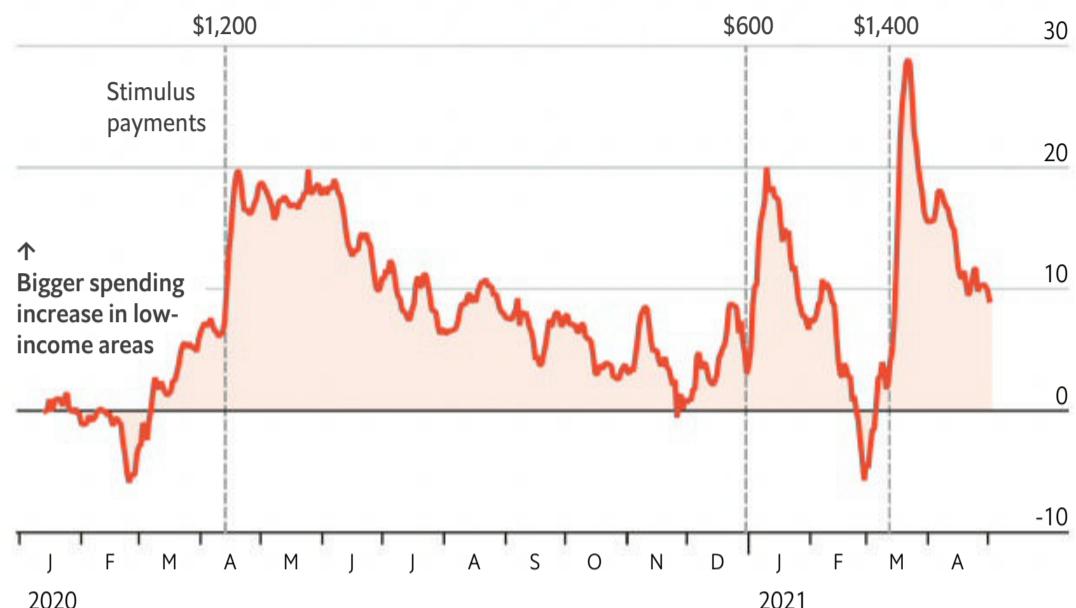
To discover the direct effect of the stimulus, the researchers first needed to find the precise dates on which the payments were received. As the poor spend a bigger share of their incomes than the rich, they expected the stimulus to cause large surges in spending in poor areas. Sure enough, the authors found distinct spikes following each of the three rounds of cheques.

Because the stimulus money went to individuals, not to institutional investors, it is the most likely cause of any divergence in performance between shares favoured by small buyers and those preferred by asset managers. Just before the cheques were paid, returns among stocks with unusually high retail interest were unremarkable. In contrast, in April 2020—two weeks after the first round of “stimmies”—these shares gained 13%, whereas the overall market was up just 2%. And two weeks after Americans received another \$600 in December 2020, the same retail portfolio had surged by 24%, compared with 4% for the market as a whole.

Surveys estimate that 10-15% of the stimulus money, around \$100bn, was immediately invested in the stockmarket. The researchers found that a third round of stimulus in March 2021 had no effect, which suggests that, by then, many Americans had found something else to spend Uncle Sam's money on. ■

→ Spending data reveal exactly when the bulk of stimulus funds were received

US non-food retail spending, difference between lowest- and highest-income areas
Percentage-point change on January 2020 average



→ Stocks favoured by retail investors performed particularly well

US stockmarket total returns, by quintile of retail-investor trading
Top 2,000 stocks, Jan 1st 2020=100, log scale



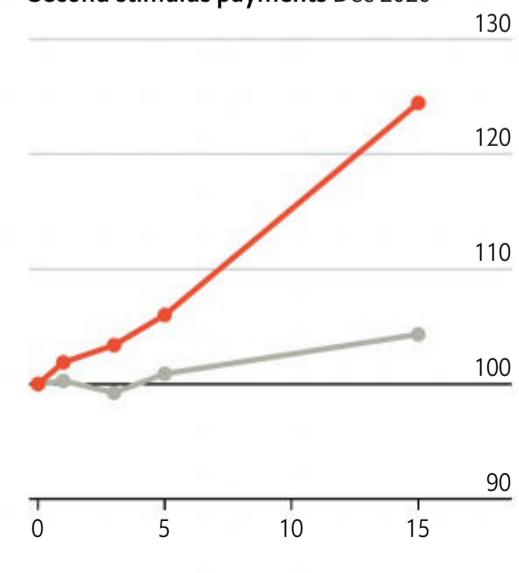
→ Retail investors got lucrative returns after stimulus cheques were paid

US stockmarket, value of \$100 invested on day of stimulus payments

First stimulus payments Apr 2020



Second stimulus payments Dec 2020



Sources: “The economic impact of covid-19”, by Raj Chetty et al, 2020; “Stockmarket stimulus”, by Robin Greenwood, Toomas Laarits & Jeffrey Wurgler, NBER working paper, March 2022



The barefoot laird

Lawrence MacEwen, owner and steward of the isle of Muck, died on May 16th, aged 80

AS SOON AS spring arrived, the young Lawrence MacEwen shed his shoes. Barefoot, he ran to school down the only road on Muck, a mile and a half of gravel mixed with grass. Barefoot, he jumped among the fallen basalt stones of the dykes built long ago by kelpers, who had made a living gathering seaweed from the rocks. Barefoot he climbed the craggy western cliffs, hanging on to heather for dear life, and scampered to the top of Beinn Airein, the highest hill, to look out past Eigg and Rum to Knoydart and the Cuillin Hills. Barefoot he would stand for hours on the beach below his house, so mesmerised by the rolling tide that he could not stir until his mother called him in for tea. His feet would sink a little into the white sand, embedding him in the place.

It was a tiny place at that, not quite a mile long and two and a half miles broad, the smallest of the Small Isles off Scotland's west coast. His family had bought it in 1896 and made a decent living from it, for its deep volcanic soil could provide fine hay, corn and vegetables, as well as grazing. Yet it was also left behind by the world and benighted by the weather, sometimes cut off entirely by autumn storms. Most residents had been evicted in the 19th century, or had moved away to softer places. By the late 1960s the MacEwens, too, were wondering whether or not to stay. Lawrence's elder brother Alasdair, now the owner, was set on going to the mainland and making Muck a summer-only place, with holiday lets. But Lawrence knew he could never leave, being rooted there.

So he took Muck on, at 27, and for the next 50 years directed its future. He liked a challenge. On Muck, they came from all directions: from the driving wind that bent him forward, to the sea that drowned several of the island's scarce fishermen, to the vexing logistics of driving skittish sheep and cattle into a listing wooden boat to get them to market in Glenug or Arisaig, over the water. He took all this in his tall, loping stride. A dozen mishaps attended every scheme he fixed on; every Muck task entailed blood, sweat and

turmoil; but his devotion to the island transcended everything.

This being so, he did not want to change it much. He worried about television, cars, crowds of nosing tourists and shuttered second homes. On the other hand, visitors meant income. He struggled with this dilemma. Under his aegis there was only one tiny hotel, built by his younger brother, in the single settlement at Port Mor, along with a tea-room selling his wife Jenny's wonderful cakes. Those would be baked at dawn, while the fitful generator was on; reliable electricity did not come until 2013. There was still no pub, post office, general shop or even post box. No church either, though in the tiny graveyard lay the ruins of a chapel. Nor, still, was there an easy harbour, because to build one on the best site would have spoiled the glorious view of Rum and Eigg. And the population, as for decades, still hovered around 40 souls.

But the laird was sure that 40 souls could keep Muck going, if they worked hard enough and pulled together. What the island needed was nothing sudden, but a spirit of community and self-sufficiency. He encouraged the islanders to plant trees, having tried as a teenager to plant 1,000 beech and spruce saplings in a day. He took over neglected gardens and set up polytunnels, so that everyone could grow vegetables. For a while his herd of Ayshires produced free milk for the whole island, until the health-and-safety ghouls came down on him. (They moaned about the water, too, though he knew Muck's springs were pure as any bottled kind.) He also held an annual Open Day, with tours of his farm and displays of produce, to show what little Muck could do.

The hub of his philosophy was the island's nursery-and-primary school. Attendance sometimes sank to one pupil, but it was vital to keep it going. Children were the future, even though at 12 they were bound to leave for schooling on the mainland. Those earlier years were a precious training in the love of nature and simplicity that he had; when people applied to him to settle on Muck, those with infants came first. For a time, before the residents built a community centre with Lottery money, the new schoolhouse he also insisted on was where they held their meetings, parties and dances, the beating heart of the island.

At these their laird would almost always appear, with his shaggy red-blond beard and sea-blue eyes, often barefoot. Though his voice had been honed and anglicised at Gordonstoun, there was not a jot of arrogance in him. Barefoot again, he would joyfully hand out Jenny's tea and scones. Equally, he would take a shovel to concrete and gravel whenever it was required, and topics such as the new pier would be put to a democratic vote.

In fact he did not see himself as a laird at all, but as a steward and a farmer. His usual dress was a dung-smelling boiler suit and wellies, his normal conveyance an ancient red Massey Ferguson tractor, and his chieff friends and companions his 40 red Luing cattle. He kept 600 sheep too, mostly dark-fleeced Jacob-Cheviots of which he was very fond. But the cows were his passion. He would stand for long moments scratching and enchanting them, while he recited one of the scores of poems he had learned as a boy: "She neither smiled nor kissed him/because she knew not how/for he was only a farmer's lad/And she was a fine Luing cow."

That scene appeared in a documentary, "The Prince of Muck", made by Cindy Jansen, a Dutch film-maker, over four years from 2014. Her film caught the laird at a time when his son Colin had taken over the farm and Lawrence, still determined to look after his island, could not bear to let go. He was left in a niche with his favourite cows, stubbornly milking them by hand in the byre. Under Colin Muck had acquired a fish farm, wind turbines, Wi-Fi, a luxury hotel and holiday lets. The island had let the world in.

Gradually he came to accept these things. Yet his favourite vision of the future was a different one. In it he lay in the little unfenced graveyard, under the good Muck earth, while his cows wandered over him, gossiping to him as he had to them. He would surely hear their whispering and munching as he lay there, barefoot, embedded in the place. ■

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