The Economist

- Anatomy of Trudeau's fall
- Inside Iran's sanctions-busting
- Russia's spies go feral
- Starship and the economics of space

OCTOBER 19TH–25TH 2024

THE ENVY OF THE WORLD

AMERICA'S ECONOMY: A SPECIAL REPORT

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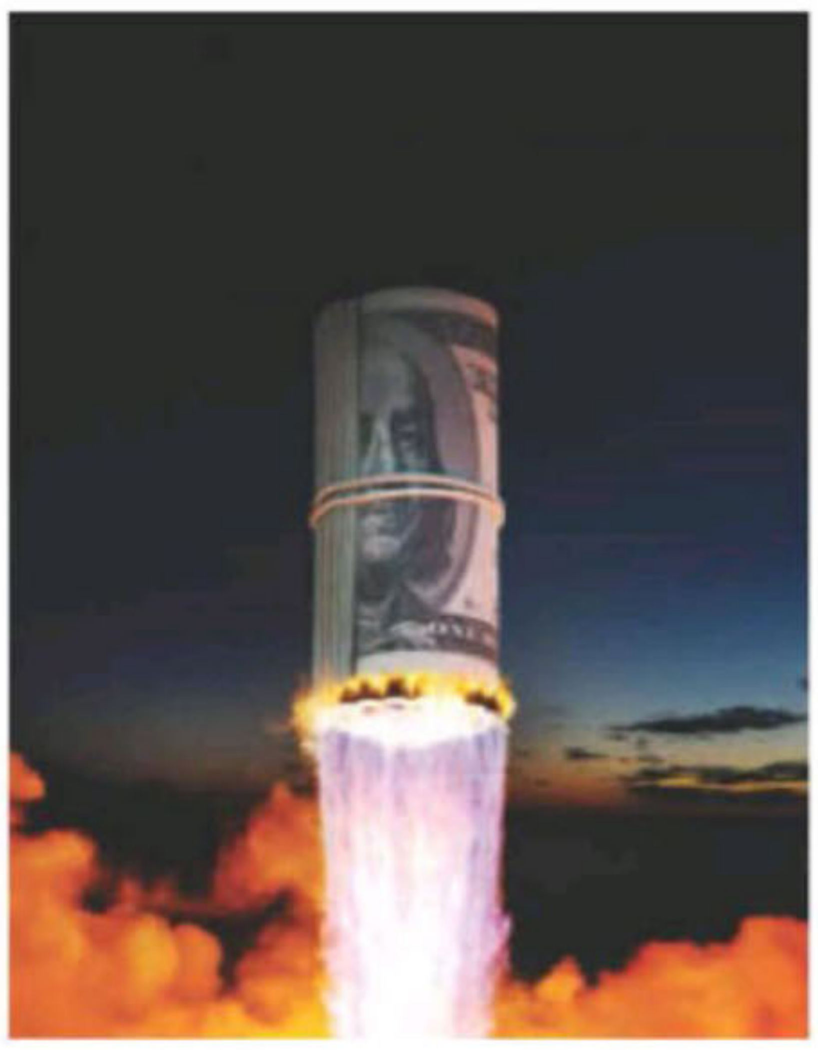

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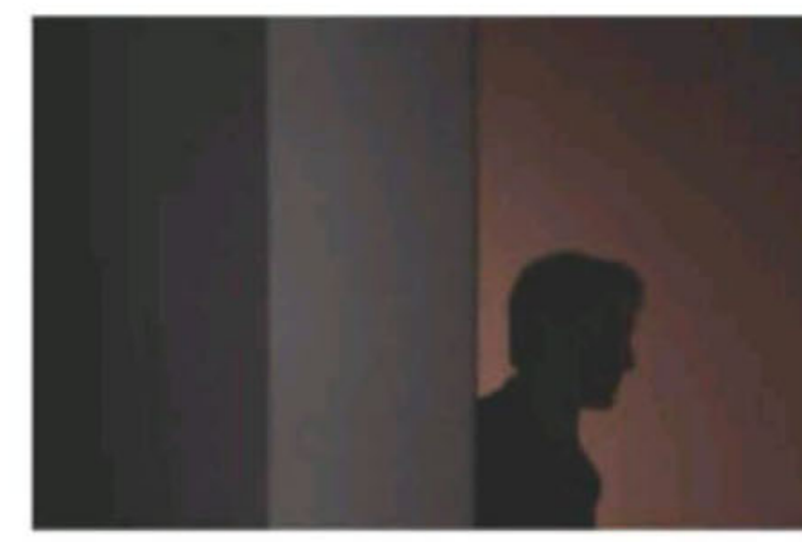

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to take part in *"a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."*

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The world this week Politics

The diplomatic row intensified between **Canada** and **India** over the murder of a Sikh separatist near Vancouver. Canada expelled six Indian diplomats, including the high commissioner, claiming a link to the shooting in June 2023 of Hardeep Singh Nijjar, an activist who pushed for a Sikh homeland in India. Explaining the expulsions, Justin Trudeau, the Canadian prime minister, said the police evidence could not be ignored and it was necessary "to disrupt the criminal activities" that threatened public safety. Canadian police described a broad campaign against Indian dissidents in the country involving criminal gangs. A furious India denied the claims and expelled six Canadian diplomats, including the acting high commissioner.

Genaro García Luna, **Mexico**'s federal security minister during the "war on drugs" between 2006 and 2012, was sentenced to more than 38 years in prison by a court in New York for taking bribes from the Sinaloa cartel and protecting its members from arrest.

Argentina's economic outlook continued to improve, with the country's risk index compiled by JPMorgan Chase, a bank, hitting its lowest level in five years. Inflation has continued to slow, running at 3.5% month-on-month in September. All of this is good news for Javier Milei, Argentina's libertarian president, who has slashed public spending in an effort to curb rising prices. The nationwide poverty rate, however, rose to 53% in the first six months of 2024, up from 42% over the previous six months.

America took the rare step of deploying military personnel to **Israel**. The Pentagon sent a THAAD missile-battery system and its associated crew to the country to boost Israel's defence capabilities following Iran's recent missile attack. In the past America has used navy ships and fighter jets to help defend Israel. This week the Pentagon dispatched long-range bombers to target weapons-storage sites in Yemen belonging to the **Houthis**, a rebel group backed by Iran who have fired missiles at Israel.

Carrots and sticks

As well as bolstering Israel's security, the Biden administration also warned the Israeli government that it must allow more **humanitarian aid** into Gaza, or risk a reduction in the arms it receives from the US. Among other things Israel must allow at least 350 lorries of aid a day into the area. The deadline for complying comes after America's election on November 5th. Israel said it took the matter seriously.

The horror in **Gaza** continued, as at least 50 people were killed across the strip, according to Palestinian health officials, who do not provide a breakdown of civilian and combatant casualties. Israeli forces claimed they were targeting Hamas in Jabalia, in north Gaza.

At least 147 people died and scores more were injured when a fuel tanker caught fire following a crash in northern **Nigeria**. The victims had rushed to the scene of the crash to collect petrol leaking from the tanker. Fuel-tanker explosions are common in Nigeria because of bad roads and poor vehicle maintenance.

Italy sent its first batch of illegal migrants to Albania to process their requests for asylum, under a controversial arrangement with the Albanian government. Italy has stressed that only men who are not considered to be vulnerable and come from safe countries will be sent abroad for processing. The first batch, of just 16 men, came from Bangladesh and Egypt. If their asylum claims are rejected they will be repatriated.

Poland is also cracking down on migration. The prime minister, Donald Tusk, announced that he intended to suspend the right of asylum to stop the flow of illegal migrants. It was unclear if such a suspension would be allowed under EU law.

Facing a budgetary squeeze, the **French** government admitted that it would not be able to fulfil a pledge of €3bn ($3.3bn) in military aid to **Ukraine** this year, and that the figure would be closer to €2bn. The news came just a few days after Volodymyr Zelensky visited Paris, where he presented his "victory plan" for defeating Russia to Emmanuel Macron. The French president's office said the meeting confirmed France's "unwavering support" for Ukraine.

Marine Le Pen, the parliamentary leader of the hard-right National Rally in France, took the stand in her trial for misuse of European Parliament funds. Ms Le Pen is accused of overseeing a system that spent money which was earmarked strictly for European Parliament affairs on employing party assistants. Ms Le Pen insists there were no irregularities, but if found guilty she could be banned from running for office for five years.

The Social Democrats were on course to form a government in **Lithuania**, after the party won the first round of a parliamentary election. Vilija Blinkeviciute looks set to be prime minister and has already begun coalition talks with other centre-left parties.

China held a series of war games around **Taiwan** after the Taiwanese president, Lai Ching-te, gave a big speech on national day. The Chinese government described the speech as a "provocation". The Pentagon said the war games were "irresponsible, disproportionate and destabilising". Xi Jinping later visited Dongshan in China's southern Fujian province, where Chinese nationalists were defeated in a battle in 1953.

Symbolic gestures

In its latest bout of sabre-rattling **North Korea** blew up two roads within its borders that link it with South Korea. The North has said it will destroy all existing rail and road networks connecting the two countries, which were first severed during the Korean war.

At least 21 workers were killed in an attack on a coal mine in the **Pakistani** province of Balochistan. Baloch separatists, who have carried out a number of deadly assaults in recent months, denied any involvement. The incident came shortly before Pakistan hosted a summit of the Shanghai Co-operation Organisation, a security forum that counts China, India, Iran and Russia among its members.

SpaceX's **Starship** project took one giant leap forward when the rocket's huge first-stage booster returned directly to its launch pad, caught safely by the gantry's massive arms. As well as being an engineering first the latest test suggests that SpaceX's plans for a reusable spacecraft will work, which would slash the cost of sending cargo, and eventually humans, into space. "Big step towards making life multiplanetary was made today," said Elon Musk, SpaceX's founder.

The world this week Business

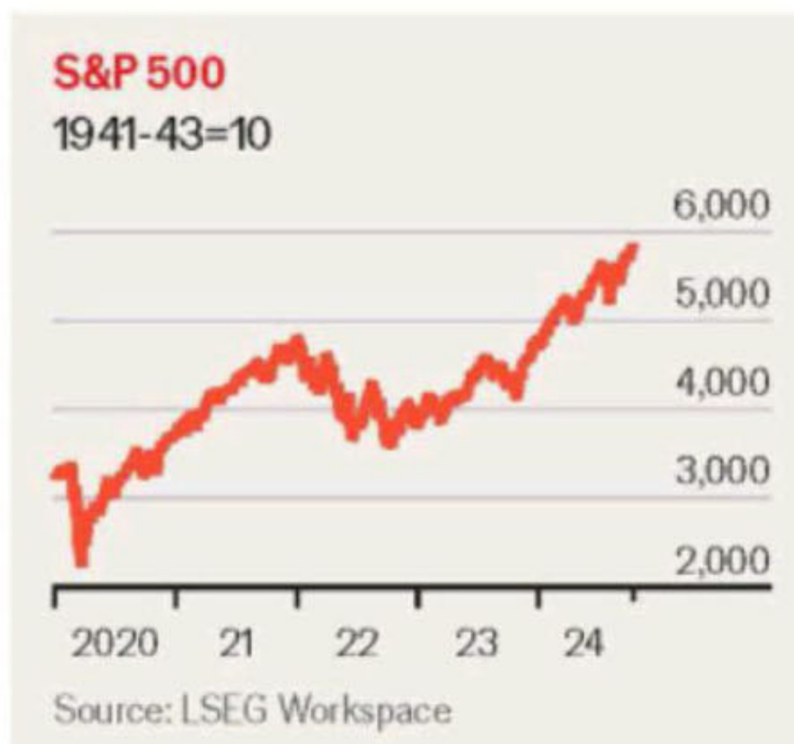
Facing snarl-ups in production caused in part by the continuing strike at its west-coast facilities, **Boeing** plans to raise up to $25bn in new capital and has secured a $10bn credit line. The company revealed its plans in a regulatory filing. It has also decided to slash 17,000 jobs, or 10% of its workforce, and will not proceed with any more furloughs of workers that were introduced at the start of the strike. The first deliveries of the 777X jet, which Boeing hopes will turn its fortunes around, were delayed again, to 2026. The Biden administration held talks with both sides in the dispute to try to broker a deal.

Meanwhile, **Airbus** announced the loss of 2,500 jobs in its defence and space division, which is losing money on building satellites. It noted the "ever-evolving" space market.

Britain's annual **inflation** rate fell to 1.7% in September, the lowest it has been since April 2021. Markets now expect the Bank of England to cut interest rates in November. Recent data showed America's inflation rate dipping to 2.4% in September.

In its annual report the International Energy Agency said that investment flows to **clean-energy projects** were nearing $2trn a year, almost double the combined amount spent on new oil, gas and coal supply, and that China accounted for 60% of the renewable capacity added globally in 2023. Solar-power generation in China alone will exceed today's total electricity demand in America a decade from now. The IEA also raised its forecast of worldwide demand for electricity, in part because of the use of air-conditioning to mitigate hotter temperatures.

Google signed a deal with Kairos Power, a startup, to construct small modular nuclear reactors that will power its data centres. SMRs are much smaller than standard nuclear plants, but can be more easily built to cut costs. Kairos will provide Google with a capacity of 500 megawatts by 2035. With the rise of energy-intensive artificial intelligence, big tech companies are trying to cut their emissions. In July Google admitted that its greenhouse-gas emissions were 48% higher in 2023 than in 2019.



Nvidia's share price hit a new high. The supplier of graphics-processing units has seen its stock drop at times this year amid investor worries about whether AI investment is a boom or a bust, but tech markets have rallied since the Federal Reserve started cutting interest rates last month. The **S&P 500** and **Dow Jones Industrial Average** reached record closes this week.

The renewed exuberance in tech stocks was slightly deflated, however, by **ASML** reducing its sales forecast for next year. The supplier of the world's most advanced machines for chipmaking warned of "customer cautiousness" and that "foundry dynamics" have resulted in changes to the timings of demand for its gear. Net bookings, or orders, were far lower in value than markets had expected. The company's share price swooned.

Don't hail the cab

Tesla's stock struggled to recover from the drubbing it received following the firm's unveiling of its much-hyped Cybercab, a two-seater **robotaxi**. Elon Musk gave little detail at the event of the roadmap the vehicle must follow to enter service, other than it will be available "before 2027".

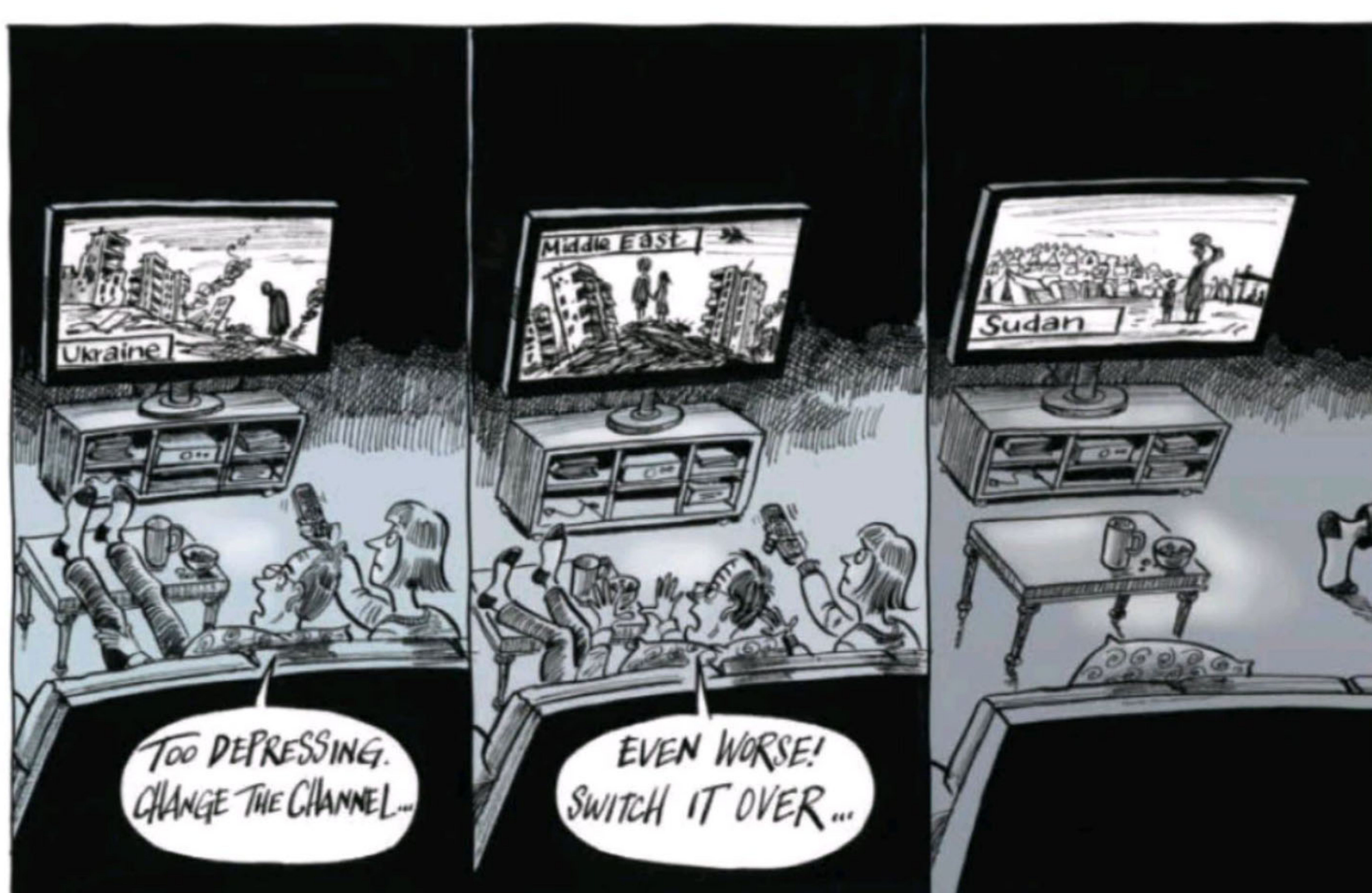
The latest quarterly earnings from **America's big banks** were well received by investors. JPMorgan Chase recorded a net profit of $12.9bn. Although that was less than in the same quarter last year, it was better than analysts expected. It was a similar story at Bank of America, Citigroup and Wells Fargo. But at Goldman Sachs profit jumped by 45% to $3bn and at Morgan Stanley by 32% to $3.2bn: its stock hit a new high.

Walgreens announced the closure of 1,200 of its 8,700 stores over the next three years. The pharmacy chain follows its rivals CVS Health and Rite Aid in reducing its bricks-and-mortar presence in the face of growing competition from Walmart and Amazon.

A political row brewed in France over the potential sale of **Sanofi's** consumer-drugs business to an American private-equity firm. The pharmaceutical company's announcement that a bid by Clayton, Dubilier & Rice had beaten that of a local consortium has raised French hackles. The government has suggested it could block the sale, or take a stake in the business.

Reviving the spirits

Hong Kong slashed taxes on brandy, gin, whisky and other strong drinks as part of an effort to boost **nightlife** in the city. Visitor numbers are still around 30% lower than in 2018. Cutting alcohol taxes could be an idea for other governments trying to tempt punters back to city centres, notably in London, where the rate of closure of night-time businesses has been described as a "crisis" by their trade body.



The envy of the world

America's economy has had an extraordinary run. Will politics bring it back to Earth?

FEW SIGHTS have better captured America's world-beating ingenuity. On October 13th a giant booster rocket built by SpaceX hurtled to the edge of the atmosphere before plunging back to Earth and being neatly caught by the gantry tower from which, only minutes earlier, it had taken off. Thanks to this marvel of engineering, big rockets could become reusable and space exploration cheaper and bolder (see Leader). Yet, just as the launch was a testimony to American enterprise, so Elon Musk, SpaceX's founder, captures all that is going wrong with its politics. In his support for Donald Trump, Mr Musk has spread misinformation about voter fraud and hurricane relief and derided his opponents as ill-intentioned idiots.

America, too, continues to rack up a stellar economic performance even as its politics gets more poisonous. As they prepare to go to the polls in fewer than 20 days' time, Republicans and Democrats have never mistrusted or disagreed with each other more. Against that gloomy backdrop, can America's breathtaking economy possibly stay aloft?

Over the past three decades America has left the rest of the rich world in the dust. In 1990 it accounted for about two-fifths of the GDP of the G7. Today it makes up half. Output per person is now about 30% higher than in western Europe and Canada, and 60% higher than in Japan—gaps that have roughly doubled since 1990. Mississippi may be America's poorest state, but its hard-working residents earn, on average, more than Brits, Canadians or Germans. Lately, China too has gone backwards. Having closed in rapidly on America in the years before the pandemic, its nominal GDP has slipped from about three-quarters of America's in 2021 to two-thirds today.

This record is now in jeopardy. As America has become more partisan, both Kamala Harris and Mr Trump, the two presidential candidates, are focusing on policies that protect their own supporters, rather than expanding the overall economic pie. America is not about to lose its economic dominance. But, sooner or later, rotten politics will start to exact a heavy price, and by then it will be hard to reverse course.

To see why, consider first the factors behind America's success. As our special report this week sets out, innate advantages play an important role. America is a big country blessed with vast energy resources. The shale-oil revolution has driven perhaps a tenth of its economic growth since the early 2000s. The enormous size of its consumer and capital markets means that a good idea dreamt up in Michigan can make it big across America's 49 other states.

Yet good policy has been important, too. America has long married light-touch regulation with speedy and generous spending when a crisis hits. Although supersized stimulus during the pandemic fuelled inflation, it has also ensured that America has grown by 10% since 2020, three times the pace of the rest of the G7. By contrast, stingier Germany is mired in recession for a second consecutive year.

This combination of factors has fuelled a powerful virtuous cycle. America's dynamic private sector draws in immigrants, ideas and investment, begetting more dynamism. It is home not just to the world's biggest rocket-launch industry, but also its internet giants and best artificial-intelligence startups. Its seven big tech firms are together worth more than the stockmarkets of Britain, Canada, Germany and Japan combined; Amazon alone spends more on research and development than all of British business. Because the dollar is the world's reserve currency, meanwhile, investors have a keen appetite for American debt. They flock to Treasuries in times of crisis, letting the government dole out vast stimulus packages.

So far, America's worsening politics have had little visible effect on the economy. Over the past eight years Mr Trump and President Joe Biden have reached for protectionism and interventionism, in the name of helping factory workers, at the expense of the wider economy. Because America's economic strength has been so broad-based, it has not been overturned; and for many years stimulus has provided an offsetting sugar rush. Yet the economy is not immune from politics. And as the country grows more divided, Ms Harris and Mr Trump are promising ever more damaging policies—Mr Trump especially.

For a start, both candidates would tamper with the market forces that have served America so well, by protecting some companies at the expense of others. They could also limit the government's scope to swoop to the rescue next time a crisis hits. Both promise tax and spending giveaways—Ms Harris wants to spend more on families; Mr Trump to offer tax relief on everything from car loans to overtime work (see Finance & economics section). Yet neither has a plan to rein in the budget deficit, which is running at around 6% of GDP, a level usually seen only during wartime or recession. Unchecked deficit spending could crowd out private investment and erode faith in American debt as a risk-free asset.

Mr Trump poses the bigger risk to America's extraordinary economy. He speaks of imposing ruinous tariffs on imports and embarking on huge programmes to deport millions of non-citizens, many of whom have been fully integrated into the labour market for years. He is cavalier about institutions, including the Federal Reserve and the rule of law. Should the independence of either be undermined, America would no longer attract the talent and money it needs to keep pushing relentlessly ahead. Nobody knows if Mr Trump means what he says, but the chance that he does hangs heavily over his candidacy, like Mr Musk's rocket over the launch pad.

Mission critical

Growth is not an inalienable right, but a gift to be cherished and nurtured. If the virtuous cycle that propels America's economy forward goes into reverse, toxic politics would by that point be ingrained. There is no knowing how bad a president's ideas have to be before things start to fall apart. The turning-point may not come tomorrow, or even in the next four years. But with every mistake that politicians make, it draws another step closer. ■

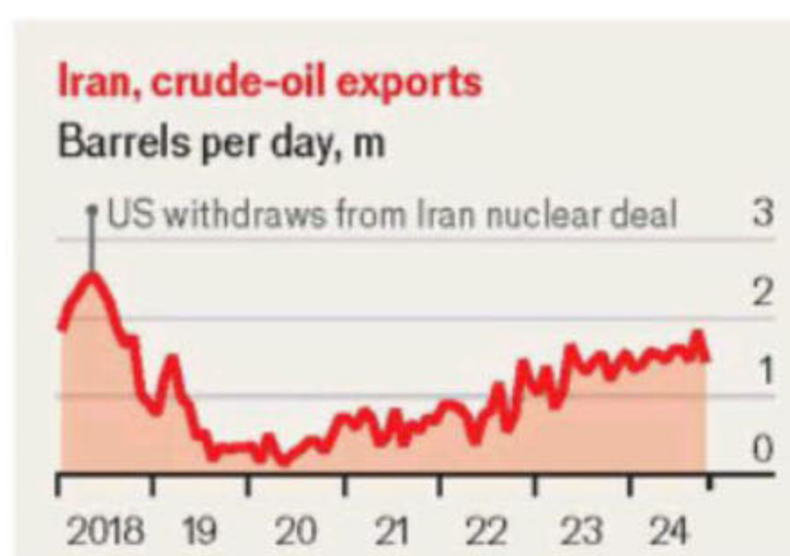
Containing Iran

Sanctions, squandered

The Biden administration has weakened America's best financial deterrent against Iran

A FORTNIGHT AGO Iran aimed more than 180 ballistic missiles at Israel. Now Israel will respond, and the world is holding its breath. What it does next, and how Iran reacts, will determine whether the Middle East is engulfed by all-out conflict. For America the question is how to encourage restraint from Israel, limit escalation, curb Iran's baleful influence and deter it from choosing to build a nuclear weapon. Unfortunately, as our investigation this week shows, the Biden administration has undermined one of America's main tools.

In 2018, under Donald Trump, America unwisely withdrew from an agreement to stall Iran's nuclear programme and then imposed its harshest sanctions ever, in an attempt to punish the regime and stop it funding proxies and terrorists abroad. America banned its citizens from trading with Iran or handling Iranian money; it also reinstated "secondary" sanctions, which punish entities from third countries that deal with Iran, for instance by cutting them off from the dollar banking system.



President Joe Biden has often waived the enforcement of these sanctions. He was keen to bring Iran back to the negotiating table, and worried that a crackdown on Iran's oil trade might fire up oil prices just when energy markets were alarmed by Russia's invasion of Ukraine. His administration issued sanctions waivers to foreign entities, considered giving Iran access to frozen money and often turned a blind eye to Iranian oil smuggling.

The efficacy of sanctions was always going to erode. Faced with constraints, people will find other ways to shift money and goods around the world. Tankers are routinely renamed. It takes much less time for an Iranian stooge to set up a company in Hong Kong or Dubai than it does for America's Treasury to investigate evasions. It was inevitable that money would flow away from the dollar banking system and into alternative payment mechanisms.

Yet by choosing not to rigorously enforce the sanctions, America has undermined their efficacy even in the short term, perhaps bringing China and Iran closer together. A complex infrastructure has developed to help Iran channel its revenues around the world. Last month it sold 1.8m barrels per day of crude oil, mostly to China—the highest level in six years.

Our reporting shows how a web of front companies uses banks in China, Hong Kong, the Gulf and even the West, many of which unwittingly handle Iranian money (see Finance & economics section). Last year Iran's revenues were worth \$50bn-70bn. Precisely where the money ends up is uncertain, but oil sales are surely helping to arm Iran and its proxies.

Now that this infrastructure exists, the financial deterrence that America has lost is not easily regained. To throw sand in the gears of Iran's war machine, America would have to punish the worst-offending banks in, say, China or the Gulf, or press their governments to insist that lenders make more efforts to comply with America's edicts. But that either means escalating financial warfare with China, for which America may have little appetite, or cracking down on allies such as the United Arab Emirates. Leaning on friends to discipline their banks, or blacklisting some outright, would cost America diplomatic capital.

The unfortunate consequence is that the difficult task of influencing Iran's behaviour has become even harder. America's tools include threatening to enforce sanctions (or offering to lift them) and threatening to go to war. Those choices were fraught with risk. But their costs are higher today than they would have been if America had enforced sanctions rigorously. This also means that America has less to offer Israel as it tries to persuade it to moderate its retaliation for Iran's missile strike. As an Israeli-Iranian war beckons, the last thing that the Middle East needs is a lack of good options. ■

Canada's Trudeau trap

Justin's time

How the world's most reasonable country grew sick of centre-left liberalism

MOST OUTSIDERS think of Canada as a freezing but pleasant place. It is open and tolerant, and its people are famously nice. But lately the country's politics have become a cauldron of recrimination. The reign of Justin Trudeau, the prime minister since 2015, is nearing what appears to be a bad end. As its poll ratings collapse, his party may even oust him.

Mr Trudeau's journey from a centre-left hero to a toxic liability has lessons for mainstream politicians everywhere. His brand of sanctimonious, and sometimes illiberal, identity politics is no substitute for effective government. Unless leaders come up with practical answers to the problems that the electorate cares about, including the effects of mass migration and housing shortages, government by virtue ultimately alienates many more people than it inspires.

For 92 of the past 128 years, Canada has been run by a party named after liberalism. When Mr Trudeau was first elected he stood for a modern vision for his country: multicultural, climate-conscious and keen to win influence by behaving responsibly in an unstable world. After Donald Trump was elected president in 2016, the contrast between Canada's saintly government and the nativist, jingoistic politics to its south was stark. Initially Mr Trudeau achieved many successes, from ▸▸

reforming welfare to skilfully helping negotiate a new trade deal with America and Mexico to replace NAFTA.

Yet it has gradually become clear that Canada's biggest challenges have festered. Immigration is a good example. Last year the population grew at its fastest rate since 1957; it has expanded by 16% since Mr Trudeau entered office, owing to the arrival of people from abroad. He thought opening the door wider made Canada virtuous. But the Liberals failed to ensure that housing, education and health care kept pace with demography. The result has been a sharp loss of public willingness to keep borders open: 44% of Canadians say that immigration is excessive, the highest for a quarter of a century.

A big reason for this anger is a shortage of housing in cities, which has led to soaring prices and a build-up of mortgage debt. The government has had almost a decade to stimulate house-building by liberalising rules, but has so far failed to make much difference. By one estimate, Canada will need a third more residential properties to house its population. A new plan launched this year has not yet boosted construction.

It is a similar story with climate change. Canada is rightly praised for its tax on carbon emissions. But the patchy redistribution of the revenue it brings in, and the threat it poses to towns and firms that rely on fossil fuels or their extraction, have created a large and vocal opposition to Mr Trudeau's climate policy. Or consider defence, where Canada's approach is negligent. Disgracefully, it spends only 1.3% of GDP on its armed forces, freeloading off other NATO members even as the world becomes more dangerous.

Any government in office for almost a decade makes mistakes and creates enemies. But a feature of Mr Trudeau's administration has been its illiberal approach to dissent (see Americas section). It has frequently dismissed its critics as bigots, or unreasonably used emergency legal powers against them, as it did when truckers protested during the pandemic. It has also tried to curb free speech. Even now, when reality and polling have forced him to admit that he has a problem, Mr Trudeau acknowledges only that some Canadians are "anxious" about his policies, not that they face real difficulties.

Virtue politics

A national election must be held within a year. The Liberal Party could soon eject Mr Trudeau. After that, Canada will switch from being a failing liberal experiment to a test of whether political systems can answer the electorate's concerns without veering towards populism and lasting polarisation. The opposition Conservatives say they are focusing hard on realistic solutions to Canada's problems, and they have some useful ideas on speeding up construction, but sometimes they display disappointingly Trumpian tendencies. The Liberal Party is only just starting to wrestle with life after Mr Trudeau. When picking his successor it should remember that politicians need style to win office, but substance to govern. ■

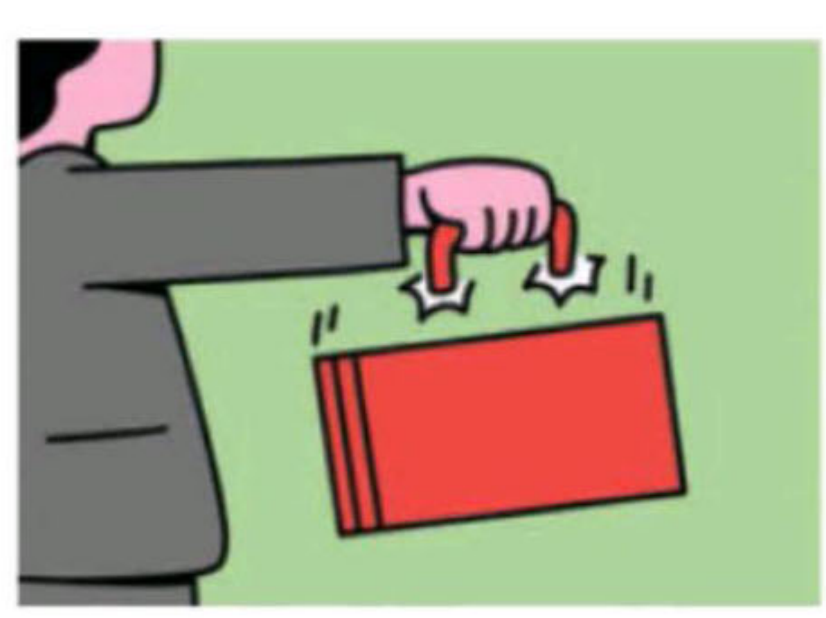
Britain's public finances

A huge missed opportunity?

Labour's first budget looks set to please no one for little return

MANY POLITICIANS would kill to be in Rachel Reeves's position. Two weeks before her first budget, Britain's chancellor has the benefit of an unassailably large majority in Parliament, a leaderless opposition and almost five years before the next election—enough time for even slow-burn policies to start winning over voters. If there were ever a moment to reshape how tax and spending work in Britain in support of the government's self-professed aim of igniting growth, this is it.

True, Ms Reeves has some firefighting to do: she needs to find £20bn-30bn ($26bn-39bn, or 0.7-1.1% of GDP) a year just to stop Britain's feeble public services from crumbling further, and ideally a slug more than that to start investing in them. But that should not be impossible for a state that already takes in over £800bn in tax annually; Ms Reeves's French counterparts are having to raise vastly more to resolve their own fiscal crunch. Increasing broad-based taxes like income tax or VAT, a consumption tax, would quickly balance the books without hurting growth much.



An ambitious budget wouldn't stop there. Britain's tax code is a mess, the result of decades' worth of fudges, special-interest carve-outs and misguided tax raids. A brave pro-growth government would use its political capital to take a scythe to it. One place to start would be stamp duty, a transaction tax that jams up the property market, misallocating Britain's already inadequate housing supply. Stamp duty on shares distorts the financial system. The exemptions to VAT deter small businesses from growing and skew spending. Taxes are much higher for employees than the self-employed, even though companies are typically more productive.

A reforming budget would also unleash investment. Britain has been bottom of the G7 rankings for public and private investment for 24 of the past 30 years; it desperately needs better transport and power infrastructure (see Britain section). A radical budget would unlock more public cash, but also take further aim at the bureaucratic bottlenecks that hold development back. Put together a plan to tackle all this, and the mood music around the new government would quickly gain tempo.

To her credit, Ms Reeves has been clear about the importance of investment: expectations are high that she will change Britain's fiscal rules so that she can borrow more in order to invest. Tweaks such as excluding the Bank of England's quantitative-easing losses from the definition of debt used in the fiscal rules could allow another £10bn-20bn of borrowing for investment. (Going much further—by, for example, moving to a measure that would include the state's assets, not just its liabilities—would risk spooking markets.)

But in other respects, the signs are uninspiring. Instead of signalling a once-in-a-generation tax reform, Ms Reeves has trailed a slapdash effort, cobbling together revenue-raisers while trying to wriggle free of self-imposed political constraints. Labour's unwise pre-election pledge not to increase corporation tax, or to raise taxes on "working people"—which it defined in its manifesto as income tax, national insurance and VAT—has left precious little room for ambitious reform.

To get itself out of this fix, the government appears to be readying itself to increase employers' national-insurance payments. That is at least a broad-based tax which can raise decent revenue. The Resolution Foundation, a think-tank, reckons that requiring employers to pay national insurance on pension contributions could raise £9bn annually. But however much Labour might protest to the contrary, in economic terms this would patently be a tax rise on working people, because employers would just pass the costs on to employees' pay packets. Reversing the pre-election cuts to national insurance of four percentage points by Jeremy Hunt, Ms Reeves's predecessor, would be simpler and raise over £20bn.

To fill up the rest of the hole, Ms Reeves looks likely to borrow more, and to raid here and there. There is a case for changing the tax base for capital-gains tax (CGT); and a number of exemptions to inheritance tax and CGT could do with a chop. But such tidying up will raise only a few billion pounds if Ms Reeves is sensible. Going too far would create growth-destroying incentives for taxpayers to change behaviour—by, for example, holding on to assets in the hope that a future government will reduce CGT again—and would also jar with Sir Keir Starmer's warm words about wealth creation. Some measures, such as a further clampdown on non-domiciled taxpayers, are reportedly being diluted.

A budget of this sort would be the hallmark of an unambitious government scrambling to make the figures add up, not a radical one doing whatever was needed to pursue growth. Nor would it make sense politically. The choice facing Labour is between frittering away its political capital on weaselly definitions and unpopular half-measures like cuts to the pensioners' winter-fuel allowance, or deliberately spending it on lasting improvements to the public finances. Be bold, chancellor. ■

Space launches

Catching the future

Starship promises to change what is possible beyond Earth

IN ANY NORMAL week, the biggest-ever interplanetary probe blasting off to look for signs of life in the depths of an occult ocean would hog the headlines about space. But the launch of *Europa Clipper* on October 14th (see Science & technology section) was eclipsed, spectacularly, by the test flight the previous day of the Starship being developed by SpaceX, a launch provider, satellite-communications supplier and Mars-settlement enabler founded and run by Elon Musk. Seven minutes after take-off a thin, waggling finger of rocket-fire guided the launcher's huge first stage back to its launchpad in Texas, there to be grasped like the quarry of a giant praying mantis.

It is tempting to see such success as a culmination. Mr Musk sees it as a start. The Starship system is designed to provide about eight times as much mass to orbit per flight as a Falcon 9, the SpaceX workhorse, and to fly even more often. The company talks about reaching a cadence of more than one launch a day; it says its factories could eventually build 1,000 Starships a year. Mr Musk talks of dropping the cost of shipping a tonne into orbit by at least tenfold.

SpaceX was founded "to revolutionise space technology, with the ultimate goal of enabling people to live on other planets". It is undoubtedly doing the first of those and with this week's success it is better placed to accomplish the second. Mr Musk says that in 2026, the next time the planets are well-aligned for such ventures, SpaceX will send five uncrewed Starships to Mars. Crews will follow perhaps four years later. He hopes before too long to be sending hundreds of Starships and tens of thousands of people at every more or less biennial opportunity. Some of the journeys will have return legs: Starship uses fuel that is in principle fairly easily synthesised on Mars. But his main purpose is settlement.

Mr Musk is notoriously inaccurate when it comes to predicting when his companies will achieve his goals. Starship was meant to have been flying years ago. Fully self-driving cars from Tesla, a car company which he runs, have often been postponed, too (see Business section). But people who set his wild ambitions at naught have an even worse record.

Whenever the crewed missions start, potential settlers can expect a hard and possibly horrid time. Though Mars looks a bit like the American West, it is far less hospitable: bereft of liquid water, of a breathable atmosphere, of native life to use for shelter or food and of resources to sell to the people left behind on Earth. Efforts to set up isolated societies from scratch have failed in much more clement places, sometimes very nastily; the messianic and millenarian tendencies behind such endeavours, clearly seen in some would-be Martians as well as Mr Musk himself, could exacerbate the risks. But SpaceX looks set to pursue its interplanetary goal until it achieves something like it, or tragedy strikes, or other forces intervene.

As it does so, it will open up the possibility of other previously impossible and conceivably more fruitful enterprises. Starship should allow SpaceX to increase the capacity of its Starlink satellite-communications system beyond anything previously feasible (see Briefing). Other companies plan to use Starship to launch space stations. One contract for a commercial Starship trip around the Moon has been cancelled, but there will surely be others. Astronomers dream of huge space telescopes (even as they fret about Starlink and its like blocking the view of the cosmos from Earth's surface). Tech visionaries look at space's supply of uninterrupted solar energy and wonder if they should be harnessing it to train AIs in orbit. Generals think dark thoughts about what might be dropped on whom, and how hard. And competitors in America, China and perhaps elsewhere will vie to replicate and surpass what SpaceX has done. After Starship's success, normal weeks in space may soon look very different. ■

Letters

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The VAT trap

Raising value-added tax (VAT) can indeed be a good way to raise revenues, but such a policy shift is not without potentially damaging side-effects that governments should bear in mind ("The case for VAT", September 28th). One important side-effect is the impact that increases in the tax can have on corporate investment if shareholders demand more dividends to fund their now more costly consumption.

This "VAT trap" is more marked in countries with a relatively short-term culture, such as America, Australia and Britain. When shareholders value their current consumption more than that of future generations, investments go down when VAT goes up. In countries with a more long-term culture, such as Germany, Japan and South Korea, VAT does not distort investments as much. In these places, a rise in VAT can be a good solution.

What is a good alternative for short-term oriented countries? A slight increase in the personal-income tax on wages, especially on those earning higher incomes, might help raise revenues without doing too much harm to the economy. It is, however, important to raise the tax rate only moderately to avoid giving an incentive to those worst affected by such a move to pack their bags and leave.

MARTIN JACOB
Professor of accounting and control
IESE Business School
Barcelona

How it works in Spain

The minority coalition government led by Pedro Sánchez in Spain has certainly required negotiation and compromise with regional parties, but to imply that this erodes democracy is an extraordinary leap ("In office, but not wholly in power", October 5th). The deal with Catalan and Basque nationalists, though contentious, is a pragmatic response to Spain's decentralised political landscape and a common practice since 1993, not a Machiavellian betrayal. Even José María Aznar, a former conservative prime minister, had to pretend in 1996 that he "spoke Catalan in intimate groups", just for the sake of parliamentarian arithmetic.

Yes, Mr Sánchez's amnesty and fiscal promises have sparked debate. However, they were passed through Spain's democratic institutions, following the rule of law and regular procedures. Describing these decisions as constitutional "back-door" dealings while ignoring their legal and parliamentary foundations is a selective reading of events. One might wonder whether the real issue here is not the fragility of democracy but the discomfort with regional politics that has long been part of Spain's DNA.

You did point out the bigger picture: a recovering economy, improved employment figures and a political opposition still mired in fragmentation. Surely, Spain deserves a more nuanced analysis than a gothic narrative of democratic doom, and the caricature of Mr Sánchez as a power-hungry operator.

ALEJANDRO GUERRERO
Paris

Wither UNRWA

Phillipe Lazzarini, the head of UNRWA, the UN's agency for Palestinians, was appallingly selective in his empathy (By Invitation, October 2nd). Not a word about the murdered, tortured, raped, mutilated and kidnapped Israeli victims. Nor about the tens of thousands of Israelis who have had to evacuate their homes under the torrents of rockets launched by Hamas and Hizbullah. No reference to Hamas's own indifference to the loss of Palestinian life caused by the deliberate embedding of Hamas terrorists in homes, schools, mosques and indeed in UNRWA facilities. The tragic loss of Palestinian life in this war is a central and cynical tactic used by Hamas.

Selective empathy is a problem. UNRWA is part of a UN framework that uniquely and perversely fosters the eternality of Palestinian refugee status.

JOEL EISEN
Richmond Hill, Canada

Don't look so glum

"Fashion photography jolts the viewer out of the grim and the quotidian", you say ("Very in vogue", October 5th.) Yet most fashion models themselves look grim. On the catwalk and on the page they hide any evidence of enjoyment in the clothes they wear. They becoming unsmiling, aggressive posing machines daring the viewer to look them in the eye. They become coat hangers, their humanity lost to art.

ROBIN LAURANCE
Oxford

EVs will not rule the road

Global sales of hybrid cars are destined to decline, you said, because of improvements in electric vehicles that run purely on battery, or BEVs ("On a detour", September 21st). However, hybrids and BEVs are competing for the same mobility niches. Some 95% of electric-vehicle sales worldwide are in America, China or the European Union, and concentrated in the densest and most urbanised parts of those markets. The mobility needs and infrastructure capacity of these areas differ dramatically from those of rural economies and the global south. For the latter, hybrids and internal-combustion engines are going to be essential for decades to come in order to provide high-range transit that can maintain critical rural-urban links.

Mobility providers should not focus on a single technology or energy solution. Rather, they need to reflect on not only what consumers need, but on whether the local market itself has the infrastructure to support those needs. The industry has to shift away from the idea that one size fits all. To decarbonise we need a mix of technologies. More efficient hybrids will be one important decarbonising solution, along with innovations in synthetic and alternative fuels. There is no such thing as a global, universal mobility solution.

MATIAS GIANNINI
Chief executive officer
Horse Powertrain
London

What colleges should learn

Raising university-tuition fees in Britain ("Universities challenged", September 21st) would fail to tackle the need for more fundamental changes in the higher-education sector. Universities are still largely analogue services in a digital age, with an outmoded model of instruction that has barely changed in decades. Individual lecturers develop and deliver modules for small classes, a highly inefficient process.

Higher education's Blockbuster-Netflix moment is fast-approaching; a radical change in universities' operating model brought about by the economies of scale provided by digital technology. Universities should be looking at how they can work together to build high-quality hybrid offerings. Call this the WeLearn model; an artificial-intelligence enabled teaching available to all students that provides a wide-range of courses, skills training and applied learning. All this combined with the social experience of campus life.

Britain is in a strong position to capitalise on this opportunity and shape a better future for higher education. What the sector needs is innovation, not fee inflation.

DR RICHARD MILBURN
War Studies
King's College London

Bon déjeuner

Clearly Bartleby never had a working lunch in a meeting room in France (September 28th). I have had many, and I can assure you that two things are guaranteed: superb catered food that is devoured by everyone, and French colleagues loudly complaining that working during lunch is barbaric.

JEM ESKENAZI
London

Filling up space

The rockets are nifty, but it is the satellites that make SpaceX valuable

THERE WAS no mistaking the feat of engineering. The bottom half of the biggest object ever flown—by itself as tall as a 747 is long—came hurtling out of the sky so fast that it glowed from the friction. With the ground rushing to meet it, a cluster of its engines briefly relit, slowing the rocket and guiding it carefully back towards the same steel tower from which it had launched just seven minutes previously. A pair of arms swang closed to catch it, leaving it suspended and smoking in the early-morning sunshine.

Less obvious than the kinetic marvels, but even more important, are the economics of Starship, as the giant rocket tested on October 13th is known. The firm that built it, SpaceX, was founded in 2002 by Elon Musk, an entrepreneur, with the goal of slashing the expense of flying things to space. For Mr Musk, the purpose of such cost-cutting is to make possible a human settlement on Mars. But it has also made new things possible back on Earth. Over the past four years, SpaceX has become a globe-straddling internet company as well as a rocket-maker. Its Starlink service uses what would, a few years ago, have been an unthinkably large number of satellites (presently around 6,400, and rising fast) to beam snappy internet access nearly anywhere on the planet.

Starstruck

Excitement about Starlink's prospects has seen SpaceX's valuation rise to $180bn (see chart 1 on next page). Some analysts are even beginning to wonder whether it might one day match or exceed the value of Tesla, an electric-car firm of which Mr Musk is also CEO (see Business section). If Starship lives up to its promise, its combination of vast size and bargain-basement price could provide a big boost to the economics of space in general—and of Starlink in particular.

SpaceX's Falcon rockets have already slashed the cost of space flight, partly thanks to the fact that their lower stages, unlike those of almost any other rocket, can be recovered and flown again. According to an estimate by Citigroup, a bank, the Falcons can send a tonne into space at about a tenth of the cost that prevailed a decade ago. Figures from BryceTech, a firm of analysts, show that in the first quarter of this year the firm shot almost seven times as much into orbit as all its rivals put together, be they private firms or national space programmes (see chart 2).

But as disruptive as the Falcons have proved, they are relatively small and only partly and slowly reusable. Their upper stages are discarded and their lower stages take weeks to refurbish before they can fly again. Starship is intended to finish the job. Both halves of the rocket are designed to be reusable, and quickly to boot. Mr Musk hopes to drive turnaround times down from weeks to hours. The rocket is huge, designed to carry perhaps 150 tonnes into orbit, far more than the 18 of the Falcon 9, ▸▸

SpaceX's current workhorse.

Despite Starship's enormous size, it is intended to be cheaper than a Falcon, too. SpaceX charges $70m to launch a Falcon 9. It hopes to drive down the cost of a Starship launch to $10m. The eventual goal is to transform the rocket business into something more like the aircraft one, via the mass production of a vehicle that is designed to be refuelled quickly and flown again and again. Mr Musk's aspiration is that the "Starfactory" that SpaceX is building at its headquarters in Texas will churn out a new Starship every day, and that the firm's fleet of them will fly hundreds or even thousands of times a year.

Starman

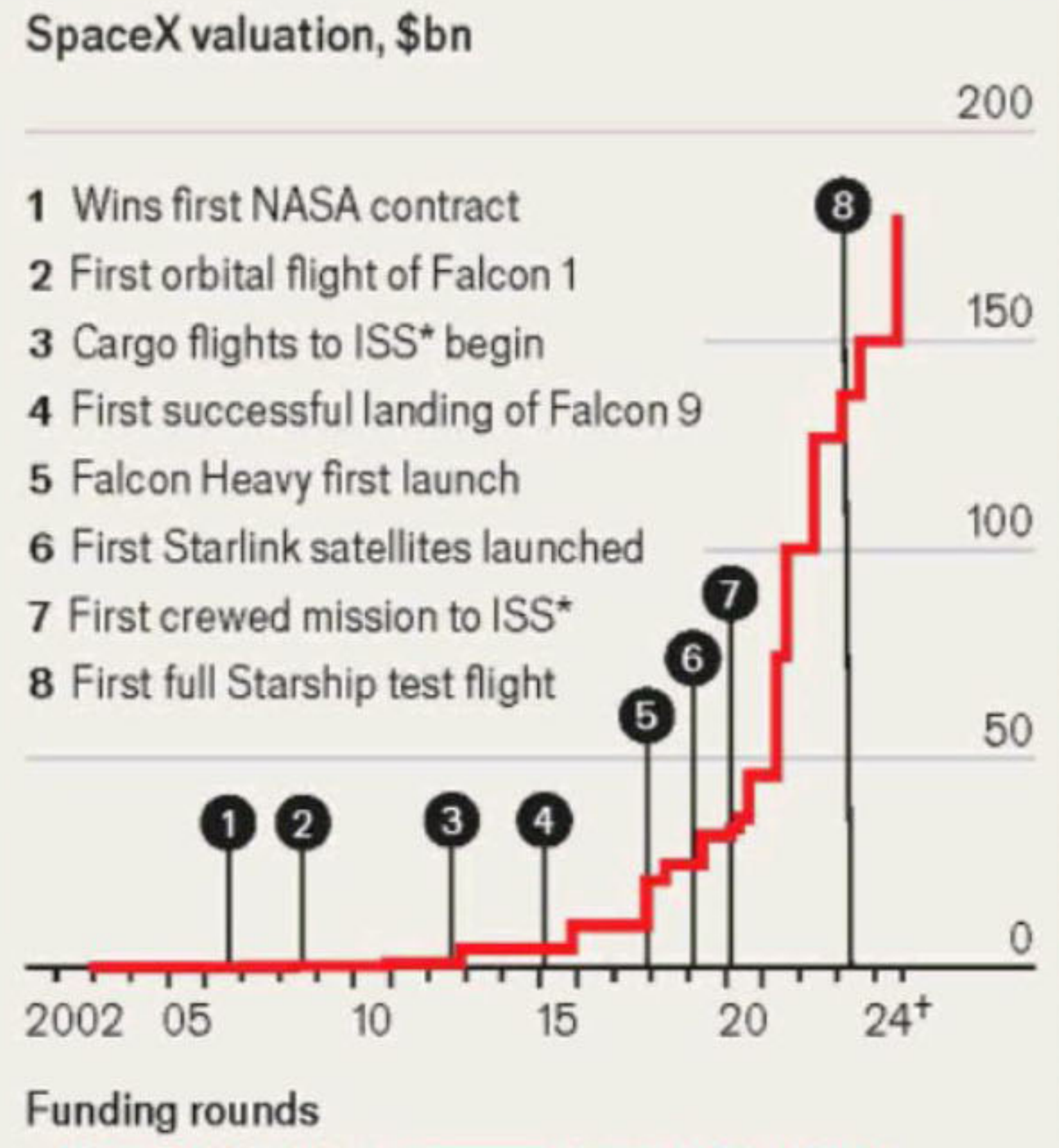
Mr Musk is famous for making grand predictions, only some of which come to pass. But when he started Starlink he said his only ambition was not to go bankrupt, with good reason. Something similar had been tried, albeit on a much smaller scale, by firms including Teledesic and GlobalStar at the height of the dotcom boom. All of them went bust. But as far as anyone can tell, Starlink is thriving.

Its distinctive white antennae have popped up everywhere from remote schools in the Amazon to the bunkers and trenches on the front lines of the war in Ukraine. "I've [even] seen a Starlink dish tied to a broom handle and mounted on a public toilet in the Lake District," says Simon Potter of BryceTech. In September the firm announced it had signed up 4m customers. Traffic through its networks has more than doubled in the past year, as SpaceX has signed deals with cruise lines, shipping firms and airlines.

Modelling by Quilty Space, another firm of analysts, suggests that Starlink's revenue will hit $6.6bn this year, up from $1.4bn in 2022. That is already 50% more than the combined revenue of SES and IntelSat, two big satellite-internet firms that announced a merger in April. A year ago Mr Musk said that Starlink had achieved "break-even cashflow". "It's astounding that a constellation of this size can be profitable," says Chris Quilty. "And it scares the shit out of everyone else in the industry."

Ad astra 1

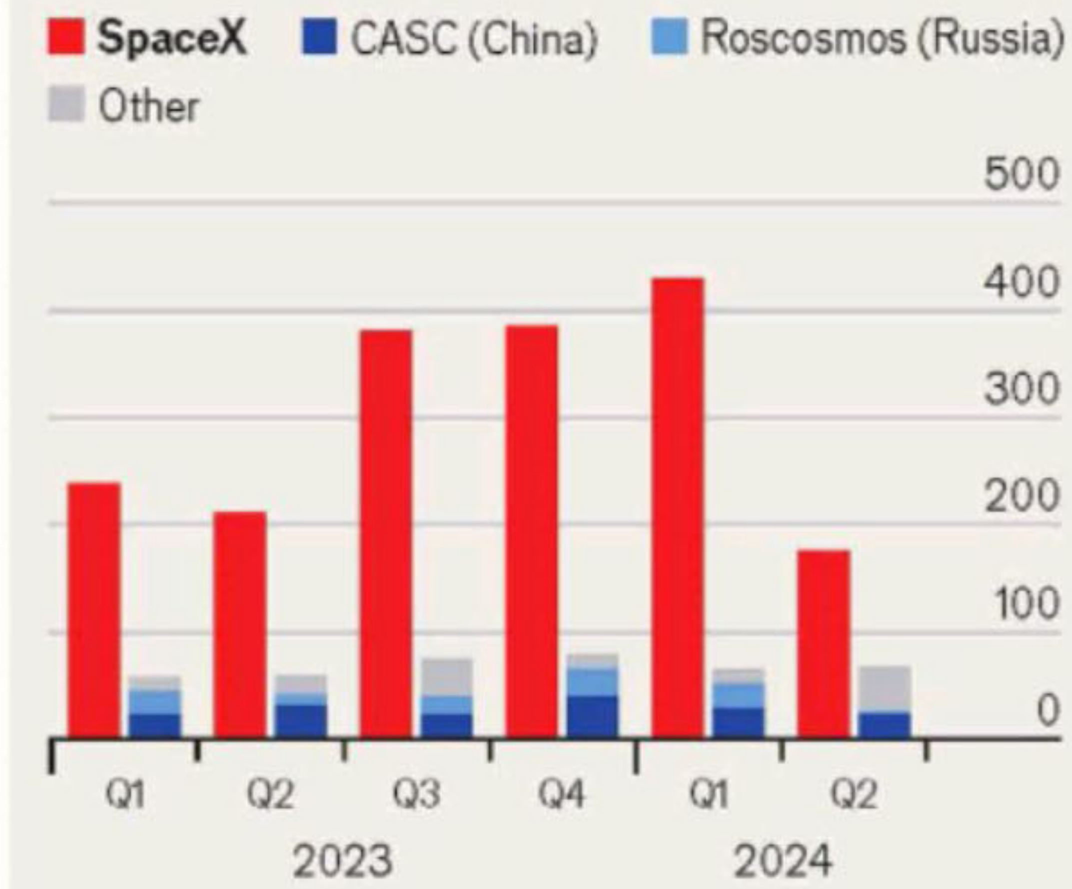
SpaceX valuation, $bn



*International Space Station †To August 27th
Sources: PitchBook; *The Economist*

Jupiter and moons 2

Mass of spacecrafts taken into orbit, tonnes



Source: BryceTech

Using satellites to provide internet access is not a new idea. Such firms as Hughes, SES and ViaSat already offer exactly this service, bouncing signals from subscribers back down to ground stations and on to the wider internet. But they rely on small numbers of satellites mostly in high orbit. That allows a single satellite to see a large portion of Earth's surface and thus to serve many customers at once.

Unfortunately, flying so high also means that signals take a noticeable amount of time to get up to the satellite and back down to Earth. That makes remote working, video calls and online gaming a pain. And having lots of people share one satellite risks congestion. For that reason, says Mr Potter, satellite internet has been seen as a last-resort option, useful only when nothing better is available.

Starlink's satellites fly in very low orbits, around 500km up. That slashes transmission delays, allowing Starlink to offer a connection similar to ground-based broadband. The trade-off is that each satellite can serve only a small area of Earth. To achieve worldwide coverage you therefore need an awful lot of satellites. According to Jonathan McDowell of the Harvard-Smithsonian Centre for Astrophysics, the 6,400 or so Starlink satellites launched since 2019 account for around three-quarters of all the active satellites in space (see chart 3 on next page). SpaceX has firm plans to deploy 12,000 satellites, and has applied to launch as many as 42,000.

The Falcon 9 launches a couple of dozen Starlink satellites at a time. Starship should be able to carry more, bigger ones. Mr Musk says that only Starship will be able to transport the next generation, with ten times more bandwidth. And even when Starlink's constellation is complete, Starship will have plenty of work to keep it busy. One consequence of the satellites' low orbits is that each has a lifetime of only around five years, before the tenuous atmosphere at that altitude drags it below orbital velocity. To maintain a constellation of 40,000-odd satellites would require replacing about 8,000 of them a year.

Cheap launch costs are not the only secret of Starlink's success. Vertical integration helps, too. SpaceX makes its own satellites and the high-tech antennas it sells to its customers. Not having to pay suppliers' profit margins helps keep costs down, says Mr Potter.

So does mass production: by making so many satellites and antennas, the firm can drive unit costs down. Gwynne Shotwell, SpaceX's chief operating officer, has noted that each antenna cost the firm around $3,000 to make in the early days. Since it was selling them for $499, that meant absorbing a big loss on each new customer. Last year SpaceX said it had managed to drive the cost of production below $599, the price at the time.

A system made of thousands of comparatively small satellites rather than a handful of big ones can also be more easily tweaked and upgraded. Starlink's newer satellites, for instance, sport laser links that allow them to talk to each other directly. That allows traffic to be routed between satellites before it is sent back down to Earth. That should limit the number of ground stations that Starlink needs to build—an important saving, says Mr Quilty, who thinks that running the network's 150-odd ground stations accounts for more than half of Starlink's operating costs.

In January SpaceX launched the first of a new, more powerful batch of satellites designed to allow smartphones to connect to Starlink using the existing 4G mobile standard, without any special antenna. The idea is to keep phones connected even when they are beyond the reach of terrestrial networks. The system will start with simple text messages, before eventually moving on to voice and data services.

SpaceX announced its first "direct-to-cell" deal of this sort with T-Mobile, a mobile network, in America in 2022, and has since signed similar agreements with firms in various countries including Australia, Canada and Japan. It had been due to switch on the American service next year. But earlier this month the firm announced that it would activate a "best-effort" version immediately in areas hit by Hurricane Helene, which would allow T-Mobile phones to receive emergency alerts from the authorities even when mobile-phone masts had been knocked out by the storm.

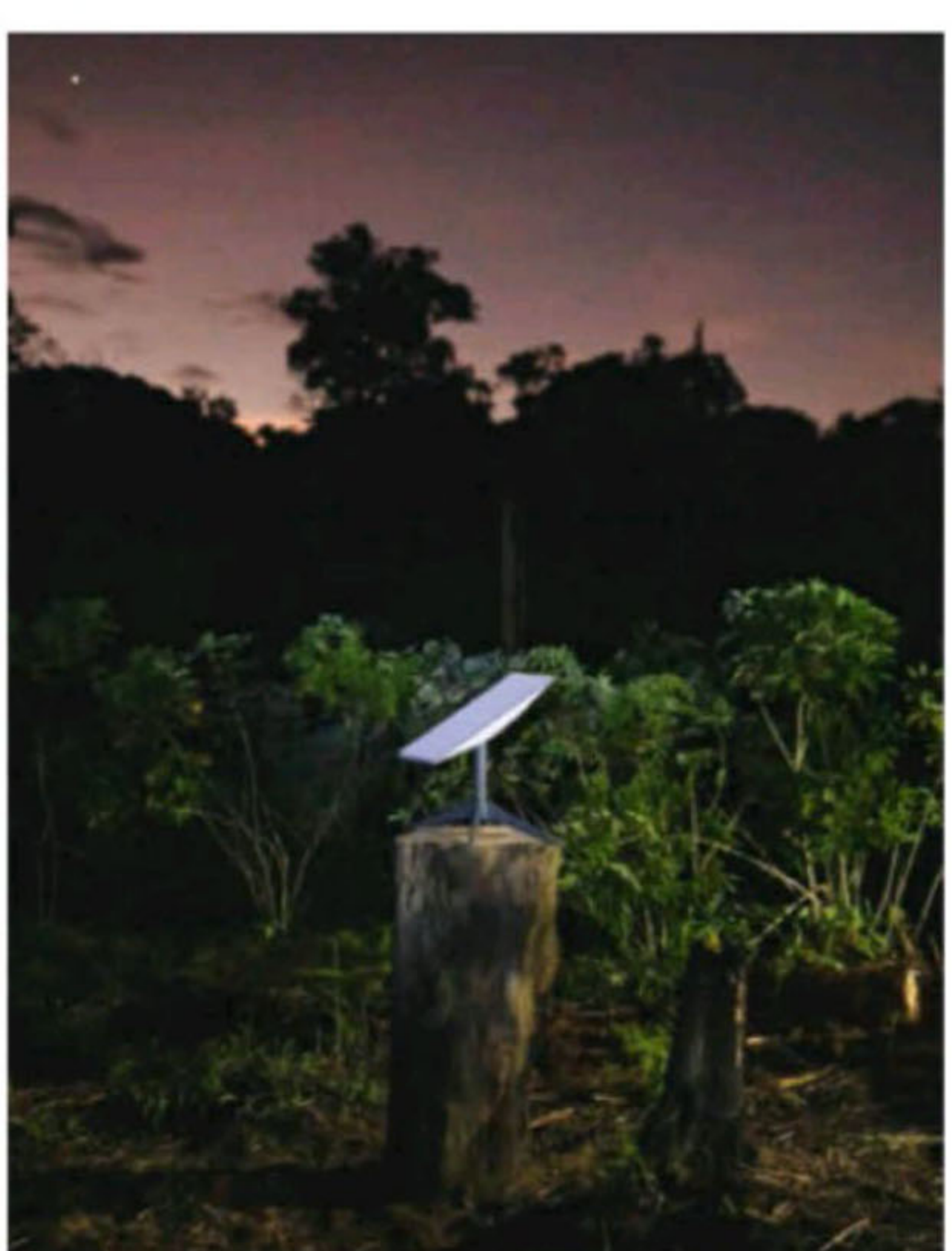
Since it has never before been possible to build something like Starlink, no one is quite sure how big or profitable it might end up becoming. Morgan Stanley, a bank, forecast earlier this year that Starlink might have 32m subscribers by 2040, earning it around $100bn a year in revenue, or around three-quarters of the bank's prediction of SpaceX's total revenue.

Morgan Stanley also outlined optimistic and pessimistic scenarios. In the former, Starlink signs up 80m subscribers and brings in $250bn-300bn a year, more than twice as much as Tesla earned last year. In the latter, in which Starship is delayed and subscribers are scarcer than imagined, revenues reach just $40bn a year.

In all these scenarios the bulk of Starlink's revenue comes from households in remote areas. Serving such customers was the firm's original plan and, on paper, it is a big market. The International Telecommunication Union (ITU) reckons about 2.6bn people worldwide lack reliable internet access. Even in America, the government says 22% of households in rural areas cannot get a decent connection. At a broadband-industry conference on August 6th Ms Shotwell declared that her firm could connect every one of those underserved Americans, and much more cheaply than by laying fibre-optic cables.

Most of the unconnected live in poor countries. SpaceX charges $120 a month in America—a sum few in the developing world could afford. It has experimented with lower prices in other countries; high volumes might conceivably compensate for slimmer margins. It has also signed deals with mobile-phone networks in Africa and in Europe to use its satellites to connect remote masts to the internet.

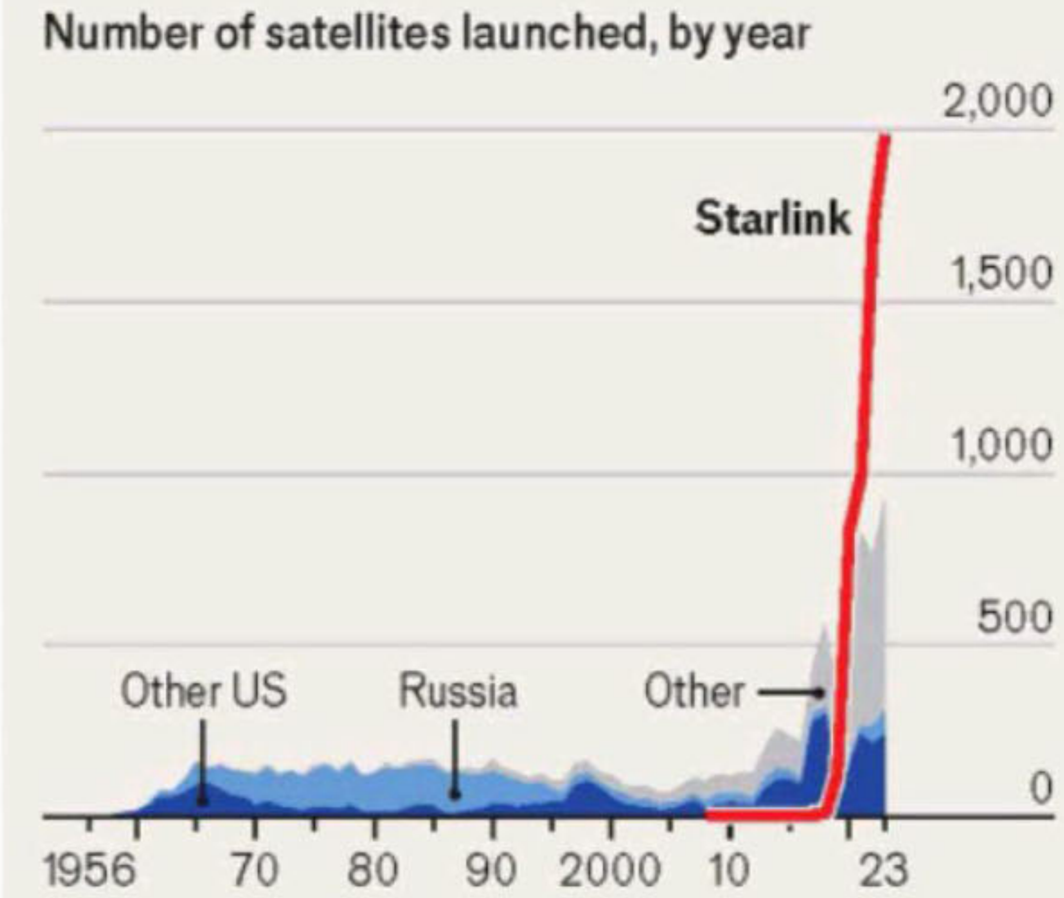
Other dollops of revenue come from the airline and shipping industries. SpaceX has already signed deals with Carnival and Royal Caribbean, the world's two biggest



From the jungle to the void

Houston, we have ignition 3

Number of satellites launched, by year



Source: Jonathan McDowell

cruise lines, and with Maersk, a Danish cargo-shipping giant. Air France, Qatar Airways and United Airlines have said they will use Starlink antennae to provide free wifi for passengers, as have smaller airlines such as Air New Zealand.

Morgan Stanley notes that it is not just phones that connect to the mobile network; most modern cars (including Mr Musk's Teslas) do so as well, as do other devices from drones to wind turbines. It thinks this market might in time provide a third of Starlink's revenue. Governments may contribute some revenue, too. Shortly after Russia's full-scale invasion of Ukraine in 2022 SpaceX announced that it had set up a division called Starshield, to supply Starlink-like satellites to customers in government. In 2021 the firm reportedly signed a $1.8bn contract with the National Reconnaissance Office, which operates America's spy satellites.

Starlink might one day provide connectivity above Earth as well as on it. On a recent crewed mission, astronauts tested one of its laser-communication modules aboard its Dragon spaceship, which allowed them to connect to the network while in space. (It is also Starlink that allows SpaceX to broadcast footage from Starship test flights even when the rocket is out of range of ground-based cameras.) In March Ms Shotwell announced plans to sell the laser modules to other satellite operators, offering them cheap and easy connectivity in orbit.

Not everyone welcomes Starlink. The service has been banned in several African countries, including Burkina Faso, Cameroon and Senegal. Some governments may be wary of an American-owned internet provider whose infrastructure sits in orbit, beyond easy reach. SpaceX has already experimented—with the encouragement of America's government—with providing uncensored internet access in Iran to anyone with a smuggled antenna, despite a formal complaint from the Iranian authorities, upheld by the ITU.

Space X's politics do not seem consistent. Starlink has not tried to get around censors in China, for instance, where Tesla makes and sells lots of cars. Mr Musk refuses to allow Ukraine's army to use Starlink when attacking Russian forces in Crimea, even though the peninsula is Ukrainian territory. And he has gone back and forth in a row over regulation of the internet in Brazil. A judge there ordered internet providers to cut access to X, a social network that he owns. SpaceX at first refused to comply, but later reversed course.

SpaceX has competitors, too, though none that quite match its low costs and enormous scale. A firm called Eutelsat OneWeb uses a fleet of more than 630 satellites to pursue a similar business model, although it deals only with businesses, rather than selling directly to consumers as SpaceX does. On October 15th a Chinese firm named Shanghai Spacecom Satellite Technology launched a second batch of satellites in what it hopes will become a 14,000-strong low-flying constellation of its own, named Qianfan.

Then there is Amazon, whose founder, Jeff Bezos, is just as much of a space cadet as Mr Musk. Amazon's planned Kuiper constellation will consist of 3,200 satellites and, in theory at least, will begin signing up customers next year (it has so far launched only two prototype satellites). Lacking in-house access to cheap rockets, Amazon ended up placing the biggest order in the history of the space business, buying 83 launches from assorted rocket firms including United Launch Alliance (a joint venture of Boeing and Lockheed Martin, two aerospace firms), Arianespace (a European outfit) and Blue Origin, Mr Bezos's space firm, which is due to conduct the first test flight of its own big reusable rocket, New Glenn, in November.

The political pitfalls and unproven rivals make it even harder to judge SpaceX's potential. But it has a huge head start, a proven capacity to innovate and a determined if unpredictable leader in Mr Musk. As Starlink's costs come down and its kit improves, its universe of potential customers grows. In the not-too-distant future, markets may get a chance to assess its prospects: Mr Musk has said several times that he may spin Starlink out of SpaceX when the business is mature enough.

Stardust

That would leave SpaceX free to focus on getting cargo and people to Mars. Starlink's terms of service assert that Mars is "a free planet" over which no earthly government has "authority or sovereignty", and that any disputes over Starlink services provided on Mars will be settled through principles "established in good faith at the time of Martian settlement". Those who dismiss this as nerdy bravura should contemplate the sky above their heads. ■

United States

Black voters

Getting the drift

ATLANTA

Democrats are struggling to limit the loss of black voters in Georgia, and beyond

THE DRIFT of black voters away from the Democratic Party has become a touchstone of the 2024 election. In Georgia, the anxieties of the Kamala Harris campaign are hard to miss. On one night in Atlanta it deployed music moguls to run a "Brothas and Brews" event. Then it released an "opportunity agenda for black men", promising to give more business loans, protect cryptocurrency and legalise marijuana. To press her closing arguments Ms Harris is sitting down with Charlamagne tha God and other influencers.

Her campaign has good reason to feel jittery. In Georgia, where 30% of registered voters are black—more than in any other swing state—Ms Harris is polling at 83% with the constituency, ten points behind the level of support Joe Biden attracted when he won the state in 2020. If turnout remains constant this year, such a gap with black voters would leave Ms Harris with a deficit of 139,000 votes, nearly 12 times Mr Biden's 11,779-vote victory margin.

Donald Trump's allies are pouring it on as early voting opens in Georgia: "For the last three and a half years the Democrats haven't given a damn about black men unless they're dead or gay," Michaelah Montgomery, a black Republican activist, roared onstage at a rally featuring Mr Trump on October 15th. In the packed audience, black men in suits stood and clapped as white women looked on, beaming. Liberals can seem befuddled about why some black voters are turning to Mr Trump but the defectors are often moved by the same issues as other supporters: jobs and reinvesting at home. "You can't fund other countries if your own backyard is on fire," says Kiersen Harris (pictured, right), a 22-year-old security guard who plans to vote for Mr Trump.

Mr Biden's narrow win in Georgia, the first by a Democrat since 1992, was one of the most remarkable results of the 2020 election. It announced that Democratic presidential candidates could again compete in old Dixie after years of mostly fruitless effort. An influential prophet of the turnaround was Stacey Abrams, a Democratic politician who had argued for years that the state was ripe for flipping. Anything less than full investment in Georgia "would amount to strategic malpractice", she told national Democrats in 2019.

Why was she right? In the two decades to 2020 Georgia's voting population grew by 1.9m. Nearly half of that growth came from black voters—the largest percentage-point increase in any state's black electorate. New voters came mostly from New York and Florida, but also the Caribbean and Africa. They bolstered the state's well-established black elites. Black voters born outside Georgia are now more than twice as likely as black natives to have a college degree. This was a double advantage for Democrats, who increasingly rely on college-educated and minority voters.

Now Mr Biden's achievement in 2020 lies on a knife's edge. If Ms Harris does not match Mr Biden's share of the black vote, she would need to make up votes among ▸▸

white voters, who skew Republican. But whereas Mr Biden won 30% of the white vote in Georgia, polls show Ms Harris up by just one point, at 31%. If that finding proves accurate she can afford to drop just two percentage points with black voters, not the ten shown in current polls.

Democrats' struggles with black voters are not new, or confined to Georgia. The party's presidential candidates won an average of 87.5% of the black vote between 1984 and 2004. Barack Obama changed the equation and won 96% in 2008. "It was a lightning-in-the-bottle moment," says Terrance Woodbury, a Democratic strategist. Since 2012, however, Democrats have fallen back towards their pre-Obama norm. Black support slipped to 90% by 2020, but a surge in turnout that year—200,000 more black voters in Georgia, in particular—masked the decline. More black votes even at a slightly lower margin delivered Democrats a significant net gain. The alarm for Ms Harris is that polls show her attracting the lowest share of any Democratic nominee in decades. The national *Economist*/YouGov polls have her at 83.5%, while other polls find her share as low as 78%.

Jobs on their mind

Lower turnout this year could exacerbate Ms Harris's problem. In 2020 Georgia had two Senate races that attracted national attention and ultimately determined control of the chamber. This time there are no statewide contests to motivate voters disaffected by the presidential candidates. And the black migration that helped Democrats win in 2020 seems to have slowed. Data from L2, an analytics firm, show that of the 187,000 voters who moved to Georgia since 2020 only 24% are black, half the share of those who came before.

Perhaps the most striking feature of black voters' evolving outlook is that young black men see less salience in the civil-rights movement than did their parents' generation. Just 65% of black men under 30 say civil rights are an issue that is very important to them, compared with 84% of those over 65. Auburn Avenue, a black business district that was once the epicentre of Atlanta's civil-rights movement, is now hollowed out and quiet. "Thinking about racial politics is a luxury," says a black millennial who works in Georgia politics. "These days young people are more concerned about jobs."

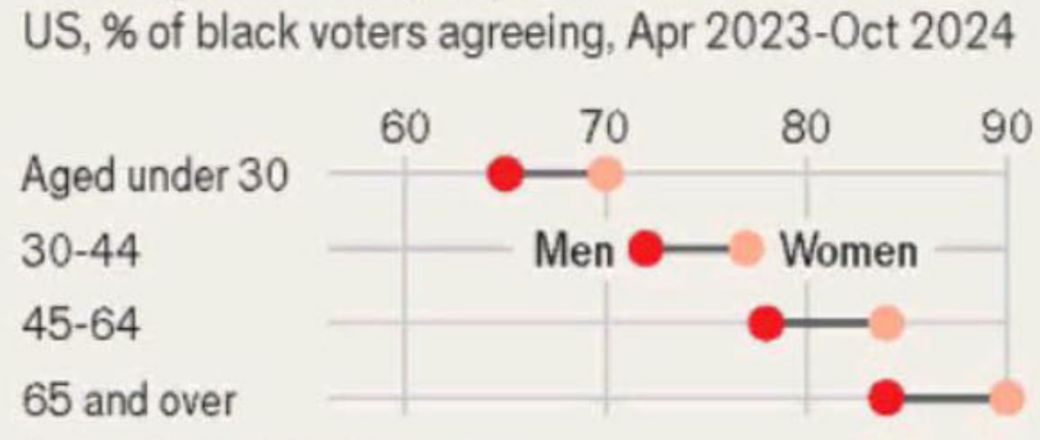
Ms Abrams reckons this is a messaging problem—fears about the futures of black men and their access to jobs "are inherently civil-rights issues", she says. She argues that the idea that black voters are moving away from Democrats is "an extrapolation that is not warranted yet", especially as polling suggests that black women are heavily motivated by Ms Harris.

Ms Abrams and her peers are confident that the Harris campaign can defy the polls. "We saw some similar softness two years ago and we ended up closing that gap," says Lauren Groh-Wargo, a longtime Georgia operative. Political scientists have shown that tight-knit black communities have strictly enforced political norms, to include voting for Democratic candidates, even as conservatism has become more popular. Trump-curious black voters may yet be persuaded to back Ms Harris by pastors and women in their extended families. If they express support for Mr Trump "out loud in black spaces, research suggests it's not going unchallenged," says Andra Gillespie, a political scientist at Emory University. Most undecideds, she thinks, will break in the end for Ms Harris.

At Fade Away Cutz in South Atlanta Richard Wright, once a candidate for Atlanta mayor and named for the black author, is getting a crisp shave. He and his barber, both middle-aged, are sceptical of the left but say they are voting for Ms Harris. They worry about the younger men who intend to back Mr Trump—and about the fallout from the campaigns' obsessions with voters who look like them. "If Trump wins, me and you are going to have to move," Mr Wright tells his barber between treatments, "because black men are going to get blamed." ■

Their generation

"Civil rights is a very important issue to me"
US, % of black voters agreeing, Apr 2023-Oct 2024



Source: YouGov/The Economist

Amish voters

Barnstorming

PARADISE, PENNSYLVANIA

One place Republicans are pushing hard for mail-in ballots

"THAT'S NOT a woman's position," a straw-hatted Amish man in Lancaster County, Pennsylvania, says wistfully, referring to the presidency. "I've got [voter-registration] papers in my pocket right now." He's been taking part in a "mud sale", an Amish charity auction, in a field near the community of Paradise. While the auctioneer shows off his impressive lung capacity, several Republican volunteers mingle among the crowd handing out voter-registration papers and Trump-Vance flags. "I did this four years ago," one of them says, and "it's even better now."

Pennsylvania has 93,000 Amish people, double the number in 2000. Almost half live in Lancaster County. They could in theory help swing the critical state, which Joe Biden won by just over 80,000 votes in 2020. But the Amish, who famously eschew electricity and cars, don't have much time for politics either. Typically, less than 10% vote. That said, it's clear that the Amish worldview aligns neatly with traditional Republican beliefs in limited government and social conservatism, say Steve Nolt and Kyle Kopko, academics at Elizabethtown College. Of Amish folk who do register, more than 90% do so as Republicans.

Efforts to court them have increased. "Amish PAC", founded in 2016, spent more than $300,000 on advertising in the past two presidential cycles. The scarcity of Trump billboards in the area points to a tactical shift to face-to-face canvassing, which Mr Kopko reckons has found greater success. Between 2016 and 2020 voter registration among the Amish in Lancaster County doubled to over 4,000, and among those registered turnout grew from 49% to 71%.

With Pennsylvania a toss-up, Republican operatives are busy. Scott Presler, a conservative activist, founded "Early Vote Action" in 2023 to encourage mail-in voting. "The Amish could very well save the United States," he says. Mr Presler and his ilk have been turning up at Amish sawmills and farmers' markets, pitching their message that Donald Trump stands for world peace and the freedom for the Amish to live as they choose. Their U-turn on mail-in voting, "something which the Democrats really pushed", he gloats, will enable the Amish to vote in private, away from the prying eyes of any disapproving peers.

Even if the Amish taboo around voting has begun to fray, there is a snag. By tradition, Amish weddings happen on Tuesdays in autumn and involve hundreds of guests. Presidential elections, held on a Tuesday in November, may well be overshadowed. So early voting may not just be a smart tactic in turning out the Amish. It could be essential.

Diploma politics

Degrees of separation

PITTSBURGH

Realigned Democrats and Republicans are testing new coalitions

DEPENDING ON WHERE exactly you find yourself, western Pennsylvania can feel Appalachian, Midwestern, booming or downtrodden. No matter where, however, this part of the state feels like the centre of the American political universe. Since she became the presumptive Democratic presidential nominee, Kamala Harris has visited western Pennsylvania six times—more often than Philadelphia, on the other side of the state. She made her seventh trip on October 14th, to the small city of Erie, where Donald Trump also held a rally recently. Democratic grandees flit through Pittsburgh regularly. It is where Ms Harris chose to unveil the details of her economic agenda, and where Barack Obama delivered encouragement and mild chastisement on October 10th. "Do not just sit back and hope for the best," he admonished. "Get off your couch and vote."

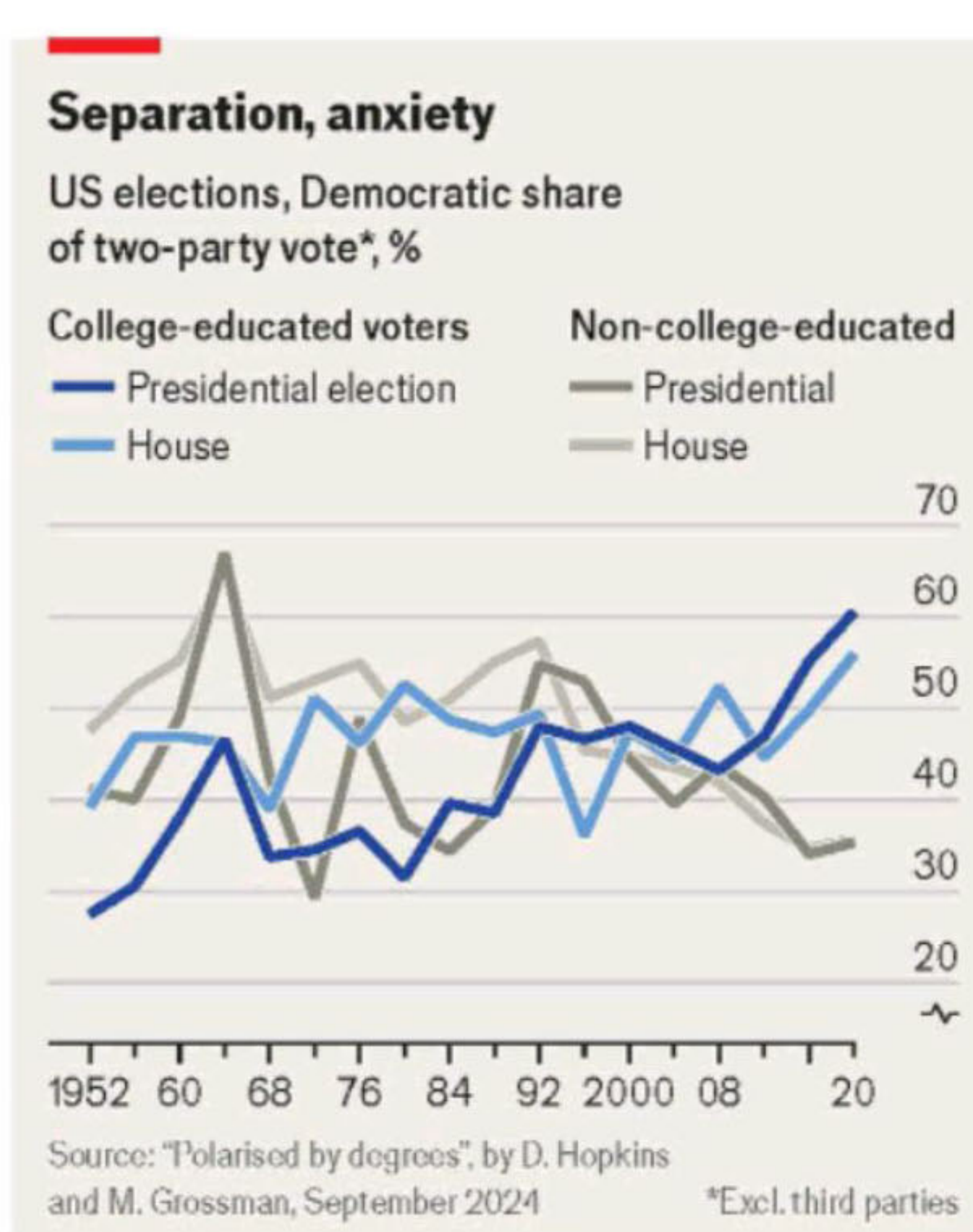
Commencement speech

That western Pennsylvania has become such contested ground tells you a lot about how America's two major parties have changed. Voters are increasingly divided by their educational degrees; the traditional working-class base of the Democratic Party has eroded and been replaced by the college-educated. This trend is not uniquely American—it is visible among parties of the left across Europe. But its impact on America is strong. Educational polarisation has remade the map of battleground states and districts and triggered ideological changes in both parties. It has transformed not just where candidates campaign, but what they say.

It used to be that high educational attainment was a reliable predictor of Republican voting. George Babbitt, the eponymous main character of Sinclair Lewis's 1922 satire of bourgeois conformity, is a college-educated real-estate broker for whom "the senators who controlled the Republican Party decided in little smoky rooms in Washington what he should think about disarmament, tariff, and Germany". In later decades, data show the same. From 1952 to 2000, a majority of white voters with college degrees self-identified as Republicans.

From 2012, this affiliation began to weaken. It loosened even more once Mr Trump became the Republican nominee in 2016. By 2020, the white college-educated called themselves Democrats by a 2:1 margin. And there were many more graduates. Their share of the electorate rose from 8% in 1952 to 40% in 2020. Had the party held on to the rest of its support, this would have ensured an enduring majority.

Yet at the same time, Democrats lost support among whites without college degrees, who now favour Republicans by their own margin of 2:1. Polarisation along educational lines also means polarisation by geography because Americans increasingly sort themselves based on their educational credentials, with cities at the centre of the knowledge economy. That is why in 2020 Mr Trump won 2,588 of America's 3,144 counties and still lost the popular vote by a wide margin. Educational polarisation also stoked conflict "over the proper source of American leadership and the proper direction of American culture", write Matt Grossmann and David Hopkins, two political scientists, in their incisive new book "Polarised by Degrees". This transformation, they observe, has led the Democrats to "adopt a reputation for cultural progressivism, intellectual erudition, and demographic diversity...while traditional venues for conservative discourse have lost influence to more populist and anti-intellectual platforms".



One goal of the Harris campaign is to change that. Of its 50 offices in Pennsylvania, 16 are in counties that Mr Trump won by double digits in 2020. "The challenge is that if you look at the work that people are doing, who are living paycheque to paycheque outside of the big cities, it often is not the type of work that the Democratic Party is associating itself with," says Conor Lamb, a former Democratic congressman based just outside Pittsburgh.

The fight over Mr Lamb's old district is a microcosm of the test Democrats face. It requires an answer for anger about deindustrialisation. "We suffered through terrible trade deals that really hurt places like western Pennsylvania, pushed by Wall Street and a corporate management ideology that just chased the cheapest and weakest labour and environmental rules," says Chris Deluzio, the one-term Democratic incumbent. His Republican challenger, Rob Mercuri, a state representative, agrees that outsourcing of manufacturing jobs, especially steel, was "directly tied to policy choices that elected leaders have made over the years". But their prescriptions differ immensely. The left, in Mr Mercuri's view, offers "well-intentioned but really wrongheaded government interventionist, big New Deal-style policies", the result of a "disconnect...related to this kind of highly educated, elitist mindset".

In 2020, Democrats promoted ideas exciting to the college-educated, such as defeating systemic racism. Ms Harris was no exception. The national Democratic Party has realised that promoting anti-racism is a losing strategy. This time, Ms Harris is pitching herself as a pro-fracking, gun-owning, common-sense Democrat who likes unions and is wary of corporations. Her economic agenda is concerned with protecting American jobs through industrial policy and funnelling more tax credits to workers. Mr Trump, too, has moved the Republican Party to the left on economic issues, courting unions and promising tax cuts on tips, social security benefits, even car-loan payments. Whether it is working is hard to tell. The voters both candidates are jostling over are not just unfriendly to the country's college-educated elites: they are reluctant to answer pollsters too. ■

Campaign calculus

Irrational gloominess

Why voters are down on America's remarkable economy

POLITICIANS RARELY tell voters they are wrong. For Democrats trying to sell America's economic success, the temptation must be strong. As our special report explains, the country's economy is one of the strongest in the world. Americans are richer than at the start of President Joe Biden's term. Yet they struggle to believe it: in weekly polling conducted by YouGov since mid-2021, almost twice as many say the economy is getting worse as say it's getting better.

It is hard to judge what this will mean come November 5th. Historical examples do not shed light on the divergence between economic perceptions and reality, nor on the unique circumstance of a former president running for re-election while the incumbent is sidelined. Vice-President Kamala Harris is leading in national polls despite poor ratings on the economy. But if grumbling is the new normal, the economy could yet cost her the election.

During the covid-19 pandemic, economic optimism came untied from the macroeconomic indicators which reliably predicted it in preceding decades. The University of Michigan recorded its lowest-ever index of consumer sentiment—a long-running measure of how consumers feel about the economy—in June 2022, despite the economy looking healthy by most objective measures. The "vibecession" left economists and politicians scratching their heads.

Although sentiment has improved since then, Americans still underestimate the strength of their economy. This month, YouGov found that 39% of respondents incorrectly believed the country was in recession (only 36% said it was not). The media, which increasingly emphasise negative economic news, deserve some blame for this. But although Democrats can correctly say voters are wrong about Mr Biden's economic record, it is cold comfort for Ms Harris: a recent poll by Ipsos found that Donald Trump had an eight-percentage-point lead over her on the question of whom voters would trust more to handle the economy.

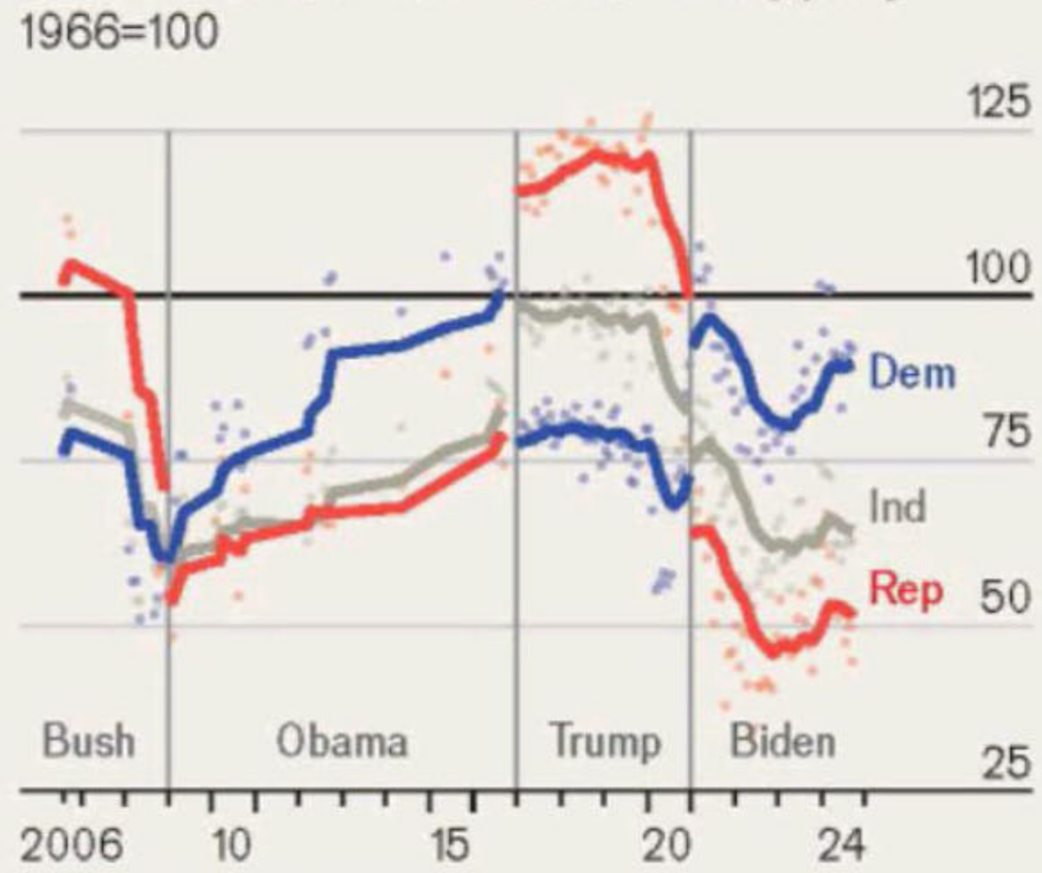
A more optimistic pointer for Democrats is the partisan divide in consumer sentiment (see chart). While both parties' supporters tend to feel more positive when they control the White House, Republicans "cheer louder" and "boo louder", in the words of Ryan Cummings and Neale Mahoney, two economists. They find that this asymmetry explains around 30% of the gap between expected and observed consumer sentiment since Mr Biden took office. If economic negativity is partly confined to Republican partisans, the electoral cost could be smaller than it appears.

Ms Harris is also somewhat insulated by running as a non-incumbent. Despite her role in Mr Biden's administration, the vice-president's campaign has cast her as an advocate of change, not continuity. In the fundamentals model that underpins *The Economist*'s presidential forecast, we find that economic indicators predict the election chances of incumbent presidents but not other candidates from the incumbent party. When Mr Biden dropped out of the election, the economy also dropped out of our forecast.

These factors could explain why Ms Harris is outperforming historical incumbent-party candidates with similar economic conditions. Lenny Bronner, a data scientist at the *Washington Post*, found that this year's employment growth points to a two-percentage-point popular-vote victory. John Sides, a political scientist, found the same for GDP growth. In our polling average, Ms Harris leads by 3.2 points. Voters march to the beat of their own drum. And so it is that many spend more than ever—and say they will vote for Ms Harris—while professing deep economic pessimism.

Sentimental value

United States, consumer sentiment by party
1966=100



Source: University of Michigan

The Senate

Crying over split milk

SHEBOYGAN, WISCONSIN

America's dairyland is giving Democrats some heartburn

IT WAS ONCE common for states to split their pair of senators between the two major parties. In 2010 there were 19 such states. Today only three have true splits. In all three of those states—Ohio, Montana and Wisconsin—the Democrat-held seats are up for election in November. And all three could well be lost. Jon Tester faces an uphill re-election bid in Montana. In Ohio, Sherrod Brown, a third-term incumbent, must persuade a large share of Donald Trump voters to split their tickets (an increasingly rare phenomenon) if he is to remain in office. That leaves Tammy Baldwin, the twice-elected senator from Wisconsin, who is campaigning on the least Trumpy terrain of the three.

That does not mean it will be easy. "I live in a battleground state. I run in a battleground state. There's an old expression: 'Run scared or run unopposed.' And I am not unopposed," Ms Baldwin says, sitting outside a coffee shop in Sheboygan (which the mayor informs your correspondent should be better known as the "Malibu of the Midwest"). Ms Baldwin is a consummately "midwestern nice" politician. She prides herself on showing up in rural parts of the state that other Democrats neglect—and pushing for policies that ought to endear her to them.

"I consider myself the Buy America champion of the United States Senate," she proclaims. Ms Baldwin says she was honoured to receive the endorsement of the Wisconsin Farm Bureau—the first Democrat to do so in 20 years—for, among other things, picking fights with the Biden administration over "plant-based products that pretend to be milk when they're not". (Wisconsin produces a quarter of the cheese made in America.)

In other words, Ms Baldwin is the kind of homespun midwestern Democrat campaigners dream of—the kind with the best chance of swimming against the tide of inhospitality towards the party in rural America. And yet she is facing her tightest Senate race ever. After publishing a poll showing Ms Baldwin leading by only two percentage points, the Cook Political Report with Amy Walter, a prominent election handicapper, downgraded her race to its "toss-up" category. (Our own forecast model gives her better odds.)

Her campaign says its internal polling showed an equally tight race (though this is also a handy fundraising tactic). If Ms ▸▸

Baldwin loses her race, it does not just guarantee that Democrats lose control of the Senate—it almost certainly would imply that Mr Trump has swept the presidential election away from Ms Harris. The reason for this, the same reason that split-ticket voting has declined along senatorial split pairs, is the ever-growing nationalisation of state and local politics.

It is not just polarisation that Ms Baldwin must reckon with. Part of her trouble is the unexpected strength of her opponent, Eric Hovde—a lushly moustachioed businessman who has not held public office before. "When you're out there and you're talking to people every single day, you know what the concerns are: economics, number one, and the border, number two," says Mr Hovde, speaking in the office of a newly opened apartment building in Racine on the shores of Lake Michigan.

He explains voter discontent with the economy—despite aggregate America's outperformance of its peers—as a result of the "very bifurcated economy" and national growth as spurred by extreme deficit spending. "If you look at the history of societies that have gone through debt crises, we're already hitting all the flashing red signals," he says. Mr Hovde is an old-school Republican in more than just his choice of facial hair: he is wonkish, worried about deficits, regulations and growth. He is one of a shrinking minority of American politicians willing to come out as "largely a free-trader". His biggest political misstep, other than owning a bank and a mansion in Laguna Beach, California, has been to defend the sensible policy of raising the retirement age for Social Security for young Americans. "We're in a position where the day of reckoning is coming," he says.

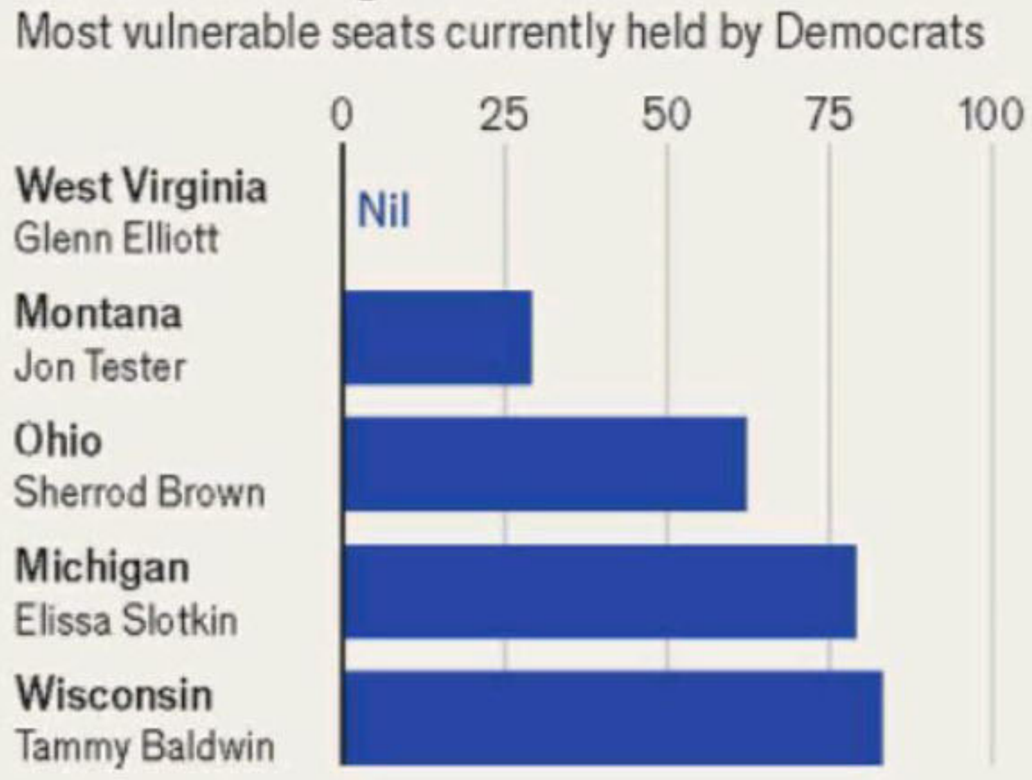
All that has lent the state's Senate race a retro feel—with the same themes as the contest between Barack Obama and Mitt Romney in 2012. You will see plenty of cows in Ms Baldwin's campaign advertisements; you will see comparatively few invocations of the attack on the Capitol on January 6th 2021. Polls show that Ms Baldwin is running roughly three points ahead of Kamala Harris in the state. This provides a "good cushion" says Charles Franklin, who runs the Marquette Law School Poll, even in the face of another polling error in the state. (In both 2020 and 2016, Democratic margins were overestimated by an astonishing seven points.) If he were the Harris campaign, though, Mr Franklin says he would be "pretty worried". It is easy to underrate support for Mr Trump among the politically disengaged voters who are hard to reach. "They certainly don't trust pollsters. They're not big fans of politics generally. But they're mobilised by Trump."

That statement will cause painful flashbacks for Wisconsin Democrats. Talk to any of them for long enough and you will eventually come to the subject of Hillary Clinton's decision to not campaign here—and the comeuppance she received when Mr Trump won by 0.8 percentage points. When they do not neglect the state, Democrats can win, but only barely. In 2020 Joe Biden won it by 0.6 points. In 2024 a squeaking victory for Ms Baldwin would probably mean a loss for Ms Harris. For her part, Ms Harris is determined not to repeat Mrs Clinton's mistake: she has visited the state five times since July. ■

Against the tide

Democratic candidates for US Senate, chance of winning, Oct 16th 2024, %

Most vulnerable seats currently held by Democrats



Source: *The Economist*'s Senate forecast

Schools

Payback time

CHICAGO

Brandon Johnson is giving Chicago's teachers' union everything

LAST YEAR, when he was campaigning to be mayor of Chicago, Brandon Johnson, a former organiser for the Chicago Teachers Union, was asked how he would handle negotiating a contract with his former employers, especially when money is tight. He answered simply: "Who better to deliver bad news to friends than a friend?" The teachers' union downplayed hopes of special favours. "Brandon is a remarkable person who has a lot of principles," said Jesse Sharkey, a former head of the union.

Over a year later, Mr Johnson shows little interest in delivering bad news to the people who helped him become mayor. In fact, he is showing that there is no greater love than to lay down your political career for your friends. The mayor was elected in large part thanks to the heavy financial backing of the teachers' union, and it expects to be repaid in contract negotiations this year. But the money to do so is lacking. Rather than admit that, Mr Johnson has tied himself into knots and offended almost every other constituency in the city, including his own progressive allies.

On October 7th he appointed a new school board, after all the original members resigned. Mr Johnson had wanted them to fire the head of the school district, Pedro Martinez, and they refused. Mr Martinez opposes the mayor's plan to fill a looming deficit in the schools budget by taking on a $300m short-term loan. The resignations—and Mr Johnson's hasty replacements—have thrown Chicago's local government into chaos.

On paper Chicago's schools are generously funded. Total spending by the school district works out at around $29,500 per pupil, compared with a national average of $19,000. Teachers in Chicago are also already rather well paid (the average salary is $93,000). But too much of the budget is spent repaying historical debt, and on pensions. And Chicago has too many schools. Over decades total enrolment has shrunk, especially in black neighbourhoods, and three-fifths of schools are underused.

One high school on the West Side of the city, Frederick Douglass Academy, has just 27 students, in a building meant for 900. Keeping it open costs the equivalent of $68,000 per pupil, roughly four times what is spent directly (after debt and other centralised costs) in the average school.

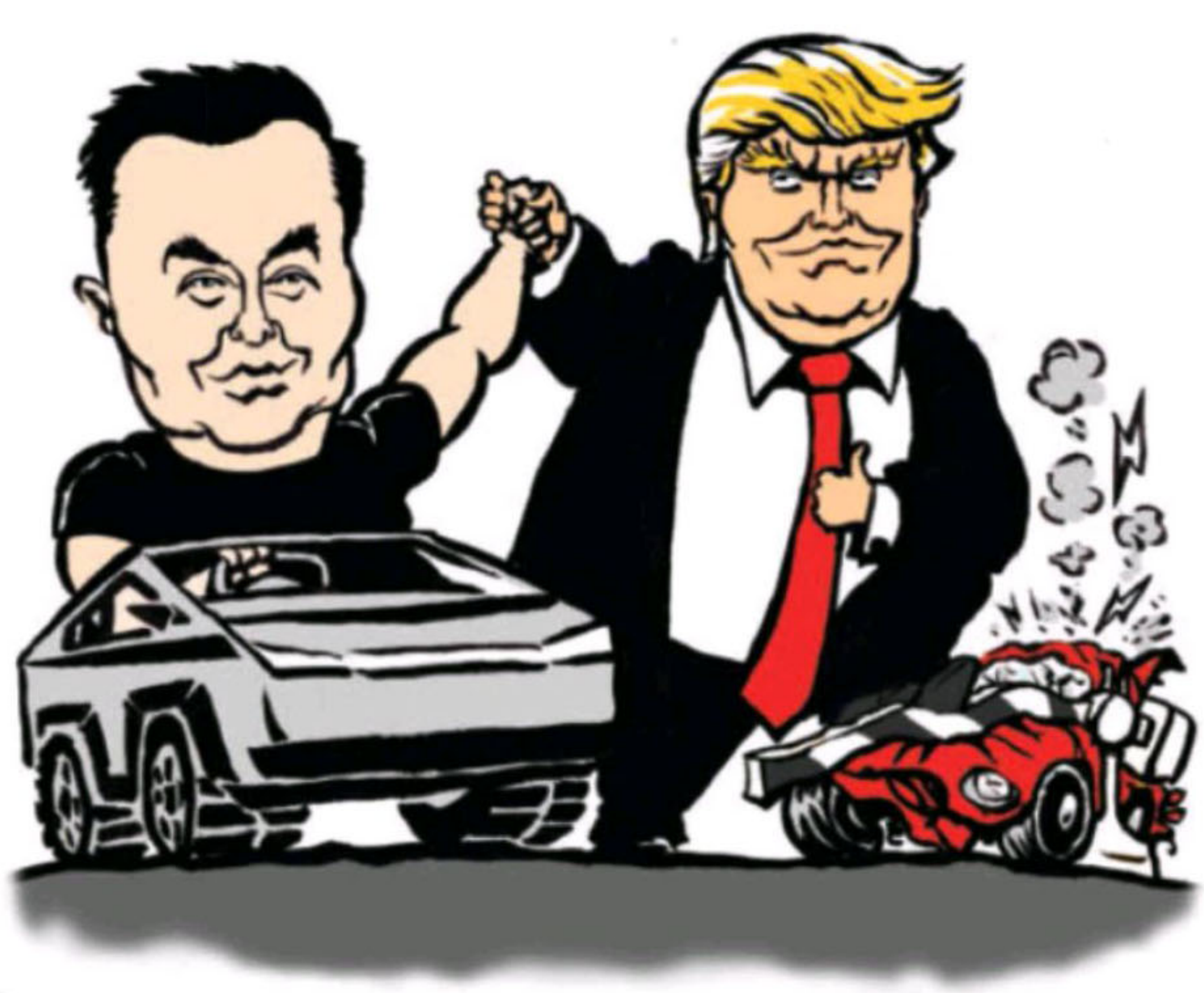
Closing schools in black neighbourhoods is unpopular. When Rahm Emanuel, a former mayor, did it a decade ago, it may have tanked his mayoral career. Under Mr Johnson, Mr Martinez has done the opposite, allowing more money to flow to struggling schools. But the covid-relief funds that have made this possible are now running out. The school district faces a budget deficit of $500m this year. Other school districts in America are making cuts: San Francisco recently announced it will close several schools. In Chicago that is apparently unthinkable. Instead teachers say they want 9% pay rises and every school to be staffed as though it is fully occupied.

A $300m loan will only mean a bigger hole next year. Even those formerly supportive of the mayor recognise the problem. "If you are maxing out your credit card at home, you can barely make payments, and somebody proposes you take out another high-interest loan, that isn't solving your problem," says Andre Vasquez, a progressive alderman. He is one of 41 out of 50 city-council members who signed a letter opposing the mayor.

Mr Johnson, who has the power to jam through the $300m loan, is defiant. Announcing the new board appointments, he compared "so-called fiscally responsible stewards" to supporters of slavery. He says he was elected to be transformative, not to "nibble around the edges". But by 2027 his appointed school board will be replaced with a 21-member elected one. The mayor seems to want to give his pals a big raise, and let others work out how to pay for it. ■

LEXINGTON
Battery flattery

Donald Trump and Elon Musk both want to crush Tesla's competition



SUMMONING A GIANT flaming rocket safely home from the edge of space is pretty cool, but Elon Musk's success in yanking the infamously inertial American car industry in a new direction still ranks among his most impressive achievements. Believing that a transition to sustainable energy was essential to preserving humanity, Mr Musk set out to make Tesla "a guiding light" that would lead other automakers to electrify their cars years before they might have otherwise. The strategy began working almost right away. In 2009, the year after Tesla delivered its first production car, the Roadster, Bob Lutz, a General Motors vice-chairman and a convert to electrification, called Tesla "the crowbar that helped break up the logjam".

Among the puzzling aspects of Mr Musk's devotion to electing Donald Trump is that the former president considers this achievement a historic mistake. "The electrics are just not going to work," Mr Trump told the Detroit Economic Club on October 10th. "The entire industry will go to China for the making of these all-electric cars and trucks. The auto industry would be non-existent."

In fairness, Mr Trump sometimes says things he does not mean. ("He's the world's champion of bullshit," Mr Musk once observed to his biographer, Walter Isaacson.) And sometimes what Mr Trump says does not mean much. ("He seems kind of nuts," Mr Musk said after meeting Mr Trump in 2016.) These seeming deficiencies—which, as Mr Trump has amply proved over the past eight years, are actually among his core strengths—tend to be on vivid display when he talks about the car business.

"By the time I came into office after our victory in 2016, the Michigan auto industry was on its knees begging for help, gasping," Mr Trump told the Economic Club. "It was all gone." In fact, the "big three" automakers had a banner year in 2016 amid record sales in America of 17.5m vehicles. In the same speech, Mr Trump warned that without him in power the industry was again "going out of business" and its workers were living in a "nightmare". In fact, the big three are making record profit-sharing payments to hourly workers. (On the nonsense front, he described watching Mr Musk's rocket boosters land: "They're coming down very slowly, landing on a raft in the middle of the ocean someplace with a circle. Boom. Reminded me of the Biden circles that he used to have, right? He'd have eight circles and he couldn't fill them up. But then I heard he beat us with the popular vote.")

As Mr Trump rattled on about how his "hair would be waving" in his Pontiac GTO during the industry's "glory days", he sounded a bit out of date. Chad Livengood, the political editor of the *Detroit News*, has come to think Mr Trump has a "1978 Cadillac Eldorado view of the auto industry", as though "everybody is still driving big bulky V8 sedans" and an American electric-vehicle company, Tesla, is not the most valuable carmaker in the world. And yet, Mr Livengood adds, "To give him credit, he put his thumb on an issue, a sore really, and he kept pressing down on it."

That sore spot is the anxiety in the industry and among consumers over the transition to electric vehicles. The industry has weathered existential challenges before. With varying levels of federal and foreign help, the big three ultimately made the shifts to greater fuel efficiency in the 1970s and 1980s and to lean manufacturing in the 1990s and 2000s. But neither of those transitions matched the complexity of the one now under way.

Despite a federal tax credit of up to $7,500 and price cuts, electric vehicles are piling up on dealers' lots, and the Biden administration is struggling to build the charging network envisaged by the 2021 infrastructure law. So far, the $7.5bn federal investment has yielded just 19 stations in nine states, though the pace is accelerating, according to Atlas Public Policy, a consultancy. Even Mr Musk has been cutting prices as he confronts new competition at home and abroad. Tesla finds itself vying for global sales leadership in EVs with BYD, a Chinese firm, and losing market share in America as dozens of new models go on sale.

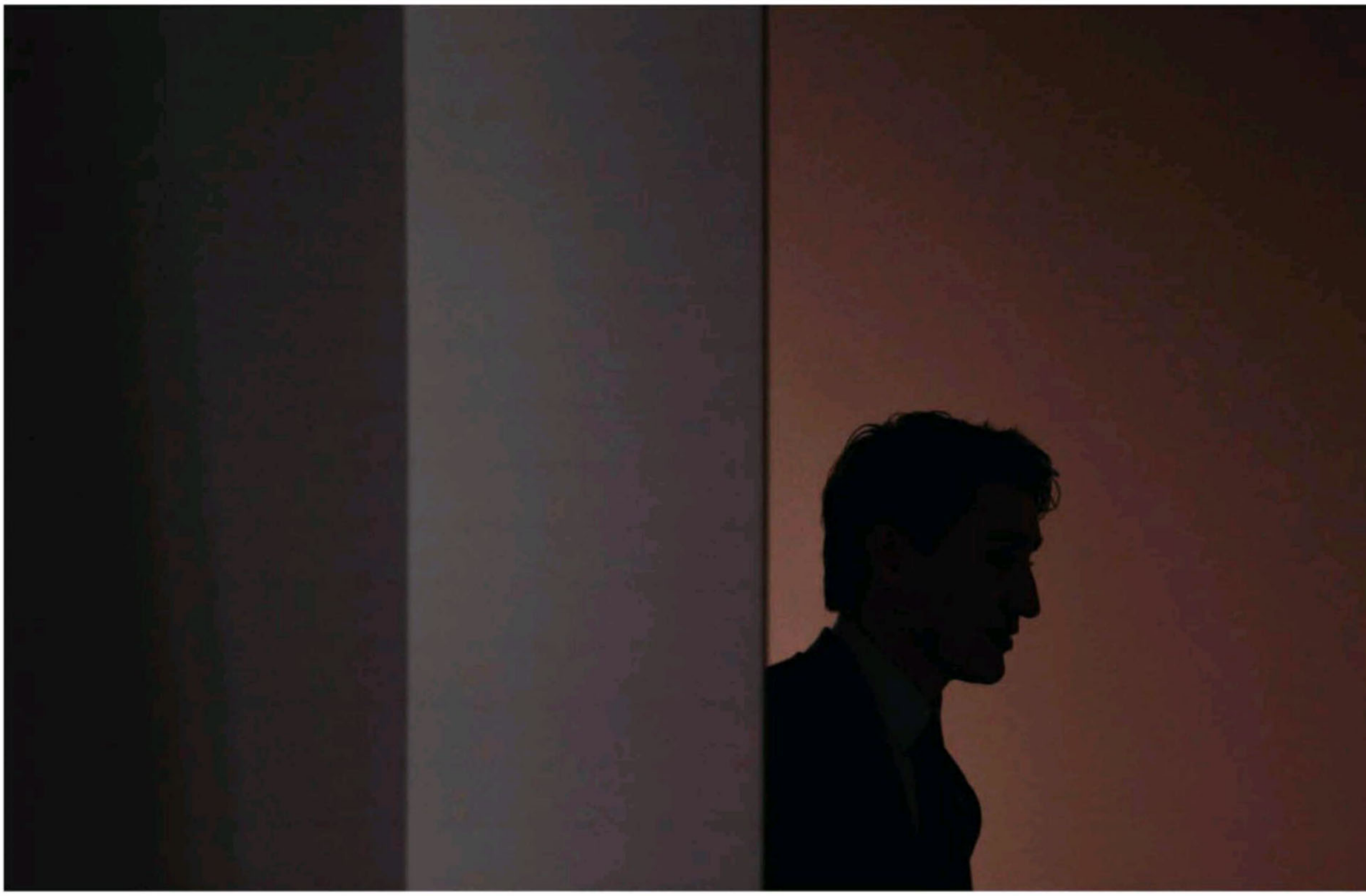
Mr Trump is gaining share in the Midwest by claiming that Vice-President Kamala Harris, the Democratic nominee, wants to force people into electric cars. Ms Harris insists she "will never tell you what kind of car you have to drive". But when she ran for president in 2019, Ms Harris supported a mandate that all new vehicles sold be zero-emission by 2035, and the Biden administration's emissions standards in effect mean that, by 2032, 56% of new vehicles sold would have to be electric—a goal that seems more fanciful by the day. To buy the Americans time to build share in the market, President Joe Biden raised the tariffs that Mr Trump imposed on Chinese electric vehicles, from 25% to 100%.

The fast and the spurious

Besides ending the "insane electric-vehicle mandate", Mr Trump has called for doubling those tariffs and rewriting America's trade deal with Mexico to impose tariffs of up to 1,000% on Chinese electric vehicles made in plants there. "They might as well stop building the damn plants," he said in Detroit. And yet as he seeks to protect Americans from buying Chinese electric cars, he is claiming Americans won't buy EVs anyway and urging American automakers to give up making them. It's like saying Chinese golfers can't play one of his courses because no one else will, then turning the place into a launching pad for zeppelins.

Mr Musk no doubt has his reasons to support Mr Trump. Mr Biden snubbed him because his plants are not unionised, and Mr Musk's contempt for the "woke mind virus" seems deeply felt. Yet it is also a happy coincidence that, when it comes to EVs, Mr Trump's eccentric mix of protectionism and defeatism would stifle competition for the great insurgent American car company that, to Mr Musk's profound credit, has become the incumbent. ■

The Americas



Liberalism in Canada

The dying of the light

OTTAWA

Justin Trudeau's crumbling political project holds lessons for liberals the world over

"IT IS A time of massive anxiety." Justin Trudeau was talking about Canadians' economic outlook, pitching the durability of his liberal project to a gathering of global progressives in Montreal last month. "People notice the hike in their mortgages much more than they notice the savings in their child care," he offered, perhaps implying that in doing so people failed to appreciate all he did for them.

A diagnosis of anxiety fits his own government, too. Mr Trudeau and his party have traversed an arc from heroic to hapless during nine years in office, and today are despised by many in Canada. Polls suggest that less than a quarter of the electorate plans to vote for him. With under a year to go until a general election, Liberal Party members fear no plan exists to increase that share. They have lost two by-elections in quick succession, as well as the support of their governing partner, the New Democratic Party. A letter has been circulating among Liberal MPs calling upon Mr Trudeau to resign. Massive anxiety indeed.

Mr Trudeau became a beacon of morality after he swept to power in 2015, welcoming refugees to Canada from war-torn Syria that Christmas. He legalised marijuana, rewarding the record number of young people who had voted for him. He faced down a truculent President Donald Trump to salvage the North American trade pact that is foundational to Canadian prosperity. His government's annual payment to families of up to C$7,787 ($5,660) per child under six is hailed for lifting 435,000 children out of poverty. After promising childcare subsidies to help more women into work, working-class and younger voters gave him renewed minority mandates in 2019 and 2021.

Three years later those groups have turned on Mr Trudeau. Today both tend to support the opposition, Pierre Poilievre's Conservatives. What went wrong?

The unaffordability of housing is central. The cost of owning a home in Canada has increased by 66% since Mr Trudeau took office, with prices rising faster in this century than in any other sizeable OECD country bar Australia. Lack of supply is a problem in many, but is especially acute in Canada. In 2022 the average OECD country had 468 dwellings per 1,000 inhabitants. Canada had 426, a number that has hardly moved in a decade (see chart on next page). Mike Moffatt, a housing economist, says a "wartime effort" is needed to triple the current building rate and throw up 5.8m houses in the next ten years. No such luck. In August Canadian housing starts dropped to an annualised rate of 217,000.

The influx of immigrants during Mr Trudeau's decade in power has intensified the demand for housing. The number of temporary foreign workers jumped from ▸▸

→ ALSO IN THIS SECTION

109,000 in 2018 to just under 240,000 in 2023. The number of non-permanent residents—including temporary foreign workers, students and asylum-seekers—has more than doubled from 1.3m in 2021 to over 3m on July 1st, according to Statistics Canada, representing 7.3% of Canada's total population of 41m.

The education and health-care systems have also felt the pinch. Universities are bursting with foreign students, often lured by unscrupulous overseas middlemen offering "sham" degrees, according to Mr Trudeau's immigration minister, Marc Miller. Some 560,000 student visas were handed out in Canada last year. Mr Miller is cutting that number to 364,000. "It's a bit of a mess, and it's time to rein it in," he said earlier this year. Some elementary-school teachers flounder, as they grapple with the children of recent arrivals who often speak neither of Canada's official languages, English and French.

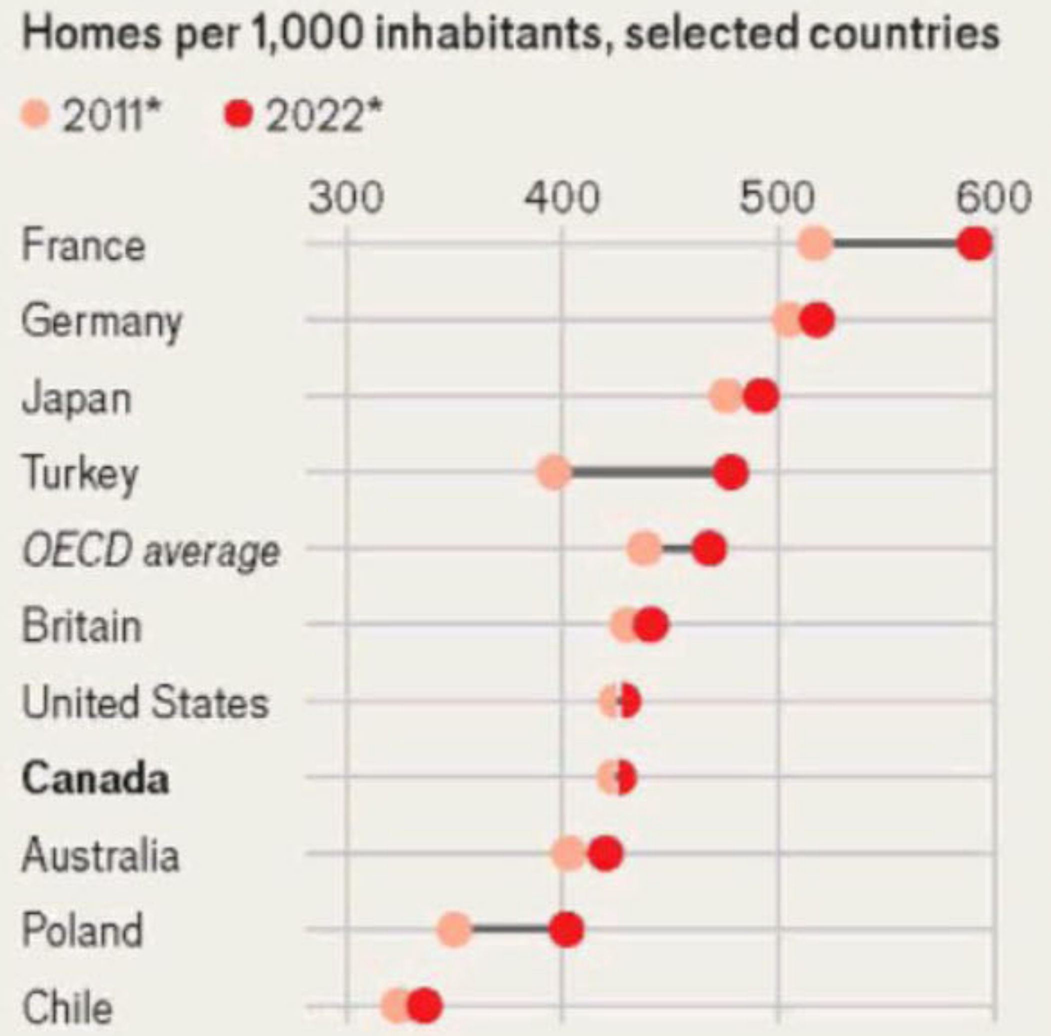
The pain of high housing costs has been compounded by a mediocre economy. Canada suffers from laggardly productivity growth, which has suppressed wages. Investment has been strong in oil- and gas-fields, and in extractive industries more generally, but has been overshadowed by other parts of the economy. The share of tech, R&D and education, taken together, in total investment is lower in Canada than anywhere else in the G7 club of rich countries.

Canada's economic ties with the United States have created problems since the end of the pandemic. American spending switched disproportionately to domestic services after lockdowns ended. This left Canadian manufacturers—whose goods had been flying off the shelves to online shoppers south of the border—in the lurch. The Canadian services sector had to pick up the slack, relying on Canadian demand to drive growth in the economy.

Higher interest rates made that a tall order. In Canada, where most mortgages are sold with rates that are fixed for five years, rate increases hit consumer spending power harder than they did in the United States, where fixes usually last for 30 years. Canadian households were already dealing with more debt, relative to income, than any other G7 country. On average 15% of disposable income is now spent on servicing debt, an increase of 1.5 percentage points since 2021. Americans spend 11%. Canada's government has not been splurging to try and ease the pain. It ran a budget deficit of 1.1% of GDP in 2023, the lowest of any G7 country.

Land of no hope

Homes per 1,000 inhabitants, selected countries



Source: OECD *Or nearest year

Climate change offered Mr Trudeau perhaps his clearest opportunity to blend moral leadership with pragmatism. But he ignored polling showing that while Canadians were concerned about the climate crisis, they were also loth to pay taxes equivalent to a Netflix subscription to fight it. His carbon tax, introduced in 2019, imposed a levy on greenhouse-gas emissions. It currently runs at C$80 per tonne, scheduled to rise by C$15 annually to reach C$170 per tonne in 2030. Canada's parliamentary budget watchdog said on October 10th that most households would be worse off, when indirect costs of the tax were factored in. Mr Trudeau's failure to find a way to compensate groups who lost out as a result of the tax left it and him vulnerable to criticism from Mr Poilievre; he says the tax will lead to "nuclear winter", trigger "mass hunger and malnutrition" and compel poor, older people to freeze. Support for the carbon levy has crumbled.

Mr Trudeau's standing is not helped by the waning under his Liberal government of Canada's influence in global affairs. When it last tried to win a seat on the United Nations Security Council in 2020, it finished behind Norway and Ireland. It spends just 1.3% of its GDP on defence, far below the 2% required of NATO members, and the pace set by rearming European members facing an expansionist Russia. Mr Trudeau has promised Canada will hit the 2% level in 2032. Meanwhile, relations with Asia's most populous countries, China and India, remain ice-bound. On October 14th India and Canada each expelled the other's high commissioner, the latest move in an ongoing spat between the countries over the murder of a Sikh separatist in British Columbia last year (see story on next page). In the Middle East, Israel's prime minister, Binyamin Netanyahu, does not return Mr Trudeau's calls.

Instead of adapting to or confronting challenges thrown up by his policies, Mr Trudeau has preferred to attack his critics. He has seemed inert as the erosion of his party's support accelerated. Some Liberals privately suggest the breakdown of his marriage last year distracted him. In a shuffle aimed at energising his front bench in 2023 more than half his cabinet changed portfolios, but the economic message remained the same: we will continue to deliver "good things" to Canadians. Only recently has Mr Trudeau begun to acknowledge that this fell short. "Doing good things isn't enough to deal with the kind of anxiety that is out there," he told the Montreal conference. He still describes his voters' problems in psychological rather than practical terms.

Boxed out

Mr Poilievre identified that economic anxiety early. This lent him credibility with the sectors of the Canadian electorate who felt abandoned. He has boiled his platform down to a series of simple three-word slogans. He says his first piece of legislation will be to "axe the tax", ditching the carbon levy. He has yet to outline what actions his government would take to fight climate change, but polls make it clear that Canadians care far less than they used to. All too many have forsaken Mr Trudeau, and the causes he stood for. ■

Bolivia's economy

Running on empty

LA PAZ

A slow-motion economic crisis has started to speed up

PICKUP TRUCKS hauling empty fuel drums are lined up outside a petrol station next to a field of soyabeans in Santa Cruz, Bolivia. The attendant says the queue hasn't budged in days: there is no diesel. It's been this way, on and off, for two months. "And the summer sowing is about to start," he sighs.

Bolivian politics are messy—in June there was an attempted coup by a rogue general. The economy is chaotic too. In February 2023, running low on dollars, the central bank stopped publishing weekly reports on its reserves. Since then, the government has scraped dollars together month by month. Meanwhile, the gap between the official and black-market exchange rates yawns wider. Imported goods are increasingly scarce and prices are rising. It's a slow-motion currency crisis. Bolivians are bracing for a devaluation.

The Movement to Socialism (MAS) has ruled Bolivia for all but one year since 2006. Some of that period has seen remarkable stability and growth. A fixed exchange rate, subsidised energy and food, and hefty public investment are the pillars of the MAS economic model. The state has paid for all this using dollars earned by exporting natural gas to Brazil and Argentina.

Then the model ran out of gas. Prices ▸▸

slumped as the commodity boom ended. Production fell as the state-owned gas company stopped drilling wells. International reserves, which stood at $15bn in 2014, have fallen to around $2bn, with just $153m in dollars. The state now struggles to pay for fuel imports.

And so an economy built on cheap dollars and fuel can no longer count on either. The result is "prolonged agony," says José Luis Exeni, a political analyst. Importers are running down inventories and hiking prices. Supermarkets have bare shelves and idle staff. Exporters, struggling to source inputs, are producing less.

Billboards showing Luis Arce, the president, flying an aeroplane, with taglines trumpeting macroeconomic stability, have been taken down. The IMF predicts GDP growth of 1.6% this year, the lowest in two decades (excluding the first year of the pandemic). Two years ago, the MAS boasted that Bolivia's inflation was the lowest in the region. Now it is among the highest.

In response, the government is being pulled in two directions at once. In meetings with the private sector it talks of liberalising agriculture exports and changing the law to attract investment in oil and gas. Meanwhile, unions want the government to force exporters to repatriate more of the dollars they make. Giovanni Ortuño, president of a Bolivian business lobby, says Mr Arce has assured them that the government will not take this path. But in public Mr Arce will not rule it out.

Coercing exporters would do nothing to fix the fundamental economic problems. That requires altering the exchange rate and the fuel subsidy; the price of petrol has been fixed at around $0.50 per litre since 2004. It may also mean a loan from the IMF, and broader economic liberalisation. But the MAS considers such reforms to be against its principles. "They aren't pragmatic," said Beatriz Muriel, an economist. "They are highly dogmatic."

Politics were unstable before the coup in June. Evo Morales, a former president, is fighting to be the candidate of the MAS in next year's presidential election. Mr Arce's government is kneecapped because he cannot count on legislators loyal to Mr Morales. Roughly $1bn of loans from development banks worth around 2% of GDP are awaiting congressional approval.

Mr Arce seems to be attempting to scrape through to next year's election without carrying out any painful-but-necessary changes. But the working-class voters who are the core constituency of the MAS have started to protest. "Shortages and price increases; falling purchasing power and rising poverty; deterioration of the social mood," says Gabriel Espinoza, a former director at Bolivia's central bank. "The question is when and how this will morph into conflict in the streets." ■

Diplomatic incidents

Mounties versus Modi

Canada accuses senior Indian officials of running a network of assassins

CANADIAN THANKSGIVING is usually a sleepy holiday, unnoticed by the rest of the world. Not this year. In a press conference held on October 14th Mike Duheme, the head of the Royal Canadian Mounted Police, accused India's top diplomat in Canada, Sanjay Kumar Verma, of involvement with a criminal network that has coerced and killed Canadian citizens who support Sikh separatism.

The *Washington Post* reports Canadian officials saying that Indian diplomats had been collecting information on members of the diaspora, then passing it to India's Research and Analysis Wing, a spy service, to identify targets. One official reportedly said the operation had been authorised by Amit Shah, India's home secretary. Indian officials have denied involvement.

The Canadian government immediately ordered Mr Verma and five other Indian diplomats to leave the country. "We cannot abide by what we are seeing right now," Justin Trudeau, the prime minister, said in a press conference. Indian officials angrily denied the accusations and reciprocated by ejecting six New Delhi-based Canadian diplomats from India. One Indian official says Mr Trudeau's statement was the "same old Trudeau saying the same old things for the same old reasons".

Mr Trudeau stunned Canadians in September 2023 when he first alleged publicly that Indian agents had been involved in the shooting of Hardeep Singh Nijjar outside a Sikh temple in a Vancouver suburb. India had designated Nijjar as a terrorist and offered a reward for information leading to his arrest. The Indian government said the accusation that they had killed him was ludicrous, and demanded that Canada provide proof.

The Canadians had been attempting to do just that. Mr Trudeau discussed the case with Narendra Modi, India's prime minister, on the margins of the ASEAN summit in Laos on October 10th. Canada then dispatched security officials to Singapore to show evidence to their Indian counterparts. That was an exceedingly rare step in spycraft, according to Ward Elcock, former head of the Canadian Security Intelligence Service, as sharing evidence reveals the capabilities of an intelligence service. The Indians were evidently unmoved.

They were more receptive to similar accusations from the United States, whose government alleged last year that Indian agents had tried to hire a hit-man to kill Gurpatwant Singh Pannun in New York. Mr Pannun had worked closely with Nijjar on the campaign for an independent Sikh state. Mr Modi has co-operated with the American investigation (the unnamed Indian official mentioned in the United States indictment has now been arrested), but rebuffed Canada's claims.

"That says that the Indians see Canada as weaklings, while they know they have no choice but to toe the line with the Americans," says Mr Elcock.

The Canadian authorities believe India was behind other assassinations besides that of Nijjar. Any further revelations bearing that out will mean the United States, Britain and other allies will have to choose between their values and their strategic interests in Asia. ■

Waving flags for Khalsa

Asia

New Zealand

Kiwis come in from the cold

VIENTIANE

After decades of playing hard to get, the fifth Five Eye is getting closer to America

ON SEPTEMBER 25TH the *Aotearoa*, one of just a handful of ships in the Royal New Zealand Navy, sailed through the Taiwan Strait alongside an Australian destroyer. The idea was to demonstrate to China that its claims to sole control of the waterway are invalid under international law. America does it several times a year, despite condemnations from China, sometimes with allies such as Canada. Australia does, too. New Zealand has not made such a bold move since 2017.

In an interview with *The Economist*, Christopher Luxon, New Zealand's prime minister, notes that, as a small trading nation, New Zealand depends on freedom of navigation. All countries, he says, including China, need to adhere to international law. He plays down the voyage itself: he argues it was just the quickest way for the ship to sail from the East China Sea to the South China Sea.

But the *Aotearoa*'s transit underscores a big shift in New Zealand's foreign policy under Mr Luxon, who took office at the head of a coalition government in November last year. His "reset", as he calls it, has two elements. The first is a push to diversify New Zealand's diplomatic and trade relationships away from its reliance on China, which takes 27% of its exports. This is mostly uncontroversial.

The second is to bring New Zealand into closer alignment with the other four countries in the Five Eyes, an agreement between America, Australia, Britain, Canada and New Zealand to share intelligence. As part of that, Mr Luxon is prepared to align New Zealand more closely with America than at any point since the two former allies went their separate ways in 1986. The latter change has provoked one of the most spirited debates in New Zealand on foreign policy since that time.

New Zealand is the only Five Eyes country that is not an American ally. That is unlikely to change, at least on paper. America suspended its defence commitments to New Zealand under the ANZUS alliance in 1986 in response to a ban by New Zealand on nuclear weapons in its ports. Because America's navy doesn't disclose which of its ships are carrying nukes, that made an alliance impossible.

In the years that followed, New Zealand's governments of the left and right staked out a new foreign policy for the country. They forged deeper diplomatic ties with New Zealand's closest neighbours, the small island countries of the Pacific, and traded more with a rising Asia. But it was only "semi-aligned" with the West, according to Helen Clark, who served as prime minister from 1999 to 2008. It avoided getting involved with the war in Iraq, but sent special forces to help NATO fight the Taliban in Afghanistan.

It also got rich. In 2008 Ms Clark's government signed a free-trade agreement with China. The pact, which removed 98% of Chinese tariffs on New Zealand's exports, spared it the worst effects of the global financial crisis. But most of New Zealand's exports to China are highly substitutable agricultural goods, making it vulnerable to economic coercion.

And as trade with China grew, so did ▸▸

other links between the two, not all of them benign. Under Labour governments from 2017 to 2023, prompted by intelligence-agency warnings, New Zealand cracked down on Chinese attempts to interfere in its politics. It tightened an investment screening process and banned foreign campaign donations.

Although maligned by some critics as the weak link in the Five Eyes, intelligence experts from the other members say that New Zealand's security services are solid. The agencies are small, but do good work in the Pacific islands and in intercepting adversaries' internet and satellite communications. There have been no embarrassing counter-intelligence lapses.

It is on defence that New Zealand's long estrangement from America has prevented it from making more of a contribution to upholding the rules-based order in Asia (see chart). Mr Luxon seems ready to change that. The sailing through the Taiwan Strait, which was followed by multilateral exercises in the South China Sea, is one example. New Zealand has also stepped up its contribution to the multinational task force working to prevent North Korean oil-smuggling. The task force's work has angered China, even though it is operating under the authority of a UN Security Council resolution, because China fears that it is also snooping on them.

And Mr Luxon has continued some of the Labour government's earlier, tentative moves in this direction, including a look at joining AUKUS, the defence pact signed in 2021 between Australia, America and Britain. New Zealand wouldn't take part in efforts to develop nuclear-powered submarines for Australia, but it might join the pact's second "pillar", focused on advanced defence technologies.

Critics, like Ms Clark, say that none of this is in New Zealand's interests. Semi-alignment has served New Zealand well. "It takes longer to fly from Auckland to Beijing than from Beijing to London. We are a long way south and very remote," she says. But Chinese attempts to sign Pacific island countries up to security agreements over the past three years, and suspicions regarding China's expanded presence on Antarctica mean that even New Zealand cannot stay out of the way of geopolitics.

If Mr Luxon wants to be more than a bystander, however, he will face real constraints. New Zealand's defence force is smaller than that of any of America's allies or partners in Asia. Its army can muster no more than a brigade. Its air force gave up fighter jets decades ago. And its navy is down to eight ships, following an accident which saw a survey vessel sink off the coast of Samoa on October 6th.

The government plans to release a defence-capabilities plan later this month. Mr Luxon will not be drawn on the report's recommendations before its release. But its choices will reveal much about how far it is willing to go, according to David Capie at Victoria University of Wellington. If naval plans focus on small patrol boats, for example, it would suggest a force concerned with its neighbourhood and tied to New Zealand's "semi-aligned" foreign policy. If it opts to invest in higher-end capabilities like frigates, however, that would signal a New Zealand ready to do more with Australia and America to uphold the rules-based order.

One seemingly inexhaustible resource is Mr Luxon. Ten months into office, the new prime minister has already visited America, Japan, South Korea and half of the countries of South-East Asia. Each is at least a 12-hour flight from Wellington, the capital. When your correspondent interviewed Mr Luxon, he was in Laos. Asked about his travel schedule, Mr Luxon shrugs. Prior to politics, he spent seven years as CEO of Air New Zealand. ■

At the bottom of the world

Defence spending, 2023, $bn

Selected US allies and security partners

Source: SIPRI

Big dreams in a small place

Bhutan prays it can be India's Hong Kong

GELEPHU

The Himalayan kingdom seeks to reincarnate as a hub of AI and finance

King Jigme of Bhutan recalls that when he was studying in America, his classmates would scoff in disbelief when he told them there were tigers and elephants in his Himalayan homeland. Like many foreigners, they thought of it as a place of snow-clad peaks and alpine meadows. Even those who had visited were unlikely to have strayed to the subtropical lowlands that border north-east India.

Now, 25 years later, King Jigme is on a fresh mission to enlighten the world about this southern sliver of his realm. And this time, it is not just about the wildlife. In December he unveiled plans for a new city there that would ultimately cover 1,000 sq km, making it bigger than Singapore. Powered mostly by hydro-energy, it is designed to house a million people, including digital nomads, Buddhist pilgrims, crypto entrepreneurs and wealthy expatriates. Bhutan's current population is 780,000.

King Jigme is not the only world leader with the city-building bug. Think of Saudi Arabia's Neom development or Indonesia's future capital, Nusantara. But Bhutan's project, Gelephu Mindfulness City (GMC), stands out in three ways that could help it to avoid the Ozymandian fate of many such grandiose schemes.

First, consider the geopolitics. Bhutan is land-locked between India and China. The struggle for influence across South Asia between these two countries has intensified lately with political upheavals in the Maldives, Nepal, Bangladesh and Sri Lanka. Bhutan has long been in India's camp. But in the past decade, it has expanded trade, tourism and other links with China, while edging towards resolving a border dispute. In 2023 it appeared close to a land swap, and possibly establishing diplomatic ties, with China.

India objected. It has hundreds of troops in Bhutan and fears that encroachment by China there could help Chinese forces, in a war, to sever India's access to its north-east. India has since pledged $1.2bn of development support for Bhutan in the next five years, double that of the previous five. Bhutan now accounts for 36% of Indian foreign aid, more than any other nation. India has also backed GMC. It is building road and rail links and discussing developing a new international airport there. It will provide much of the labour. And rich Indians seeking refuge from congested cities are among the prime targets for GMC's promise of luxury homes and low taxes.

Indian firms could play an important role. On October 2nd the Reliance Group announced plans to invest $700m in two power projects, one in GMC and one nearby. Adani Group, another Indian giant, has also expressed interest. Because of India's proximity and friendly ties, the "threshold for allowing Indian contractors would be much lower," says Lotay Tshering, GMC's governor. He says there have been no talks with China about its involvement in the city, which will supposedly rely on private investment. But, he adds, there should be no "exclusion criteria".

The second feature of GMC is its possible draw for the artificial intelligence and crypto industries. Bhutan has 2.5GW of installed hydropower but potential for over 30GW. GMC's managers say they are talking with big data-centre investors who are scouting for sites with renewable energy sources. One obstacle could be American export controls on AI-related technology. Tshering Tobgay, the prime minister, is confident he can satisfy American regulators and convince India to allow its data to be stored in Bhutan too.

An additional lure for tech investors is progressive regulation. GMC will be a "special administrative region", allowing more autonomy than a typical "special economic zone". Laws will be based on Singapore's and financial regulation on Abu Dhabi's. Investors will be able to shape regulation too, especially in sectors such as AI, biotech and crypto. Fanciful as that might seem, Bhutan is already a bitcoin pioneer, with six operational mines. In September its bitcoin holdings were valued at $750m, the world's fourth-highest.

The secrecy of that venture worries some Bhutanese. Foreign officials also fret that Bhutan could attract money from illicit sources or nations facing Western sanctions. Bhutan says it will carefully screen all investors. But how exactly is unclear, given its limited resources and ill-defined diplomatic outlook (it has no official relations with the five permanent members of the UN Security Council).

The project's third unique trait is the existential crisis behind it. Bhutan has

achieved remarkable success since introducing Gross National Happiness as a development measure in the 1970s. In December it graduated from the UN list of "least developed countries". Its youth literacy rate is above 97%. Since 2015, however, more than 6% of its residents have emigrated, many of them to Australia. King Jigme hopes that GMC will tempt them back while teaching other Bhutanese to compete at home with foreign talent. And if the project succeeds, he plans to introduce similar policies across the country.

GMC's promoters talk a lot about "mindfulness", touting it as a place of spiritual retreats and harmony with nature. At its core, though, the idea is much harder-edged: it is designed to be a financial centre offering a gateway to India, much as Singapore and Hong Kong do for China. It is a long shot. But as King Jigme told recent visitors, it may be the only hope for his nation's future. ■

Imaginary outlines

Sino-Pakistani relations

Stormy weather

ISLAMABAD

Pakistan rolls out the red carpet for China's prime minister

THE SUICIDE BOMBER'S video message is chilling and direct. "China, your interests are not welcome here. Your investments will be burned, your investments will not be safe," he warns. On October 6th he struck, ramming an explosives-filled pickup truck into a convoy of Chinese workers outside the airport in Karachi. Two Chinese nationals were killed. The attack was claimed by the Baloch Liberation Army, a separatist group fighting the Pakistani state—and, increasingly, Chinese interests in Pakistan.

The timing is as clear as the bomber's message. On October 14th Li Qiang, China's prime minister, arrived in Islamabad, the federal capital, for a heads-of-government summit of the Shanghai Co-operation Organisation. Mr Li is the highest-ranking Chinese official to visit Pakistan since President Xi Jinping in 2015. That visit formally launched the $62bn China-Pakistan Economic Corridor (CPEC), a series of infrastructure and energy projects.

Mr Li visits in very different circumstances. Pakistan's government is desperate to impress—a 21-gun salute and a red-carpet welcome met him at the airport—and desperate to keep the peace. Islamabad went into lockdown. A three-day local holiday was declared. Army and paramilitary troops patrolled the streets of the capital. Because of the security risk, the movements of Chinese citizens within Pakistan were curbed during the summit.

China is in the crosshairs of Pakistani militants for two reasons. Baloch separatists have been waging a low-level insurgency against the Pakistani armed forces since 2004. They, like the Karachi bomber, believe Chinese investments "extract wealth". The conversion of Gwadar, a small fishing town, into a deep-water port under CPEC attracts particular separatist ire. On October 14th Mr Li inaugurated a $230m international airport in Gwadar "virtually" from Islamabad, some 1,400km away. The start of operations at the airport was delayed after militants killed 70 in attacks across Balochistan on August 26th.

Islamist militants, angered by China's treatment of Uyghurs, are the other threat. In March five Chinese engineers were killed in a suicide bombing near a hydropower project. Pakistan's government blamed the Tehreek-e-Taliban Pakistan, the Pakistani branch of the Taliban, and arrested 11 of its members.

The financial side of the relationship is also under strain. Chinese power plants have added 8GW to the electricity grid in Pakistan, but at a steep cost. Pakistan owes China some $1.9bn in unpaid dues and $16bn in loans that it is trying, unsuccessfully, to renegotiate. The logjam has stalled the next phase of CPEC.

However, in September Pakistan landed a new 37-month, $7bn deal with the IMF after China helped roll over $12bn in credit to Pakistan (Saudi Arabia and the UAE also chipped in). "China is absolutely clear about the strategic importance of Pakistan, to balance India," says Asfandyar Mir, an analyst at the United States Institute of Peace, a think-tank in Washington.

Mr Mir also senses a "shifting centre of gravity" to more military matters in the relationship. Evidence for that abounds, from co-operation on building submarines to tanks to fighter jets. Also in September, America announced new sanctions against Pakistani and Chinese entities involved in ballistic-missile technology, the sixth round of sanctions since November 2021.

"The Pak-China relationship is multifaceted, it will survive," says Mushahid Hussain, chairman of the Pakistan-China Institute, an Islamabad-based think-tank. But he notes that the Chinese are "hopping mad", and thinks they are pushing hard for new security measures, including deploying Chinese security inside Pakistan. That has been resisted in the past. It could just offer militants more targets. ■

BANYAN

Picking up pennies

Myanmar's military junta is distorting its foreign-exchange market

THE FOREIGN-EXCHANGE market is a devilishly difficult place to turn a profit. Massive and closely watched, edges are impossible to maintain. Most FX traders lose money. So Banyan was impressed to encounter one Myanmar-based punter who, with just a few years' experience, has managed to produce 22% returns trading the volatile, illiquid kyat, the local currency. Or, rather, he would be impressed—were this upstart trading against counterparties who had any say in the matter.

In the 12 months ending in June, the Tatmadaw, the army that overthrew Myanmar's elected government in 2021, earned Ks6.4trn ($1.8bn) from the FX market, according to a recent analysis by Jared Bissinger, a Burma-watcher. These proceeds, bigger than the military budget, were not the fruits of market nous. Instead, they were stolen from Myanmar's exporters through a system of rigged exchange rates.

The scheme works like this: Burmese exporters earn revenue abroad in foreign currency and must book profits in kyat. Exporters would prefer to swap to kyat at the prevailing market rate (about 4,400 kyat per US dollar), but since 2022 have been forced to do so at two rates set by the junta. A quarter of proceeds must be converted at the official rate, which, at 2,100 kyat per dollar, is divorced from reality. Second is the slightly less mad "online platform rate", around 3,500 kyat per dollar, at which the remaining three-quarters of export earnings must be converted. The junta-controlled central bank tightly manages trades happening through a London-based platform.

The result is that a third of exporters' earnings are syphoned off to the regime, calculates Mr Bissinger. Some go towards providing subsidised FX for favoured importers, such as those bringing in fertiliser and fuel. Increasingly, the funds are being used for the Tatmadaw's foundering war effort. FX is needed to buy military equipment, much of which Myanmar cannot make itself. Private companies help the military import arms through a shadowy trade network that runs from Thailand to Russia. Though this "death trade" has shrunk recently, it still amounts to $250m in the most recent fiscal year, the UN's special rapporteur estimated in June.

These economic tactics are brutal, just like the Tatmadaw's conduct on the battlefield. They suggest that the army is desperate. As a share of GDP, the budget deficit is on track to triple in three years. American sanctions have stranded at least $1bn in FX reserves; another $4.5bn appears to be in limbo in banks in Singapore. Myanmar's fossil-fuel reserves, once abundant, are drying up. New drilling projects have ceased, oil majors such as Total and Chevron have fled, and China and Thailand, the biggest buyers of Burmese gas, are diversifying away. Artillery shells frequently fall near pipelines. The junta-dominated jade trade (at one point worth $31bn annually, the equivalent of half of Myanmar's GDP) is under assault from China. In nominal terms, tax revenue looks stable, but inflation has undermined purchasing power. Prices rose by 27% in both 2022 and 2023.

Meanwhile, many Burmese are fleeing the country and trying to get their money out, too. This applies constant downward pressure on the currency. The Tatmadaw has tried to arrest its way to currency stability: in June it charged dozens of FX and gold traders for "engaging in speculation to hinder the country's economic development". Yet the kyat will not co-operate: in August, it fell as low as 7,500 per dollar, more than triple the official rate, and has remained volatile. To finance government spending at home the junta has resorted to money-printing. The National Unity Government, a government-in-exile made of opposition lawmakers, claims the junta has printed 30trn kyat ($6.8bn) since it seized power in 2021. This has stoked inflation. The price of staples has risen by 426% since the coup. Half the country is in poverty.

All this is short-sighted. The Tatmadaw is risking economic collapse. By rigging exchange rates and printing money, it has massively distorted price signals. This is destroying commercial activity. Foreign sales of garments and gas, Myanmar's biggest exports, have fallen sharply. The junta's FX-meddling is cannibalising its remaining legitimate sources of foreign exchange. And further battlefield losses to rebel groups in parts of the country will hardly make it a wiser economic manager. A saying about myopic traders applies: the Tatmadaw is, by all appearances, picking up pennies in front of a steamroller.

The Case for Non-Predictive Decision Making

In our view, market participants systematically **under**estimate the importance of vulnerabilities while correspondingly **over**estimating the importance of triggers. Why?

For one, triggers get more attention. The media tends to cover the collapse of the bridge, not the years of poor maintenance or decay that slowly reduces its structural integrity.

Second, human beings tend to have a natural bias to action. When facing penalty kicks, goalkeepers in soccer tend to guess where the shooter will kick the ball and dive accordingly, even though research has shown that they'd save more penalties by simply standing in the middle of the net.

Rather than anticipating triggers, a better approach in our view is **non-**predictive decision making: a focus on identifying vulnerabilities as opposed to forecasting specific outcomes. It is both more repeatable and more intellectually honest. In an uncertain world, there are any number of events that might influence the performance of a given investment; attempting to foretell all of them accurately isn't possible.

Non-predictive decision making encourages more flexible thinking, a longer-term orientation, and seeking fuller context, whereas a focus on triggers tends to narrow attention, frames of reference, and time horizons.

It's well-understood that being in constant fight-or-flight drastically reduces the potential for rational and sound decision making. In such a state, when faced with new information our lizard brains find it more difficult to distinguish between genuine signal and noise.

After all, trigger events themselves almost always serve as mere catalysts that expose existing vulnerabilities. The sharp rise in interest rates post COVID-19 had a profound impact on many businesses, but the underlying vulnerabilities were always there. Specifically, that the prolonged era of artificially low interest rates that **preceded** recent rate hikes caused certain companies to become overly reliant on steadily rising asset prices and easy access to cheap capital. These were not genuine nor sustainable business models and were destined to break at some point.

To be sure, there are scenarios in which any company can be zeroed; even the strongest of businesses have vulnerabilities that can be exposed by the right trigger. But a "boring" focus on steering away from areas where those vulnerabilities are sharpest as opposed to forecasting triggers—even if it means sacrificing possible short-term gains—should lead to better and more consistent outcomes over time, and especially with appropriate diversification.

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China

China and the Middle East

An interested party

Does China welcome—or dread—a war between Israel and Iran?

LAST MONTH, as tensions escalated between Iran and Israel, China helped organise a Chinese film festival in the Iranian capital, Tehran. It opened with a blockbuster: "The Battle at Lake Changjin". The drama portrays the heroism of Chinese soldiers who fought against American troops in the Korean war of 1950-53. "Strike one punch to avoid a hundred," Mao Zedong is shown exhorting his colleagues. Nationalist bloggers in China crowed about the film's showing. "Iran cannot sit idly by, even if the United States is behind Israel!" wrote a widely read scribe.

As Chinese officials ponder the violence in the Middle East since then, they may be less keen on escalation. Iran fired a barrage of missiles at Israel on October 1st. Israel has relentlessly attacked Iran's proxies in Gaza and Lebanon. All of that unsettles China, which is by far the most powerful of four countries—also including Iran, North Korea and Russia—that have acquired monikers in the West such as the "axis of upheaval" and the "quartet of chaos". The four share a contempt for the American-led global order and a readiness to disrupt it. Their security-related dealings with one another are often shadowy. But, notwithstanding its own muscle-flexing around Taiwan (see next story), there are limits to China's appetite for conflict.

China's relationship with Iran illustrates its dilemma. Leaders in Beijing have a lot of sympathy with Iran's worldview. Last year it was given full membership of the Shanghai Co-operation Organisation, a Eurasian security and economic club dominated by China and Russia. In January Iran was admitted to the BRICS, another group that China and Russia are trying to nurture as a bastion of West-sceptics.

China also benefits from Iran's abundant supply of oil. The volume of this trade is hard to quantify because of the elaborate schemes that China and Iran use to evade American sanctions (see Finance & economics section). But estimates put it at 10-15% of China's crude imports. That is most of Iran's exports of the fuel.

As the world's biggest buyer of foreign oil, China worries about the potential impact of a wider war in the Middle East on the flow and cost of the stuff. Iran sells its oil cheap. An Israeli strike on Iranian oil facilities could force China to depend more on other, pricier suppliers such as Saudi Arabia. But Saudi shipments could be disrupted in the Strait of Hormuz or the Red Sea by missile strikes from Iran or the Iranian-backed Houthis in Yemen.

This may not be disastrous for China. It is thought to have reserves that would cover three or four months of lost imports. And oil accounts for 18% of China's energy supply, compared with 34% in America. But a big war could also threaten China's commercial interests in the Middle East. It has poured billions of dollars into energy and infrastructure projects, especially in Gulf countries such as Saudi Arabia and the United Arab Emirates. Israel, too, is a recipient of Chinese investment (despite China's support for the Palestinian cause). ▸▸

→ ALSO IN THIS SECTION

China sees American power waning in the Middle East, and senses an opportunity. It has forged close ties with Iran, but also with Saudi Arabia and Iran's other rivals. China describes its big investments in the region as part of its Belt and Road Initiative (BRI), a global infrastructure-building scheme aimed at boosting trade and Chinese clout. The BRI's politics-blind approach helps to cast China as a non-meddling power. It is eager to foster that image in the global south, which it views as a counterweight to America.

But as the Middle East threatens to descend into ever wider conflict, with Iran—a prominent Chinese friend—at the centre of it, China's diplomatic impotence in the region risks being exposed. It has been trying to demonstrate otherwise. In March last year it brokered the final stages of a deal between Iran and Saudi Arabia to restore their long-severed diplomatic relations. In July the rival Palestinian factions, Fatah and Hamas, announced a vague agreement in Beijing to co-operate in forming a new government for Palestinians when the war in Gaza ends.

These moves have done nothing to stop the violence, however. Israel rejected the "Beijing Declaration"—it wants no role for Hamas in the Palestinian territories. Iran's dependence on China as a buyer of its oil would appear to give China leverage over the Islamic Republic. But China apparently sees greater dividends from America's embroilment in Middle Eastern conflict than from trying to keep Iran in check. An America distracted by wars in Ukraine and the Middle East, China may reckon, would have less appetite for confronting China over Taiwan or the South China Sea.

That does not mean that China is eager to fan the flames. The security ties between it and Iran are limited. A report published this month by the Carnegie Endowment for International Peace, a think-tank in Washington, notes "rumoured" Chinese provision of satellite technology for Iran's ballistic-missile programme. But an agreement signed in 2021 has produced little in the way of military co-operation, apart from some joint drills that Western intelligence analysts deem largely insignificant. And though the deal reportedly dangled the possibility of $400bn in Chinese investment over 25 years, China shows no eagerness to pour money into Iran.

To China, the two other members of the quartet are more vital concerns. Russia and North Korea both border China and act as buffers against encroachment by American power. But even with these countries, China does not offer carte blanche. It gives massive technological support to Russia's defence industries, while appearing to stop short of providing weapons for use against Ukraine (despite a partnership with Russia that they both describe as having "no limits"). China has made clear its opposition to Russia's threatened use of nuclear weapons in that conflict.

With regard to North Korea, China did not stop it from acquiring nukes, but it was clearly angered by the move. It may have also taken a dim view of the agreement, which looks a lot like a defence treaty, that North Korea and Russia signed in June. With Russia in the mix, China risks losing some of its influence over North Korea.

China sees all of its authoritarian friends as useful for discomforting America. But it also treats them with caution, showing a smaller appetite for risk than other members of the quartet. In the Middle East, it does not want to become enmeshed in a complex struggle. If things really kick off between Israel and Iran, leaders in Beijing are likely to stand back and watch, with fingers crossed that China's interests survive the crossfire. ■

China and Taiwan

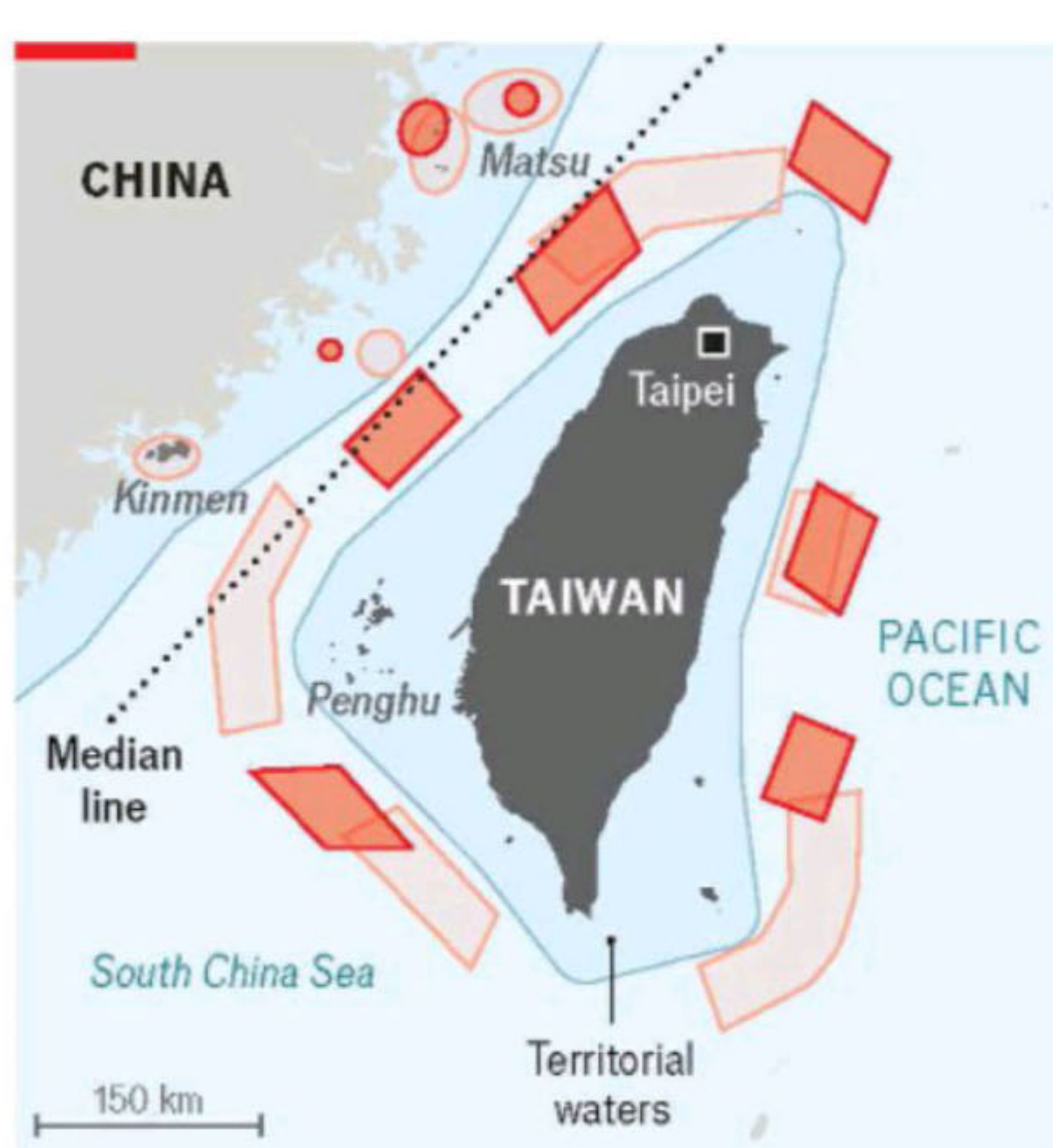
Love, war and drills

TAIPEI

A test of China's armed forces—and the government's messaging

CHINA'S WAR games around Taiwan on October 14th broke records for a single-day drill. The People's Liberation Army (PLA) employed 153 aircraft. Taiwan's defence ministry also spotted 26 ships, including a Chinese aircraft-carrier. As if that were not enough, China's coastguard carried out an unprecedented patrol around Taiwan's main island, calling it a "practical action to control Taiwan island in accordance with the law based on the one-China principle".

This was "punishment", said China, "for Lai Ching-te's continuous fabrication of 'Taiwan independence' nonsense". On October 10th Mr Lai, Taiwan's president, gave a speech to mark the local national day. Chinese state media claimed that he provoked the government in Beijing by "indulging in outright secessionist and blatantly provocative remarks". Xinhua, the official news service, noted that instead of referring to China as the "the mainland", which would suggest that China and Taiwan are one country, he referred to it as "China", as if they were separate.



Chinese live-fire exercise areas, 2024

Sources: People's Liberation Army; Xinhua News Agency

Mr Lai seems to enjoy throwing rhetorical barbs at China. In September he said that if the country really cared about territorial integrity, it should take back land annexed by Russia in the 19th century. On October 5th he said it was "impossible" for China to be Taiwan's motherland because the modern incarnation of Taiwan was 38 years older than Communist China. But Mr Lai's speech on October 10th was relatively restrained. He made no mention of independence, though he said Taiwan would "resist annexation" or "encroachment upon our sovereignty".

The speech, then, was probably not the main impetus for China's war games. Taiwanese officials say that China was preparing for the drill before Mr Lai spoke on October 10th. Called Joint Sword-2024B, the exercises were a follow-up to a two-day drill in May, called Joint Sword-2024A. The PLA said version B aimed to test the ability of its army, navy, air force and rocket force to work together. China did not fire any missiles over Taiwan, but it practised blockading Taiwanese ports and assaulting maritime and ground targets.

It is also practising its messaging. China is eager to shape the narrative around its military activity. Its claim to have been provoked by Mr Lai appeared aimed at giving the exercises an air of legitimacy. Were China to actually move against Taiwan, it would probably blame Taiwanese leaders for upsetting the status quo. China is also trying to paint its dealings with Taiwan as a domestic affair. The inclusion of China's coastguard in the drill seemed like an attempt to reinforce its claim that the waters around Taiwan are actually Chinese.

The coastguard, for its part, sent its own message. It produced an image, shared widely online, of its ships sailing around Taiwan in the shape of a heart, accompanied by the words: "Hi, my sweetheart...Patrolling around you in the shape of love." That prompted some in Taiwan to compare China to an abusive partner. It seems the coastguard's public-relations team still needs more practice. ■

Chaguan, our China column, has been suspended. Our goal is to reinstate it when we have a new columnist resident in Beijing.

Retail investment

Buy, buy, buy...sell!

BEIJING

Amateurs jump into frenzied stockmarkets

"I can't even do the maths any more! It's so incredible!" With those words, uttered on September 30th, a retail trader summed up the state of China's stockmarkets during a surge that lasted from mid-September to early October. Posting on social media, the man marvelled at the boom in share prices. Others told triumphant tales of enormous returns.

Already rising, Chinese stocks took off after the government announced on September 24th new measures to boost the economy and increase consumption. These included a policy-rate cut and lower reserve requirements for banks. The central bank also promised to create a 500bn-yuan ($70bn) swap programme to fund stock purchases by institutional investors and said it would help firms buy back their own shares by refinancing certain loans.

That led to record-setting trading volumes and big rises in China's main stockmarket indices. The CSI 300, an index of the country's biggest stocks, shot up by as much as 35% during the buying spree. Data from securities firms, reported in local media, suggest that young punters were eager to get in on the action. Many of those opening new brokerage accounts were born after 1990, according to the firms. State media reported that traders were taking out consumer loans to buy stocks, leading to stern warnings from officials.

One of those who opened a new account was a 26-year-old graduate student in Beijing. She had long considered entering the market, yet resisted, she told *The Economist*. The recent surge convinced her to jump in. At the end of September she put 15,000 yuan, most of her savings, into the account. "With the little money I have, there is absolutely no way I could consider buying property or investing in anything else," she said. "So I thought maybe I could make a little money this way."

For days she was glued to her phone, watching stock prices rise. The fun ended on October 9th, when the indices took a downward turn (see Finance & economics section). This came on the heels of an announcement that disappointed investors. While talking up the need for more stimulus, officials offered only vague hints about what was to come. A detail-free press conference by the Ministry of Finance on October 12th added to the sour mood. News that the government may raise 6trn yuan from special treasury bonds over three years has so far failed to lift spirits.

The frenzy highlights a stubborn feature of the country's stockmarkets, says Michael Pettis of the Carnegie Endowment for International Peace, a think-tank based in Washington. Most investors are responding to signals from regulators, looking at the same information and interpreting it in the same way. "This always leads to huge volatility as everyone rushes to buy or sell at the same time," he says.

The student from Beijing considers herself lucky: "I got out before I lost everything." She found the experience nerve-racking and is not planning to trade more in the future. Others have fared much worse. One investor griped on social media that he had lost 600,000 yuan in two days. "I was told there is a bull run," he wrote, "but where is the bull?" ■

Social media

Fib online and find out

BEIJING

The police are going after people who boast on the internet

LAST MONTH a 33-year-old woman in Xi'an, in central China, posted a video on social media that showed snowflakes falling on the ancient city. It was early in the year for such weather, so netizens shared the video widely. But it turned out to be fake. When China's police found out, they detained the woman, accusing her of being an "evil influence" on society.

That might seem a little heavy-handed, but China's police take online fibbing seriously. In July they detained a man in Hengyang, in southern China, after he boasted on social media that he had been the first person ever to ride the local Ferris wheel (he had not). In December they detained a woman in Liaocheng, in the east, after she shared a video showing her delivering junk food to her sick mother-in-law (it had been staged to generate outrage).

The police justify such actions by citing a sweeping law against "spreading rumours". It allows them to hold someone for up to ten days without going through China's court system. Between January and mid-September, they punished 31,000 people for the offence as part of a "special action to combat rumours". The goal, officials say, is to make sure cyberspace stays "clear and bright".

But another aim is to make sure cyberspace stays under the thumb of the Communist Party. While officials clean up genuine misinformation, they also label anything that contradicts the party line as such. China's leaders fear that loosening control of the internet could threaten social stability. Crackdowns are a good way to remind the public that there are real-life consequences to posting the wrong thing.

The case of the woman in Xi'an caused much debate. Few people on Weibo, a social-media platform, seemed to think her punishment was deserved. A bold commenter asked if people still remembered the case of Li Wenliang. He was a doctor in the city of Wuhan who, in late 2019, sounded the alarm about a coronavirus outbreak before China's government admitted there was a problem. Li, who eventually died of covid-19, was quickly detained by the police—for spreading rumours.

Middle East & Africa

Bad ideas in the Middle East

Once more, with feeling

DUBAI

From a proxy force in south Lebanon to regime change, what's old is new again

IN THE LATE 1990s Israel started work on a memorial to honour the South Lebanon Army (SLA), its proxy force during its occupation of Lebanon. It was inaugurated in May 2000, two days before Israeli troops withdrew from the country. The SLA collapsed almost immediately; its fighters fled to Israel or surrendered. The monument was blown up by Hizbullah.

History has a way of repeating in the Middle East. A quarter-century later, Israeli troops are once again fighting in the same part of Lebanon. Hizbullah has spent the past year firing rockets at northern Israel, and it has built up a formidable network of tunnels and bunkers along the border. The war is meant to push it back, as the Lebanese army and UN peacekeepers have been unable to do for decades.

Yet, as they discuss how to keep the militia out of south Lebanon, policymakers in Israel and the West have revived some old (and often failed) ideas about how outsiders might try to change the region.

Yair Lapid, the Israeli opposition leader, thinks the way to secure the border between Israel and Lebanon is by reviving the SLA. In a By Invitation essay written for *The Economist*, Mr Lapid called on America, France and the United Arab Emirates to train and fund a new force that would serve as a "buffer" between Israel and Hizbullah.

With foreign funding, Mr Lapid suggested, the new SLA could pay fighters $500 a month, five times more than the regular Lebanese army can pay. That, plus a "patriotic call" to "seize the opportunity for a better future", would ensure a flood of new recruits.

History suggests otherwise. The SLA, which broke away from the Lebanese army during the civil war in the 1970s, paid high wages yet often struggled to find fighters. It forcibly conscripted thousands of young men, and sometimes used child soldiers. It was a brutal militia, notorious for torturing thousands of people at a detention centre in Khiam, but not a terribly effective one: it could not fend off Hizbullah without constant Israeli support.

A revived SLA would fare little better. Few Lebanese would be willing to join a force that would be seen as an Israeli proxy. The regular army, for all its faults, is seen as one of the few bodies that transcends Lebanon's endemic sectarianism. A new SLA would be mired in it, alarming Hizbullah's Shia constituency, which would probably see the force as a threat. That would be true even if, as Mr Lapid suggests, the new militia was placed under the authority of the Lebanese government.

All this is in any case impossible right now: Lebanon has no president to oversee it. The post has been vacant since Michel Aoun ended his term in October 2022. The consensus choice for his successor is General Joseph Aoun, the army chief (the two are unrelated). But Hizbullah is keen to hand the job to Suleiman Frangieh, the head of a small political party, whose main qualification is his fondness for the Assad regime in Syria. Parliament, which selects the president, is deadlocked. After a dozen failed votes, it gave up trying; the last ballot was in June 2023. ▸▸

→ ALSO IN THIS SECTION

Amos Hochstein, America's special envoy to Lebanon, says his top priority is filling the vacancy. Some lawmakers in Washington are now pushing for sanctions on Nabih Berri, the speaker of parliament, if he fails to call for another ballot and break the impasse. "We hope that Hizbullah is degraded enough that they are less of a force in Lebanese politics," says Matthew Miller, a State Department spokesman.

For Lebanese, this is another echo of the 1980s. Back then Bachir Gemayel, the head of Lebanon's largest Christian militia, cemented his power through an alliance with America and Israel. He was elected president of Lebanon in August 1982 with the help of Philip Habib, who was Ronald Reagan's envoy to the region. Less than a month later Gemayel was dead, assassinated by a member of a party aligned with Syria.

In Lebanon, it does not serve anyone's interests to be seen as the American-Israeli candidate. The more the two allies push for General Aoun, the less likely he is to become an effective president.

Joe Biden is old enough to remember all this. In 1982 he was already a second-term senator. He might also remember that Mr Reagan, despite his sympathy for Israel, withheld delivery of F-16 fighter jets in protest over how Israel waged war in Lebanon. A decade later George Bush senior temporarily blocked $10bn in loan guarantees over the construction of illegal settlements in the occupied West Bank.

Aside from holding up one shipment of 2,000-pound bombs, Mr Biden has so far avoided such confrontations with Israel. On October 14th, though, his administration told Israel to increase the flow of aid to northern Gaza within 30 days or risk losing American military aid (see next article). That would be an effective idea to resurrect from the 1980s: America has leverage over Israel, if it chooses to use it.

Critics doubt the president will follow through, however: he has spent a year making demands of Israel only to see them ignored. After warning Israel for months against a big escalation in Lebanon, his advisers now support it; they seem to agree with Israeli officials that the invasion offers a chance to transform the region.

Indeed, talk to Middle East hands in Washington over the past month, and they often sound euphoric. Jared Kushner, Donald Trump's son-in-law and former adviser, captured the excitement with a tortured metaphor. "The Middle East is too often a solid where little changes," he mused on X last month. "Today, it is a liquid and the ability to reshape is unlimited."

It is not just Lebanon they hope to reshape. Perhaps regime change is back on the menu: there are discussions about whether Israel should try to topple the Assad regime, or if air strikes in Iran could collapse the Islamic republic. "It's like 2003 all over again," grumbles one American diplomat in the region, referring to the heady mood around the invasion of Iraq (which ended badly for its architects).

This is a moment of change for the Middle East. But there are no easy solutions for problems that have evolved over decades. Even if General Aoun becomes president, he cannot push Hizbullah out of political life: Lebanon's sectarian system ensures it will have a role.

As for the Lebanese army, it is weak because everyone wanted it to be. Its Western partners would not give it sophisticated weapons, while Hizbullah and its allies refused to let it exercise sovereignty. A new, parallel force will not change this. It will simply give Hizbullah a new target—and, perhaps, give Israeli architects reason to build a new memorial. ■

The war in Gaza

Hell and horror, again

JERUSALEM

Fighting is flaring up in northern Gaza even as food supplies shrink once more

HARROWING FOOTAGE of limbs attached to intravenous drips inside burning hospital tents in Deir al-Balah in Gaza on October 14th was a reminder that the war there—one of several fronts Israel has been fighting on since Hamas massacred 1,200 people a year ago—is far from over. Although the world's focus is on Lebanon and a possible Israeli retaliation against Iran, the horror in Gaza continues.

The air strike on Deir al-Balah killed at least four people and wounded dozens. More than 42,000 people have been killed in the strip since October 7th 2023, according to Gaza's health authorities. The Israel Defence Forces (IDF) claimed they had conducted a "precise strike" on a "terrorist" headquarters adjacent to a hospital. On October 6th Jabalia, a refugee camp, was surrounded by an armoured division. The IDF says that it is attacking some 4,000 Hamas fighters who have been regrouping in northern Gaza. In response, the IDF has told civilians in the north to evacuate. It has halted convoys carrying food, leaving the area without vegetables, fruit, yogurt or even rice. "For a fortnight we've only eaten beans and bread," says a former civil servant.

Israel's own figures suggest the overall flow of aid to Gaza, measured by weight, has dropped by around 80% during October so far compared with the rate in September. That has angered America. On October 14th Antony Blinken, the secretary of state, and Lloyd Austin, the defence secretary, threatened to cut military aid to Israel if it does not increase the flow of supplies. It was the most overt warning in this war from Israel's main ally and it led the IDF to allow the first humanitarian convoys into northern Gaza in two weeks.

Some speculate that the IDF will implement what the Israeli media is calling "the generals' plan" to eliminate Hamas fighters and press their leader, Yahya Sinwar, to release the 101 Israeli hostages still being held. The plan—proposed by a group of retired generals—entails cutting off food supplies to northern Gaza where roughly 400,000 civilians are present (down from a pre-war population of about 1.1m), and demanding that they move elsewhere in Gaza

No end to the suffering

where supplies would continue. Anyone who remains would be treated as a combatant. For now, despite going hungry, people are not leaving. Resistance, for most, is staying put. Leaving "is going from one hell to another", says one resident. "We'd rather die in our homes."

The IDF denies it is implementing any such plan, which would probably amount to starving out the population and be in breach of international law. It insists its operation is aimed at preventing Hamas from regrouping. Israel's defence minister, Yoav Gallant, and the IDF chief of staff, Lieutenant General Herzi Halevi, have tried to assure their American counterparts of that. But further down the chain of command, the Israeli denial is less emphatic. "The operation in Jabalia is very clearly aimed at getting the civilians to leave north Gaza," says one officer involved in the fighting. "But it hasn't worked because the Palestinians just refused to leave." Another officer says, "some of the senior commanders in Gaza have been trying to achieve this outcome, but they don't even have sufficient forces to carry out such a major operation".

Four divisions, the bulk of the IDF's ground forces, are involved in a campaign in southern Lebanon against Hizbullah, which has been shelling Israel's northern communities for over a year. Meanwhile, Israel's military planners are focused on its response to the salvo of 181 ballistic missiles fired from Iran on October 1st. This is expected to take place within days, most likely in the shape of long-range air strikes. The arrival in Israel on October 15th of an American THAAD (Terminal High Altitude Area Defence) anti-missile battery and its crew suggests that Israel has struck an agreement with America and will probably hit military targets in Iran but refrain from hitting oil facilities and nuclear sites. One Israeli official admits that with the top brass preoccupied by Lebanon and Iran, the commanders in Gaza may have taken their own initiative.

Israel's incoherent strategy in Gaza reflects the divisions within its government. Binyamin Netanyahu, the prime minister, has yet to present a comprehensive "day after" plan for Gaza. His main opponent in cabinet, Mr Gallant, is in favour of gradually handing over control to a new administration of local Palestinian leaders who are not aligned with Hamas. But Mr Netanyahu has refused to authorise such a plan. Meanwhile, the far-right parties in his coalition, who say they want to build settlements in Gaza, are demanding that the IDF take over full responsibility for supplies.

"If we take responsibility for the distribution of food in Gaza, it means we have to establish a full administration there," says a general opposed to the far-right's plans. Mr Netanyahu, whose parliamentary majority needs the far-right parties, has not taken a clear position on the aid issue. He is in no rush to end the war in Gaza, since it would be followed by a national reckoning over his government's failure to prevent the Hamas attack on October 7th.

Sources: Institute for the Study of War; AEI's Critical Threats Project; OpenStreetMap

A year into the war there still isn't any clear strategy on Gaza, says an exasperated Israeli security official. "The government is focused on the war with Hizbullah and Iran, but Gaza is where it all started and they're ignoring it now at Israel's peril." ■

Lebanon's army

Not so useless

BEIRUT

For all its faults, Lebanon's army holds the country together

IN A COUNTRY that has just been invaded by Israel, you might expect soldiers to be manning watchtowers. In Lebanon, they are just as likely to be spotted driving taxis. With money tight and morale low, General Joseph Aoun, the army chief, is letting his roughly 80,000 soldiers bunk off from duty several days a week to supplement their meagre wages, which have fallen to as little as $100 a month since the country's economic meltdown in 2019. This pragmatic policy has stopped soldiers from defecting completely, so they show up to work at least on the days they are not officially moonlighting. That has kept Lebanon's army functioning even as just about everything else resembling a state has crumbled around it.

Lebanon's army gets a bad rap, especially for its failure to expel Hizbullah, the Iran-backed Shia militia, from southern Lebanon. Yet the leadership of the Lebanese Armed Forces (LAF) has kept it somewhat above the fray of Lebanon's corrupt political system, allowing it to keep sectarian violence at bay in the crumbling country. As the conflict between Israel and Hizbullah intensifies, that role is growing ever more vital.

The LAF has been criticised for failing to enforce UN Security Council Resolution 1701, which formally ended the war between Israel and Hizbullah in 2006. Aided by UN peacekeepers, it was supposed to force Hizbullah's fighters to abandon their positions near the Israeli border in south Lebanon and stay behind the Litani river, some 30km from the border. Yet the resolution was never fully implemented. The area remained under Hizbullah's control until Israel's recent invasion, which confirmed Hizbullah maintained sophisticated military infrastructure mere metres from the border fence.

It was hardly realistic to expect the LAF to enforce the resolution. Back when it was given the task, it was battered from decades of Syrian occupation. As its capabilities improved in recent years, the powerful sectarian interest groups controlling Lebanon's political system have prevented a consensus that would have allowed it to carry it out. "What five thousand LAF soldiers in the south do not want to do, fifteen thousand LAF soldiers will not do," says Saleh Machnouk, a political analyst.

The LAF has largely stayed out of the latest war between Hizbullah and Israel, which has intensified following the decapitation of the Hizbullah leadership and Israel's invasion of southern Lebanon. It has withdrawn its forces from bases along the border, and only patrols in certain areas with UN escorts. It has also made it clear that it does not want to be a party to what its leadership sees as Hizbullah's war, even though a handful of LAF soldiers have been killed in exchanges of fire with Israeli troops in southern Lebanon.

Instead, the army has limited itself to tasks it can achieve. General Aoun, a Maronite Christian, is considered incorruptible and resistant to sectarian tendencies. Some of that reputation extends to his force. His soldiers man checkpoints across the capital and mediate in arguments between Syrian refugees and Christian landlords. Often operating like a police force, they are keeping a close eye on hundreds of thousands of displaced Shias now living in non-Shia areas. Occasionally, they fight armed sectarian groups.

Those activities have kept sectarian violence at bay as the rhetoric in the country has hardened. As the war between Israel and Hizbullah continues, that role in keeping the domestic peace will become ever more vital to Lebanon's stability. The army will only ever be as powerful as the country's politicians allow it to be. Yet, by the standards of the Lebanese state, it is a more respectable institution than most. ■

Wagner in Africa

After Prigozhin

BANGUI

The death of its leader has barely diminished the mercenary group's status

TRUE FRIENDS, says Hassan Bouba, swigging from a mug with Vladimir Putin's face on it, "are those who are by your side in the most difficult moments. And Russia was with us in the most difficult of moments." Mr Bouba is the minister of livestock in the Central African Republic (CAR), one of the world's poorest and most fragile countries. He is referring to the help the Wagner Group, a Russian mercenary outfit, gave his government in dispatching an armed rebellion nearly four years ago. But Mr Bouba could equally have more personal memories in mind. In 2021 the minister was arrested by a UN-backed special court and charged with war crimes he allegedly committed when he was a rebel fighting a previous government. Yet after only a week in prison he was freed. Many suspected that Mr Bouba, known for his close personal ties to Wagner, had his Russian friends to thank.

In recent years Russia has combined official diplomacy with a mix of gangsterism and colonial enterprise to advance its interests in Africa. Wagner's operations in CAR served as a blueprint for the second portion of that enterprise, which has been most fruitful in fragile places. The way the group has evolved in recent months illustrates how that approach has changed since the summer of 2023, when Yevgeny Prigozhin, Wagner's oligarch founder, was killed weeks after he staged an abortive mutiny against Mr Putin. Though the group's activities have been brought under closer control of the Russian state, it retains its presence on the continent. Yet without big changes to its modus operandi, it is unlikely to expand further.

Wagner first arrived in CAR in 2018. Quietly backed by the Russian state (which publicly denied any involvement with the group), Prigozhin's mercenaries offered protection to the government of Faustin-Archange Touadéra, CAR's president. In January 2021 they helped defeat a coalition of rebels contesting Mr Touadéra's re-election. "They saved our democracy," claims Fidèle Gouandjika, an adviser to the president. In return, Wagner was given access to the country's most lucrative gold and diamond mines. Russia replaced France, the former colonial power, as CAR's most influential foreign ally.

The approach was repeated across the continent. By 2023 Wagner was present in about a dozen other African countries, in particular Mali, Libya and Sudan. Reports of horrific human-rights abuses allegedly committed by Wagner fighters across Africa did little to dent the group's influence.

The events of last summer briefly threw the Wagner model—and, by extension, Russia's entire Africa strategy—into doubt. After Prigozhin's rebellion, Mr Putin sought more control over an operation that had previously thrived on plausible deniability. The Russian state moved in, breaking up the mutineer's portfolio of security, business and media interests. Several hundred Wagner personnel, including some leaders, were withdrawn from CAR. By the end of 2023, Wagner's Africa branch had been formally replaced by the Africa Corps, a new umbrella organisation for multiple quasi-state expeditionary forces under Russia's ministry of defence.

Yet the practical consequences of the restructuring have been limited. In some ways, they appear to have elevated the group's status more than damaged it. That is particularly evident in CAR, where Wagner continues to operate under its own brand name. Western efforts to dislodge the 1,500-2,000 Wagner troops spread around the countryside have gone nowhere. The government rebuffed an offer of alternative security assistance from an American private-security firm. Western diplomats complain that Wagner leaders still enjoy unrestricted access to Mr Touadéra, despite a recent rapprochement between CAR and France. In Bangui, the capital, hotels and shopping malls remain full of burly Russian men, their faces covered with balaclavas. A monument dedicated to Wagner troops killed in service in the country has been erected in the city centre.

If anything, Wagner has continued to expand its activities in CAR. Its mercenaries are reportedly developing a base intended to host 10,000 troops by 2030 and serve as a hub for Russian military operations in Africa. In contrast with their previous role as shadowy forces kept at arm's length by the Russian state, Wagner fighters have also taken on new quasi-diplomatic roles. They are said to have been involved in negotiations to reopen the road to neighbouring Chad, and to have helped set up a joint force to patrol the shared border. "It's like a second life for this force," says Jedrzej Czerep of the Polish Institute of International Affairs.

Beyond CAR, the group's record is patchier. In Mali and Libya former Wagner men have been reinforced by fighters from ▸▸

other paramilitary units under the Africa Corps, some of whom have recent battle experience in Ukraine. Small contingents of Russian mercenaries, possibly supported by detachments from the official Russian army, have been dispatched to Burkina Faso and Niger, Mali's neighbours in the chronically unstable Sahel region.

Yet Wagner and its successors have found waging counter-insurgencies in the Sahel much more difficult than in CAR. Last November they achieved an important symbolic victory in helping the Malian army capture the rebel stronghold of Kidal.

More recently they have faced setbacks, including a major defeat near the Algerian border in July in which scores of Wagner fighters died. Efforts to acquire stakes in Mali's mineral sector, meanwhile, have also made less progress than the group might have liked. According to the *Sentry*, an independent investigative outfit, none of the country's industrial or artisanal gold mines are yet in Russian hands.

That may be one reason for the Russian state to try different approaches to pursuing its economic interests. While Prigozhin was able to risk his own fortune in CAR on business ventures ranging from diamond mining to beer brewing, these days Wagner and its successors are more constrained by the Kremlin.

Since the oligarch's death, Russia has overall become "less transactional and more strategic" in its investments in the region, argues Samuel Ramani, author of "Russia in Africa". In September Russia's space agency signed a deal with Mali, Burkina Faso and Niger to deploy telecommunications and remote-sensing satellites over their territories. Last year Russia's state nuclear company signed a preliminary agreement to construct a power plant in Burkina Faso. It is reportedly also building a large solar plant in Mali and seeking the rights to a giant uranium mine in Niger.

This points to a bigger strategic dilemma. From the early days of Prigozhin's entry into CAR, the Wagner model offered the Kremlin a cheap, high-impact means to propel Russian influence in Africa. But CAR was, in some ways, exceptional. Mali's junta has proven more reluctant than Mr Touadéra to allow Russian mercenaries to seize mining assets. Burkina Faso's junta avoided welcoming Russian troops until Wagner had been replaced by Africa Corps. Other African governments share similar concerns. With Russia's official army tied up in Ukraine, there are limits to how much the Kremlin can assuage them.

Further expansion in Africa would probably require even more top-down involvement from the Russian state. That, in the long run, might further undermine the very arm's-length arrangement which seemed to deliver so many benefits to the Kremlin in the first place. ■

Electric mobility in Africa

Two wheels green

NAIROBI

The continent's motorcycles are going electric

WITH HIS electric motorcycle resting on the curbside, Stephen Omusugu explains the economics. The two-wheel-taxi man from Nairobi, Kenya's capital, went electric a month ago, after watching several of his colleagues do the same. He took out a loan for the new e-bike, which will take him two years to repay in daily instalments. Added to that is the cost of charging the bike's electric battery or swapping it for a full one each day. All told, Mr Omusugu reckons, he can make 2,500 Kenyan shillings ($19.35) every day, two and a half times as much as when he rode a petrol-powered bike.

Mr Omusugu and his home city are part of an electric vanguard. Nairobi these days buzzes with thousands of e-bikes and boasts dozens of electric-vehicle (EV) startups. Last year, Uber launched its first e-bike fleet in Africa on Nairobi's streets. In the first six months of this year the number of registered EVs in Kenya tripled. Similar trends are apparent in other countries. That has raised hopes that electric motorbikes, and perhaps one day cars, could spread rapidly across the rest of the continent. Besides lowering climate-warming emissions and improving the air in Africa's choked cities, they could also save their owners some money.

Over the past year the number of electric motorcycle taxis in Kampala, Uganda's capital, tripled to around 3,000. Ampersand, a leading EV startup, has sold about the same number in Kigali, Rwanda's capital. Spiro, the continent's largest EV manufacturer, says it has 20,000 e-bikes on the road across Africa. Most dramatically, Ethiopia now has more than 100,000 EVs, according to official figures, after it became the first country in the world to ban the import of all petrol- and diesel-powered vehicles.


The petrol pump of the future

Ethiopia, though, is an exception. With private cars unaffordable for most Africans, motorbikes and buses are the main form of transport for deliveries and taxi rides, with riders typically travelling up to 100km every day for work. That means widespread electrification of public buses, and above all two-wheelers, could have enormous benefits.

Chief among them are cost savings. The continent is projected to spend $23.5bn on fuel to power some 27m motorbikes in 2024, according to calculations by Ampersand. Much of that could be saved if they all went electric.

As Mr Omusugu concluded, the lifetime cost of an e-bike is lower than that of a petrol-powered equivalent, despite higher upfront costs. Charging and maintenance are cheap and owners do not have to buy fuel. Battery swapping, in which drivers can exchange the removable units for fully charged ones at swap stations, can reduce costs further. "The sweet spot for e-mobility is someone who uses the vehicle very intensively," explains Josh Whale, Ampersand's CEO.

For now, the numbers are still tiny compared with other regions. In India, a poor country with a population that is around the same size as Africa's, 1.5m EVs, mostly two-wheelers, were sold in 2023 alone. McKinsey, a consultancy, expects the market for electric motorbikes to grow faster in Africa than in any other region until the end of the decade, but largely because it is starting from the lowest base.

Plenty of factors could stall the transition to electric mobility. Pessimists note that few companies are likely to expand much beyond Africa's biggest cities. Most EV startups have yet to demonstrate they can make money, holding investors back; battery infrastructure, in particular, is capital-intensive and tricky to make profitable. In many countries on the continent, EVs will struggle to compete so long as governments subsidise fuel and electricity is erratic.

Yet even if the transition remains confined to big cities, that could make a big difference to their pollution-choked inhabitants, particularly as more Africans move to urban areas over the coming decades. Often it is argued that the world's green-energy transition imposes unaffordable costs on poor African countries. Electrifying transport is not one of them. ■

SPECIAL REPORT

The American economy

The envy of the world

The envy of the world

The American economy has left other rich countries in the dust. Expect that to continue, argue Simon Rabinovitch and Henry Curr

"ON PRESENT policies and performance, the United States is condemned to slower growth than the other main industrial countries for the foreseeable future." So declared the Competitiveness Policy Council, a committee advising America's president and Congress, in 1992, a time when America was gripped by concerns that its economy was declining and losing ground to Japan and Europe. The opposite turned out to be true. Japan entered a long period of stagnation, Europe's growth fizzled and America experienced a mini-boom, fuelled by the rise of the internet.

More than three decades later, some are again painting pictures of an American economy heading towards decline. China is now the rising juggernaut in the East. Donald Trump, instead of Bill Clinton, is the candidate for president lamenting the state of the economy (Mr Trump says it is "failing", where Mr Clinton called it an "unpleasant economy stuck somewhere between Germany and Sri Lanka".) Ordinary Americans are anxious. Gallup, a polling firm, regularly asks Americans if they are satisfied with how things are going. From 1980 until the early 2000s, a little more than 40%, on average, said they were. Over the past two decades that has dropped to 25%.

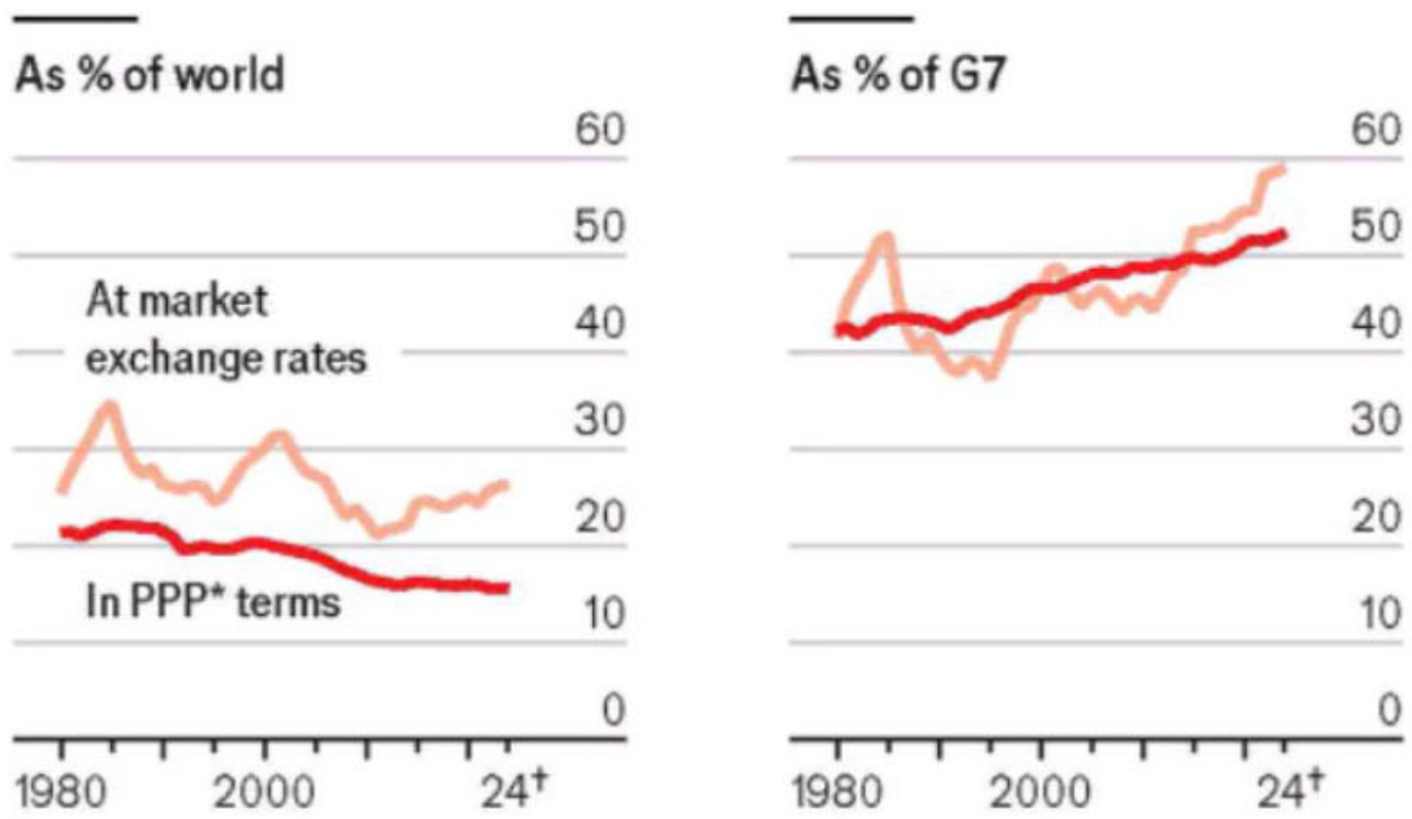
Are the prophets of decline onto something this time? Since the rollicking 1990s the American economy has suffered occasional upheavals, including the dot-com bust, the global financial crisis, a spike in unemployment during the covid-19 pandemic and, most recently, a surge in inflation. In purchasing-power-parity (PPP) terms America's share of the global economy has indeed shrunk, from 21% in 1990 to 16% now.

But one thing has been consistent since the early 1990s: America has grown faster than other big rich countries, and it has rebounded more strongly from bumps along the way. The faulty diagnosis of the competitiveness council back in 1992 should stand as a corrective for those now peddling gloom. America's growth since then has been best-in-class, and its strengths today give grounds for optimism about the country's economic power and potential. That America's share of global GDP in PPP terms has decreased is less a comment on its own trajectory than on the growth spurts of the two most populous countries, China and India. China's output per person remains less than a third of America's; India's is smaller still.

Even more striking is how America has outperformed its peers among the mature economies. In 1990 America accounted for about two-fifths of the overall GDP of the G7 group of advanced countries; today it is up to about half (see chart on next page). On a per- ▸▸

The wealthiest of nations

US GDP



Source: IMF *Purchasing-power parity †Forecast

person basis, American economic output is now about 40% higher than in western Europe and Canada, and 60% higher than in Japan—roughly twice as large as the gaps between them in 1990. Average wages in America's poorest state, Mississippi, are higher than the averages in Britain, Canada and Germany.

And America's outperformance has accelerated recently. Since the start of 2020, just before the covid-19 pandemic, America's real growth has been 10%, three times the average for the rest of the G7 countries. Among the G20 group, which includes large emerging markets, America is the only one whose output and employment are above pre-pandemic expectations, according to the International Monetary Fund.

Coupling this growth with the dollar's strength translates into heft for America and wealth for Americans. That can be seen in the huge numbers of Americans travelling and spending record sums overseas. A decade ago (as Chinese travellers too were demonstrating their wealth) many analysts thought that China would, by now, have overtaken America as the world's biggest economy at current exchange rates. Instead its GDP has been slipping of late, from about 75% of America's in 2021 to 65% now.

America's outperformance has accelerated recently

Endowed with gifts

This special report will explain why American growth has been so strong for so long, and why it can be expected to continue. Some of the reasons are down to the good fortune bestowed by geography. As a quasi-continental economy with a giant consumer market, American companies benefit from scale: a good idea hatched in California or product built in Michigan can, in short order, spread to 49 other states. America also has a big, well-integrated labour market, allowing people to move to better-paying jobs and drawing workers to more productive sectors. A long, porous southern border may be politically contentious but it has been an economic tailwind, allowing the labour force to steadily grow and helping to fill the hard, dirty jobs that many native-born Americans have no interest in doing. And as important as the size of the country is what lies beneath it. Over the past two decades the improvements in techniques for extracting hydrocarbons from once-unpliant shale rocks have turned America into the world's biggest producer of oil and gas.

The American economy also has particular strong points which have bred more strength. Possessing the world's deepest financial markets has made it easier for startups to raise equity, a better way to get off the ground than borrowing cash. The plethora of exciting young companies in America has, in turn, boosted the attractiveness of its markets. Similarly, having the world's dominant currency has made global commerce more frictionless for American business. And America has the world's best universities, which remain so in part by attracting the world's best students.

The visible hand

Other policy choices have helped. America has a more relaxed approach to business regulation than many other countries. That has given high-tech companies room to play and grow. It also enabled the experimentation which led to the shale revolution. But America's success is not just a story of small government. Officials have made bold, resolute interventions during crises (including ones that, in fairness, were abetted or exacerbated by lax regulation to begin with). After a shaky start, America delivered a strong response to the global financial crisis of 2007-09, acting decisively to clean up bank balance-sheets, and making aggressive use of monetary policy to support growth. The government's response to the covid slowdown was yet more extraordinary, with a suite of fiscal stimulus packages that left other countries in the dust. Indeed, officials overdid it in their pursuit of a recovery, contributing to the global rise in inflation. But it is impossible to explain America's mighty economic engine without acknowledging the government's willingness to step on the accelerator pedal when it has sputtered.

For all of America's prowess, it has plenty of maladies. A fundamental test of any country's governance is whether its people live good, long lives. On this count America is wanting. In 2023 the life expectancy for a newborn American was 79, three years shorter than the average in western Europe, according to UN projections. That startling gap was virtually nonexistent in 1980. This is largely a reflection of fewer Americans reaching their dotage owing to obesity and to particularly acute American problems like opioids, guns and unsafe roads. But older Americans fare badly in relative terms, too. In 2023 in America the average 60-year-old was projected to live another 24 years, nearly one year shorter than in Europe. In 1980 the reverse was true; older Americans were projected to outlive their European peers by almost a year.

Many critics of America's economic model contend that it is intrinsically flawed, beset by extreme inequality and ever-more dominant companies crushing competitors. But these are exaggerations. There may be scope for a fairer distribution of the country's wealth without undermining America's growth, but the widely held belief that the top 1% are taking it all is overdone. As for tech behemoths such as Apple and Amazon, their potential for dominance must be watched and, if necessary, curtailed, but it is also true that they have generated incredible value in daily life and shaken up stodgy industries. And they face fierce competition to stay on top. They stand as evidence more of America's economic success than of its problems.

In the history of modern economics America's three-decade outperformance is remarkable. Can it continue? Throughout this report we will consider reasons for pessimism, from poisonous politics to fiscal frailties. Set against these is a relentless dynamism, the essential characteristic of the American economy and the ultimate force propelling it forward. ■

Output

Getting more from more

American productivity may have slowed but it still leads the world

CLAD IN A white bunny suit that leaves only his eyes exposed, S.V. Sreenivasan carefully picks up the slender object that lies at the heart of the global economy, a silicon wafer. But this particular wafer is a little different from most of those from which semiconductors are made: it is fused to a glass plate. Mr Sreenivasan's team at the Texas Institute for Electronics, a public-private consortium, is working on a $1.4bn research project to make chips which use materials in addition to silicon and which stack components vertically. If successful, it could change the basic architecture of semiconductors. "People keep asking if innovation in the industry will slow down," Mr Sreenivasan says. "If anything, it's accelerating."

What makes the work interesting is not just its ambition but also the provenance of its funding. The biggest single infusion of capital— $840m—comes from the Defence Advanced Research Project Agency (DARPA), a government body that has achieved something akin to legendary status for its roles in inventing the internet, popularising the global positioning system and developing the mRNA vaccines that let the world move past the covid-19 pandemic. "At any moment in time, we're really just laying a whole bunch of bets," says Stefanie Tompkins, the director of DARPA.

In the world of economics DARPA is legendary for another reason. It is seen as part of the explanation for why America is not just good at innovation but also why it is a lot more productive than many other countries. In September Mario Draghi, former president of the European Central Bank (and former prime minister of Italy), argued as much in a report for the European Commission about the continent's slow growth. Pointing to America's stronger productivity, he noted that one important axis ran from DARPA's willingness to back risky ideas with public capital to America's propensity for technological breakthroughs.

In truth it is impossible to ascribe productivity to any single factor, much less a single public agency. DARPA is one element in a heady, complex mix. But there is no question that productivity has enabled much of America's economic outperformance.

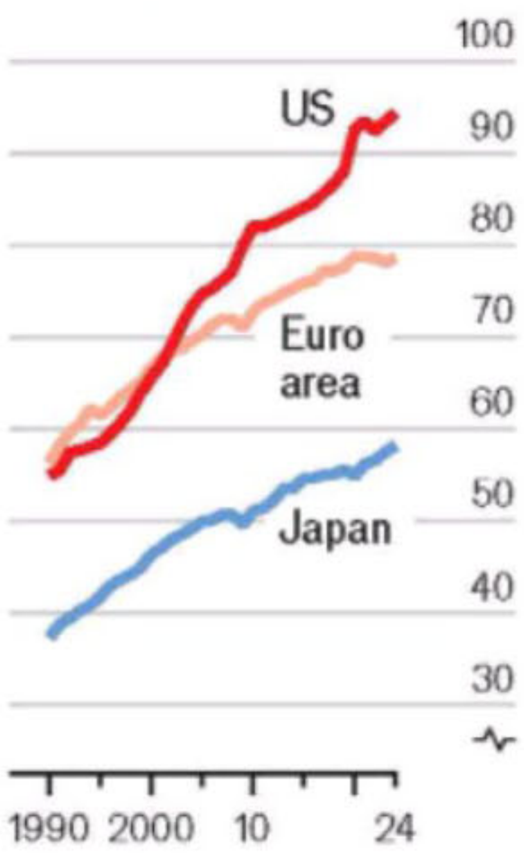
This year the average American worker will generate about $171,000 in economic output, compared with (on purchasing-parity terms) $120,000 in the euro area, $118,000 in Britain and $96,000 in Japan. That represents a 70% increase in labour productivity in America since 1990, well ahead of the increases elsewhere: 29% in Europe, 46% in Britain and 25% in Japan.

Working holiday hours

A common riposte is that American productivity is exaggerated since American workers get much less holiday time than their peers abroad. But when assessed on a per-hour basis the gap remains sizeable: 73% productivity growth for American workers since 1990 versus 39% in the euro area, 55% in Britain and 55% in Japan (see chart on next page). Another criticism is that productivity growth in America has steadily declined over the past couple of decades. That, however, has been true elsewhere as countries have grappled with ageing populations and what had seemed to be a maturing tech landscape. Productivity growth in America remains stronger than in most other economies.

To explain this productivity outperformance, it ▸▸

American know-how
Labour productivity per hour worked
2022 international $*



*At purchasing-power parity
Source: The Conference Board

is useful to break it into a few broad, overlapping categories. The first is investment in capital. American workers, simply put, have more tools at their disposal, both the physical kind such as highways and warehouses and the intangible sort in the form of software. Non-residential investment has run at about 17% of GDP in America since the mid-1990s, consistently higher than the share in large European economies, according to John Fernald of INSEAD, a business school in France. Moreover, much American business investment is the most potent kind: spending on research and development, which sows the seeds for future growth. With the exceptions of Israel and South Korea, America invests more in R&D than any other country, at roughly 3.5% of GDP. China is the one major power that has closed the gap on R&D spending, but it still trails America by a large absolute margin.

America's overall economic environment, often described as its business dynamism, is a second factor. One way of showing this is the churn rate among its companies, or the share that are created or dissolved in any given year. This has declined somewhat in America but is still nearly 20% of companies annually (roughly half are new businesses and the other half are those that stop operating). In Europe it is closer to 15%, according to the European Centre for International Political Economy, a think-tank. This difference reflects the twin facts that it is easier both for old firms to fold in America and for startups to obtain financing.

To everything (churn, churn) there is a season

Churn allows the American corporate landscape to keep evolving in the direction of more profitable ventures. In 2005 America's biggest issuers of patents were Procter & Gamble, 3M, General Electric, DuPont and Qualcomm, while in the euro area they were Siemens, Bosch, Ericsson, Philips and BASF, according to Antonin Bergeaud, an economist at HEC, a business school in Paris. In 2023 in America there were four new entrants in its top five: Microsoft, Apple, Google and IBM joined Qualcomm. In the euro area it was almost all the same, with only Bayer displacing Siemens.

The dynamism applies to America's labour market, too. In any given three-month period about 5% of its workers change jobs. In Italy it takes one year to get the same level of labour turnover. A study in 2020 by the OECD found that among citizens in a large sample of Western countries, Americans were the most likely to move elsewhere for new jobs. Decisions to move may partly stem from things that other countries want to avoid, notably America's weaker union laws and its more limited support for the unemployed. But dislocation can be productive: those who switch jobs tend to enjoy higher wages than those who stay put, an indication that they have gone to companies and places which are making better use of their talents. The wage premium for job-switchers is especially true for women, youth and people with fewer skills.

Over time all this churn tends to push workers, entrepreneurs and investment towards more productive sectors. That matters because the productivity gap between America and Europe is almost entirely the result of America's outperformance in a few digital-intensive segments of the economy—the third vital factor behind America's productivity success. It has done particularly well in tech, finance and professional services such as law and consulting. In other sectors, such as retail sales, European countries often get more out of their workers. The point is thus not that every facet of American life is more productive, but that America is strong in the sectors that have done the most to generate growth and wealth over the past few decades.

America invests more in R&D than almost all other countries

The underlying cause of America's tech superiority is the country's vibrant innovation lifecycle. It starts with its universities, helped by their ability to attract many of the brightest minds from around the world. Public support for research is robust. Financing for young companies is plentiful. And companies face few regulatory hurdles to scale up. It is not that American regulators are lax but that they compare favourably to many of those elsewhere in the world. Europe still fragments along national lines. Japan has a way to go in shaking up its stodgy corporate governance. In China the Communist Party has set its own cause back by throttling its once-vibrant private sector.

The very success of America's tech giants has provoked concern that they have become too powerful, and that their dominance is harming the economy and stifling its dynamism. Thomas Philippon of New York University has documented the rise in corporate concentration in America since the 1980s: big companies have taken a larger and larger share of corporate revenues; corporate profits in general have risen as a share of economic output; and companies, especially in the most concentrated sectors, have transformed less of their profits into new investments and more into share buybacks. Added up, that threatens to be a recipe for slower productivity, weaker growth and higher inequality. So influential is this assessment of the economy that it is a motivating force for the Biden administration's aggressive application of antitrust laws, aimed at curtailing the reach of big tech.

Yet the case that concentration has reached harmful levels is no slam dunk. Economic theory suggests that monopolists (or oligopolists) will abuse their clout to reduce production and raise prices. Sharat Ganapati of Georgetown University has found pretty much the opposite relationship in four decades' worth of American census data: industries with rising concentration have also been the most productive, and the companies that fared best in them did not raise prices. One interpretation is that America's corporate champions have excelled by being more efficient, thereby benefiting consumers and the wider economy.

New and improved products

Data on concentration are also complicated. Studies typically focus on entire industries—the way that, say, Procter & Gamble (P&G) is a powerhouse in consumer goods. But looking at the economy in terms of products, rather than industries, presents a different picture—one that is arguably more consistent with everyday realities. Looked at on a product-by-product basis, concentration is actually declining in America; established brands are moving into new niches, according to research by C. Lanier Benkard of Stanford and colleagues. P&G may be big in consumer goods generally, but it has reduced concentration in the rubber-glove market with a new Mr Clean product.

And corporate America is getting into areas that are more consequential than dish-cleaning. Economists have long observed the duality between national and local competition. Home Depot's heft seems to reduce competition on a national scale, but when it enters a town that previously had just one hardware store, it represents a new competitive force. A similar dynamic may be playing out as tech giants move into markets which are conceptually, rather than geographically, new to them. Companies like Amazon and Alphabet offer one of the best hopes for shaking up America's high-cost health-care sector as they get into primary care, diagnostic services and more.

If tech companies manage to achieve dominance across many markets by being hyper-efficient competitors, then proceed to block new challengers, the worst fears about them might prove justified. For now, though, a recent examination of the evidence by Carl Shapiro of the University of California at Berkeley and Ali Yurukoglu of Stanford put it well: the rise of concentration across American industry looks more like competition in action than competition in decline.

What is more, many excited observers think the latest wave of innovation emanating from the tech giants—the rise of artificial intelligence (AI)—will herald a return to faster productivity growth both in America and abroad. In a study last year, economists at Goldman Sachs, a bank, concluded that AI could drive a 7% increase in global GDP over a decade. And they estimated that America would reap a bigger boost to its growth than any other country by virtue of being at the frontier of technology, both pushing AI forward and adopting it extensively. A healthy dose of scepticism is in order. After reviewing literature on how AI works and how ideas spread, Daron Acemoglu of MIT came to the more sedate conclusion that it will boost GDP by about 1% over the next decade.

Whatever the eventual outcome, the rise of AI has served to underscore just how formidable America remains as an engine of innovation. It accounts for more than half of global private-sector investment in AI. And it is not just the private sector. DARPA is all over the boom, funding dozens of projects that use AI, from beefing up cyber-security to turning machines into more trustworthy partners for their human operators. It is, once again, helping write the next chapter in the story of American productivity. ■

The rise of AI may herald a return to faster growth

The downsides of outperformance

Is higher inequality the price America pays for faster growth?

THINK ABOUT income inequality in America and some archetypes easily come to mind. Start with a rich corporate lawyer, earning above the roughly $1m annual income (before taxes and transfers) that places a household in the top 1% of earners. At the other end of the scale, in the bottom 20%, a single mother with a fast-food job might have an income of $25,000. Between them, a home with a mechanic and a part-time teaching assistant might have annual earnings of $80,000, around the median.

The skew towards the top is sharp. America ranks as the most unequal big rich-world country (see chart). Combined with lower average incomes elsewhere, the pay of America's top workers looks astonishing to European eyes. For comparison, it takes the equivalent of a mere $250,000 or so to enter the top 1% of two-person households in Britain.

It would be natural to conclude that high inequality is merely the flipside of America's wealth. That is probably true to an extent. Yet America has grown more redistributive over the period examined by this special report, expanding the earned-income tax credit, a wage top-up for low earners, in the 1990s, and subsidies for health insurance in the 2010s. And it is not clear that tolerance for inequality is powering its economic outperformance over the past decade.

Take the corporate lawyer. Even after taxes and transfers, the average real income of households like his grew by 110% from 1990 to 2019, according to the Congressional Budget Office (CBO). But most of that growth took place early in the time period: in 2019 he was probably doing worse than his equivalent in 2007, before the global financial crisis.

By contrast incomes in the lowest 20% of households, in which the fast-food worker resides, surged in the tight labour market of the late-2010s. By 2019 she was enjoying after-tax-and-transfer household income 25% higher than those like her in 2007, in part thanks to "Obamacare". Even over the full period since 1990, the bottom quintile's after-tax-and-transfer income growth was 77%, the same as for the highest quintile—thus, excluding the highest-earning 1% from the top 20% would show the poor enjoying faster income growth than the upper-middle-class. In the 2020s the burger-flipper probably had a boost from the tight post-pandemic labour market, which lifted wage growth the most at the bottom end of the income distribution.

It is the mechanic and teaching assistant in the middle who have the best claim to having missed the party: median real income rose by 57% from 1990 to 2019. But that is still a healthy 1.6% per year—a far cry from the stagnation in median earnings that is sometimes alleged, based in part on an inflation index, the CPI, which is biased upwards.

Some argue that things are different. The CBO numbers are in the middle of the range of income-inequality estimates. Calculations by economists Thomas Piketty, Emmanuel Saez and Gabriel Zucman show a rise in after-tax-and-transfer inequality that is sharper, while those by Gerald Auten and David Splinter, published in July in the *Journal of Political Economy*, show a much smaller increase. Income inequality is also only one type of inequality: nobody disputes that wealth inequality has risen this century (even if most estimates wrongly ignore the value of the single mother's future entitlement to social security payments in old age). America faces other social problems which can exacerbate a sense of inequality.

The striking thing is how little these problems seem to have exacted an economic toll. Once inequality reaches very high levels, rent-seeking by elites imperils economic growth. America's experience suggests that it remains on the right side of this threshold.

Some are more unequal than others

G7, Gini coefficients*, 2022 or latest available
Maximum income inequality=1

Source: OECD

*After taxes and transfers

The shale boom

Oil kings

America's rise as the world's biggest oil and gas producer has fuelled its economy, for now

IN THE DENSE hilly forests of northern Pennsylvania, Trapper Wyman steers his pick-up truck down a gravel path until he reaches a small clearing at the end. It is a modest industrial site, with a lattice of pipes and valves, a few engine-like units no bigger than SUVs and one worker who is monitoring it all. The operation runs in almost total silence. Unseen are the wells that plunge some 10,000 feet below the ground, then turn a corner to run another 10,000 feet horizontally, or the gas that flows back up and into a pipeline that traverses the country. This is the Marcellus shale, a family of rocks rich in fossil fuels. For Mr Wyman, owner of a local crane company, it is a site of deep reverence. "You only ever see bits and pieces of the Marcellus above ground, but it is like a giant factory producing energy for America and the world," he says.

The Marcellus is just one of several such rock formations around America, from the oil-rich Bakken shale in Montana and North Dakota to the Permian basin, endowed with both oil and gas, in Texas and New Mexico. The revolution in tapping their hard-to-reach hydrocarbons got under way in the latter half of the 20th century as companies and government researchers worked to combine hydraulic fracturing, or fracking (the injection of specialised liquids to open cracks in rocks), and horizontal drilling. As they honed these techniques in the early 2000s, production surged. Now, America produces some 13m barrels per day of crude oil and 3bn cubic metres per day of natural gas, making it the world's biggest producer of both.

The economic effects have been far-reaching. Most obviously it has changed America's trading relationship with the world. Long a major importer of oil, America's need for foreign crude started to decline in 2008—just when its oil-shale fields really took off. By 2019 it was, for the first time in more than half a century, exporting more energy than it imported (although it produces more than it consumes domestically, it still imports vast quantities of oil because it needs some varieties only produced overseas). Last year America recorded a net energy surplus of about $65bn.

Shale has boosted American growth in several ways. Narrowly, the decline in imports and increase in exports has improved America's balance of trade: in most other sectors America buys more from the world than it sells to it. Plentiful shale gas, which is harder to export, reduced domestic energy prices, freeing up cash for more consumption and investment. Although many lost money on shale investments last decade because they took on excessive risk at high costs, the survivors have become more disciplined and efficient, with drilling rigs declining but production increasing. In a paper for the Federal Reserve's Dallas branch, Mine Yücel and Michael D. Plante estimated that the energy boom added about 1% to American GDP from 2010 to 2015, or about a tenth of the economy's growth during that period—a boost that may be continuing.

Where the boom has occurred, the impact has been even more profound. The timing was also remarkable. In much of America, as in much of the world, the 2007-09 period is remembered for the global financial crisis and a steep rise in unemployment. In places like Williamsport, a town in northern Pennsylvania that serves as a hub for drilling in the Marcellus shale, it is remembered as the beginning of the boom. "There were new companies coming to town, and they were coming in at a time when everything else was really slowing down," says Jason Fink of Williamsport's chamber of commerce. Nationally employment in oil and gas extraction increased by 60% to 200,000 between 2005 and 2015. It subsequently declined as production techniques improved. Yet the knock-on consequences have been more significant still, from growth in support services for fracking to a small recovery in manufacturing, fuelled in part by cheaper energy.

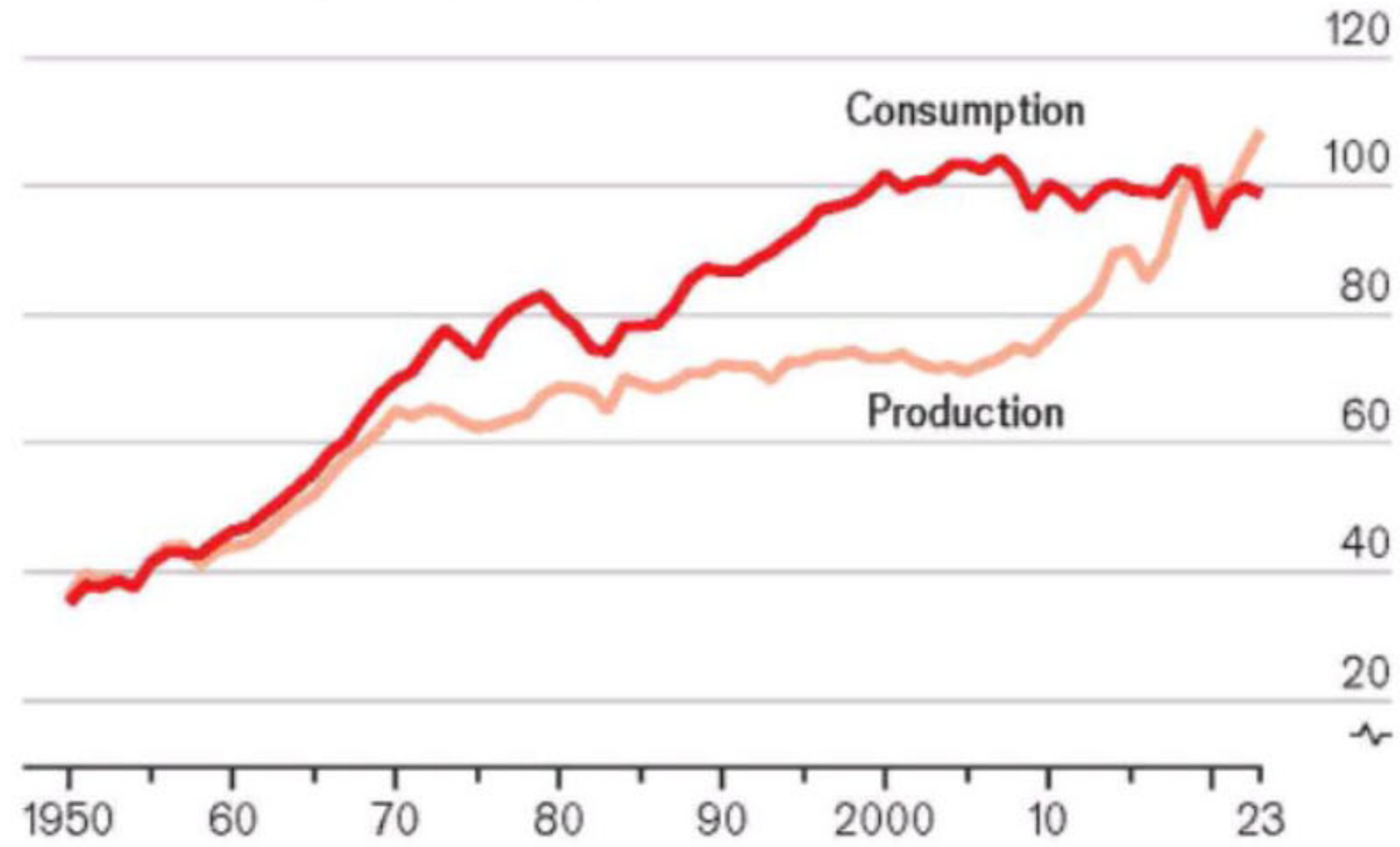
A well-insulated house

But the biggest economic effect of all is that shale has helped to shield the American economy from the volatility of the global oil market. In the past, oil shocks were a source of economic instability in America, just as in other countries: price surges drove up inflation and depressed growth, a combination experienced most brutally in the stagflation of the 1970s. In recent years, the drags have been far milder. Higher prices have led to ramp-ups in domestic oil and gas production, thereby supporting economic activity in the energy sector even as higher prices hurt downstream users. In 2022, soon after Russia invaded Ukraine, natural-gas prices in Europe soared as Russia cut off its west-bound pipeline shipments. In America, awash in gas as never before, prices climbed a little, but never much above a quarter of the European level.

Shale also highlights some of the roots of America's economic strength. There is the country's sheer size and particular geology, which bestowed it with extraordinary energy deposits, both more plentiful and more amenable to drilling than shale formations in other countries. The drive of American capitalism is also on display in its oil and gas wells. Unlike many other countries America allows private individuals to own the minerals under their land. That encour- ▸▸

A fracking good time

United States, primary energy*, exajoules



Source: EIA

*Energy obtained directly from natural resources

aged hundreds of companies, big and small, to get into the shale business, and as they drilled more wells, they developed a better picture of where the richest reserves lay. This was an important differentiator between America and countries where big, lumbering national oil companies moved more tepidly. "The more you drilled, the more likely you were to hit the sweet spots," says Xizhou Zhou of Wood Mackenzie, an energy consultancy. Now, with extensive geological surveys already on the books, energy producers know where to turn for their next wells.

Fracking has a bad name due to its environmental downsides: leaks of methane, a highly potent greenhouse gas, from wells and pipes; the creation of waste fluid; and, especially where that waste is reinjected in the ground, a risk of earthquakes. But the critiques undersell the upsides. It actually requires little energy to generate oil through fracking in America, meaning that direct emissions from extraction are relatively low. And the gas produced is much cleaner than the coal that had previously been one of the country's major energy sources. Much of the reduction in carbon emissions in American power generation over the past two decades has come from shifting to gas.

That raises the question of whether America's shale riches may turn into a liability, landing the country in a "fossil-fuel trap" by discouraging both innovation and investment in clean energy. As evidence that this may already be happening, Daron Acemoglu of MIT and colleagues have pointed to a decline in renewable-energy patents in America, from 1.9% of total patents in 2009 to 0.8% in 2016. "Gas has been good for addressing the problem to date, but at some point, if you want to get to zero emissions, it's not good enough," says Samantha Gross of Brookings, a think-tank.

Where the boom has occurred, the impact has been profound

In economic terms, a fossil-fuel trap would pose two risks for America. The first is that its existing energy investments go stale. However much crude American producers extract, Gulf producers can always get more at lower costs. As the world weans itself off oil, shale fields will probably generate diminishing returns. The second risk is that America fails to make the right kind of new investments. It is a distant second behind China in producing electric vehicles, solar panels, wind turbines and batteries—the essential parts of clean-energy systems. Many of these are already cheaper sources of power over their lifespans than fossil fuels are, and their cost advantage will only grow.

The Innovation Production Act

The Biden administration has thrown money at the problem. Its signature piece of legislation, the misleadingly titled "Inflation Reduction Act", lavishes tax credits and subsidies on both the companies that make renewable technologies and the consumers who buy them. Goldman Sachs, a bank, calculates that this may catalyse nearly $300bn per year in investment in renewables in America through 2032, resulting in double the energy produced from shale. James Stock, a Harvard economist and an energy adviser in President Barack Obama's White House, says that the clean-energy revolution should, in theory, play to the innovative strengths of American firms, since so much advanced technology underpins it, from battery storage to hydrogen power. But for now renewables in America remain in the shadow of shale. ■

Stocks

Fully grown

Lower returns are coming, but they will not end America's dominance of stockmarkets

IF YOU had invested $10,000 in the American stockmarket at the end of the year 2000 you would have had about $27,000, after adjusting for inflation, by the end of 2023. If you had invested in global equities excluding America, you would have had only about $16,000. Wall Street's outperformance this century has propelled America's stockmarket to a 61% share of global market capitalisation. That has not surpassed the all-time high reached during the 1960s, but it is close (see chart on next page). And it is close even though America dominates the real economy far less than it did half a century ago, before the rise of Asian emerging-market giants and the fall of the Soviet Union. America's share of the global stockmarket is 2.3 times its share of GDP—a ratio that has never been higher.

What accounts for the boom? In part it continues a long-running phenomenon. In the 20th century American equities produced a real dollar return of 7% per year, versus 4.9% in the rest of the world, according to Elroy Dimson of Cambridge University and Paul Marsh and Mike Staunton of London Business School. That gap may sound small, but such is the power of compound interest that an investor in only American stocks would have ended the century more than seven times richer than an investor only in stocks elsewhere.

High returns are not unique to America: over the very long run Australian stocks rival American ones. Some small countries with a few very big companies—such as Denmark, home of the drugmaker Novo Nordisk—can boast a higher ratio of stockmarket capitalisation to GDP. What makes America's stockmarket unique is its combination of enormous size and high returns. Still more striking, its return advantage over the rest of the world has grown over time.

There are two ways for a stockmarket to outperform its rivals, setting aside ephemeral ups and downs (and America's stockmarket is no more volatile than those of other major economies). One source of high returns is if the companies comprising the market make more profits. The other is for investors to value those profits more highly. America's recent stellar record reflects primarily the latter effect. In a paper last year Cliff Asness, Antti Ilmanen and Dan Villalon of AQR Capital Management compared the American market with a currency-hedged index of large- and mid-cap stocks in other developed countries. They found that once the effect of rising valuation multiples was stripped out America's outperformance fell by nearly three-quarters and became statistically insignificant. Today America's valuations are unmatched: the US market trades at 24 times forward earnings, compared with 14 in Europe and 22 in Japan.

Europeans are so granola

There are logical reasons for America's high multiples. It is home to the world's "magnificent seven" technology titans including Apple, Amazon, Meta and Nvidia, making the market overall much more weighted towards growth stocks—shares in firms that are expected to be more profitable tomorrow than today, and so naturally are valued at higher multiples. Europe does have its own group of stockmarket giants—the so-called "GRANOLA" group, which includes GSK, Roche, Nestle and Louis Vuitton—but they are mostly consumer-focused companies. Their growth prospects ▸▸

The next tech titan is likely to be in America because of its capital markets

are not as good as those of the tech giants, at least if optimists about AI are to be believed. The same goes for Japan's dominant companies.

Since the global financial crisis, investors everywhere have bet heavily on growth stocks, while many old-economy sectors, like banks, have faced headwinds, note strategists at Goldman Sachs. This has contributed to America's valuation advantage. Investors are also drawn to American firms because they tend to reinvest more of their profits, increasing expectations of future growth. Last, American stocks are more valuable to investors because people know they can sell them in large quantities without moving the price much, as there are always lots of people who want to trade them at any given moment. The result is that global stockmarkets have become concentrated on three levels: geographically in America, sectorally in technology stocks, and at the company level in the magnificent seven (as well as at the top of European and Japanese industries). Just Apple, Microsoft and Nvidia together make up an astonishing 12% of the MSCI All Country World Index of stocks.

The dominance is to a degree self-reinforcing. The next tech titan is much more likely to be located in America (perhaps having been relocated there) in part because of its capital markets. America's high valuations make it an attractive place for firms to raise capital. And America dominates private markets as well as public ones—its share of venture-capital investments is at around 45%—making it the best place both to raise early cash and in which to go public. Europeans regularly bemoan the loss of their most promising companies to the clutches of Wall Street.

One threat for the American market is that investors' confidence in AI-related stocks dissipates. But technology firms, though pricey, are not yet valued at the truly eye-watering levels seen when the dotcom boom of the late 1990s was about to turn into a bust. Then, Cisco Systems, a networking firm, traded at over 125 times its expected earnings. And even excluding technology stocks, America's share of global equities is still 55%, up 20 percentage points since 2008.

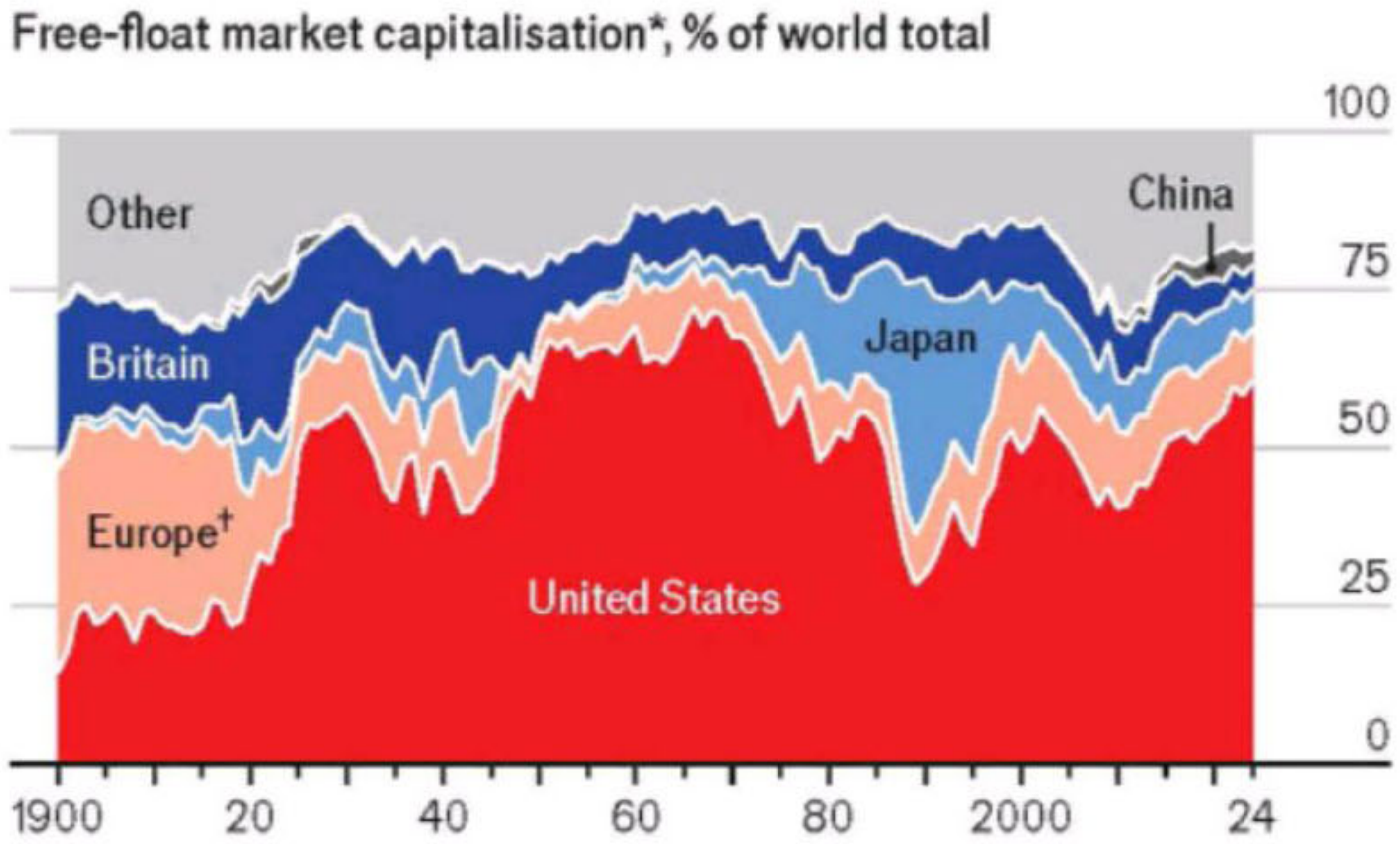
Even if today's divergence in multiples is justified, it will not in itself maintain America's strong outperformance indefinitely. High valuations predict lower long-term returns—and America's have only ever been higher in two previous economic cycles. According to Mr Asness and his colleagues, "international diversification "is still worth it, even if it hasn't delivered for US-based investors in 30 years".

That is especially so if emerging-market stocks grow in anything like proportion to their forecast share of global GDP. Today China's share is so small in comparisons like ours in part because they only count "free float", excluding shares that international investors cannot buy because of legal restrictions. Count everything—which you might if China liberalised those restrictions—and China's share more than trebles to almost 10%. Goldman Sachs's researchers predict that emerging markets' share of global market capitalisation will rise to 55% by 2075.

That does not mean America's equity market is going to lose its status as the world's biggest, however. Since overtaking Britain's in 1902 it has been displaced only once: when Japan briefly occupied the top spot in 1989-90, before its markets crashed. Today Japan is still in second spot but its market is only about a tenth of the size of Uncle Sam's; Goldman predicts that even in 2075 America's market will be almost as big as China's and India's combined. It is a measure of the success of America's stockmarket that precisely because it has achieved such extraordinary dominance, its global share may be near its peak. ■

You can't beat Wall Street

Free-float market capitalisation*, % of world total



*Publicly traded shares. At start of the year

†Austria, France, Germany, Netherlands and Switzerland

Source: "American exceptionalism: the long-term evidence", by E. Dimson, P. Marsh and M. Staunton, 2021

The dollar

Default status

The only way the dollar will lose its supreme role is at America's own hand

After the collapse of the Bretton Woods system of fixed exchange rates in 1973 the prestige of the dollar looked gutted. America had devalued its currency twice in scarcely a year. "The dollar is regarded all over the world as a sick currency," said a writer in the *New York Times*; predictions of falling use of the greenback were rife. Those views, notes Barry Eichengreen of the University of California, Berkeley, in his book "Exorbitant Privilege", could not have been more wrong. America's share of the global economy, measured at PPP, did fall from 27% to 23% by 2000. But as the rest of the world parked its growing wealth in New York and governments built up reserves with which to defend their currencies, demand for dollars grew.

In the 21st century the pattern has been repeated. Amid predictions of a loss of its status—and despite a further fall in America's share of world output to 16%—"king dollar" has kept his throne. For trade, cross-border investment and foreign-exchange transactions, the dollar remains by far the currency of choice (see chart on page 13). Its appeal gives America a seemingly endless supply of credit and the power to cripple foreign financial entities with sanctions. Its strength means that at market exchange-rates America counts for over a quarter of the world economy, the same as in 1990.

It is not that there has been no change at all. ▸▸

Dollar dominance has declined in reserve holdings and trade-invoicing. The fraction of reserves central banks keep in dollars peaked in 2001 at 73% and has since fallen to 59%, according to IMF data. Strip out distortions such as the effect of dollar-appreciation and the greenback's share has in fact fallen to 56%, according to research by Serkan Arslanalp of the IMF and two co-authors, including Mr Eichengreen.

China is responsible for the dollar's decline in invoicing for trade. As it has attempted to internationalise the yuan and escape the grip America has on the financial system—demonstrated by sanctions against Russia after its invasion of Ukraine—the Chinese government has spent the past decade trying to do more business in yuan. It has got its trading partners comfortable with using the currency by, for instance, opening swap lines with them to provide a line of yuan credit and launching a cross-border payments system. About 25-30% of China's goods-and-services trade is now settled in its own currency.

Taken together, these declines for the dollar as a reserve currency and as a basis for trade-invoicing could be seen as a harbinger of a spiral. It is most useful to hold a currency as a reserve today if it brings lots of options for trade tomorrow. So a high share of reserves and trade-invoicing should, in theory, reinforce one another, according to research by Gita Gopinath of the IMF and Jeremy Stein of Harvard University. Reverse that idea and in theory the dollar is in trouble.

But the twin declines are not interlinked enough to dent the dollar's standing. On the IMF data, the dollar's share of reserves has fallen back only roughly to where it was in 1995. And it has not been China absorbing its share, or even the euro, which Europe uses for most of its own trade and is the dominant currency in parts of Africa. Rather, it is, as one joke goes, other currencies called "dollar" or "krone": those in Australia, Canada, New Zealand, Singapore, Denmark, Sweden and Norway. "They are the currencies of small, open, well managed, in the main inflation-targeting economies," says Mr Eichengreen.

It's good to be the king

They are also mostly America's allies, making it hard to sustain an argument that the fall in reserve share says much about lost Western hegemony. And among remaining official holdings of dollars, three-quarters are owned by governments with a military tie to America, says Colin Weiss of the Federal Reserve. Strikingly, note Mr Arslanalp and his colleagues, the yuan's share of international reserves has shrunk since 2022, when Russia invaded Ukraine, sparking American sanctions and much speculation that countries would jettison the dollar for fear of similar treatment.

As for trade, flows involving at least one advanced economy but not China account for two-thirds of the global total, calculate Gerard DiPippo, now of Bloomberg, and Andrea Palazzi of the Centre for Strategic & International Studies. It is hard to see why they would ever switch to yuan, because rich countries are mostly America's allies. Exclude them altogether and only 25% of global trade would be left on the table, three-quarters of which is between emerging markets other than China. Changing these flows to yuan is a tall order given the risks in holding the currency.

Looking in the round, researchers at the Feder- ▸▸

The dollar's status is often said to confer an "exorbitant privilege"

American firms can simply borrow more cheaply

al Reserve concluded in 2023 that dollar dominance "has remained stable over the past 20 years". Why is it so tough to displace? One reason is network effects: the more people use dollars, the greater the incentives to use them. This is visible in currency-trading, where the dollar's liquidity means that for some currency pairs it is cheaper to trade through the dollar—ie, to sell a holding for dollars, then buy the desired currency—than to trade two non-dollar currencies directly.

Network effects do not guarantee the status quo for ever, as shown by the fall of past reserve currencies such as the British pound and the Dutch guilder. The problem faced by rivals now is that they simply cannot offer as safe and liquid a store of value, and in such quantities. China's authoritarian system and controlled capital account, which restricts how much money can be taken out of the country, make investors skittish. Europe lacks safe, jointly issued assets on the scale of the Treasury market. Nowhere offers America's combination of the rule of law, deeply liquid markets and an open capital account, meaning that investors know they can get their money out easily.

Stop making cents

More likely than another country gaining these traits is America giving them up, by design or by accident. There are plenty of American critics of dollar dominance. In the influential book "Trade Wars are Class Wars", Michael Pettis of Peking University and Matthew Klein, a financial writer, argue that the dollar's status as the default location for the world's savings means that mercantilist countries like China, whose policies lead to consistent trade surpluses, accumulate vast quantities of American assets.

Because these global capital flows, it has long been thought, both reduce America's interest rates and, by making the currency strong, increase the purchasing power of its people and companies, the dollar's status is often said to confer an "exorbitant privilege"—that is, an unfair and extreme advantage. But Messrs Pettis and Klein say it raises the cost of America's exports and hurts its manufacturing workers. J.D. Vance, Donald Trump's running-mate, has made a similar argument. Robert Lighthizer, the US Trade Representative during Mr Trump's presidency, has floated bringing the dollar down by levying a "market access charge" on foreigners holding American assets.

It is not an illogical argument. But it is hard for researchers to identify how much the foreign buying of dollars makes the greenback stronger versus how much that same foreign demand pushes down interest rates (which weakens rather than strengthens the greenback). Simple comparisons of bond yields show little exorbitant privilege. In fact, American interest rates tend to be higher than those elsewhere in the world, in part owing to its strong economy.

It is easier to see the advantage the dollar confers not in interest rates but in quantities of debt issued. America has run up net public debts worth 99% of its GDP and continues to runs an enormous deficit worth 7% of GDP. Britain faced a bond-market crisis in 2022 at lower levels of debt and borrowing.

The private sector benefits too. American assets make up over a quarter of the stock of global investment in financial instruments, up from less than a fifth in the mid-2000s, says Goldman Sachs. A paper by William Diamond of the University of Pennsylvania and Peter Van Tassel of Caption Partners, an investment firm, finds that demand for dollar assets reduces all American interest rates versus a counterfactual, not just those of the government. American firms, then, can simply borrow more cheaply.

An American administration that meddled with the dollar's reserve-currency role would risk giving up these benefits—which is why it has generally been the policy of the Treasury to support the status quo. Despite Mr Vance's worries, and Mr Trump's laments of a strong dollar, the Republican Party's platform promises to keep the dollar as the world's reserve currency.

That leaves an accidental loss of status. The Bretton Woods agreement collapsed because America could not satisfy the world's demand for its assets, given the dollar's peg to gold, without compromising their safety. The problem was known as the "Triffin dilemma" after Robert Triffin, the economist who identified it. Now economists talk of a "new Triffin dilemma" whereby the appetite for dollars encourages American indebtedness, threatening the very conditions that make greenbacks so appealing.

The new Triffin dilemma is unlikely to bring about a dramatic crisis so long as there is no suitable alternative into which investors could flee suddenly at scale. But it is conceivable that American indebtedness could gradually make dollar debts look less safe. That would not mean the triumph of another currency. It is more likely the world would have to live without a liquid, safe and plentiful asset at all. Seen this way the real exorbitant privilege is more broadly conferred than critics claim. Americans get cheap debt, foreigners get a safe store of value. Were that service ever to disappear, the whole world would pay the price. ■

Top dollar

$, % of world total

*Or latest †Out of 200% ‡2005 to 2022
Sources: BIS; IMF; Federal Reserve

Looking ahead

How long can it go?

America's economy can overcome its toxic politics. The world should hope it does

IT MAY NOT be the finest work of American literature but "The President is Missing", a 2018 thriller by Bill Clinton (yes, him) and James Patterson, does get at an essential truth. A cyber-attack threatens to cripple the country and crash its economy. Knowing how utterly dysfunctional the political system is, the president goes rogue to save the day. Triumphant, he addresses Congress and calls for a healing of bitter partisan divides, noting that most of America's wounds are self-inflicted. "Our ability to solve problems and seize opportunities is shrinking," he intones.

When trying to grasp what the future may hold for America's economy, this is as good a place as any to start. The story of the past few decades is that despite nearly constant political rancour and division, the country's growth trajectory has remained impressive. America has expanded its economic lead over the rich world and kept China's challenge at bay. But the biggest thing standing in the way of sustained outperformance is homemade: the self-inflicted wounds lamented by Mr Clinton's fictional alter-ego.

The world has seen how political brinkmanship can bring on economic headaches. In 2011 and again in 2023, America ran smack into its "debt ceiling"—a limit imposed by Congress on how much the Treasury can borrow. Without last-minute agreements to lift the debt ceiling, the American government might have defaulted on some of its obligations, a potentially cataclysmic event for global markets and for the dollar's standing as the world's pre-eminent safe haven. That danger still lurks in the country's toxic politics.

Always a borrower be

The simplest measure of a country's fiscal health is its debt-to-GDP ratio. America's has nearly tripled since the outbreak of the global financial crisis in 2007 to about 99%. The Congressional Budget Office, a non-partisan scorekeeper, forecasts that it will soar to more than 160% over the next three decades. Alarming as that seems, it is impossible to know how much is too much. Japan's net debt ratio is about 157%, and investors still lap up its sovereign bonds. Given the dollar's centrality to global markets, America probably has even more room to run. But this also lets its political leaders off the hook from having to make unpopular decisions—namely, raising taxes and cutting spending—to rein in deficits. This makes America's fiscal woes a festering problem, not an imminent hazard.

America's drift towards more extreme politics, as exemplified by Donald Trump, poses other dangers to its economy. The ugliest is a surge of anti-immigrant rhetoric fanned by the former president, who has vowed mass deportations if elected again. Foreigners attracted to the promise of America have helped make the country what it is, and not just in Silicon Valley or on Wall Street. The return of migrants in large numbers after the covid pandemic, many with limited education, replenished an ultra-tight labour market—a major reason that growth has remained robust at the same time as inflation has receded.

Mr Trump has, for the first time in nearly a century, also made tariffs an integral part of America's economic statecraft. If he returns to the White House, he is determined to slap a 10% tariff on all imports, a decisive turn away from the free trade that, though unpopular today, has helped the economy flourish. It is true that America is not the manufacturing power it once was, but manufacturing is not as significant as politicians make it out to be. An economy with an unemployment rate of 4% and a per-person GDP of $85,000 does not have to be made great again; it is great.

As for Vice-President Kamala Harris, she seems intent to continue the Biden administration's posture of high vigilance towards America's tech giants, which some fear is a strategy to cut them down to size. Her opponents are obviously being absurd when they label her a communist. But her regulatory instincts look decidedly European, which is not an optimal recipe for economic growth or high-tech breakthroughs.

America faces other concerns, too, as laid out in this special report. Its shale boom has helped to fuel its growth over the past two decades. But the rise of renewables means that plentiful oil and gas may no longer confer the same advantages, and America lags behind other countries in the transition to cleaner power. American financial markets may be near a high-water mark of outperformance, if mainly because its equities now trade at very rich multiples compared with those in other countries. Some reversion to the mean appears inevitable. And America's leadership in technology—with it again at the fore of what may be the next big thing, the AI revolution—will eventually lift other countries as its ideas and tools spread more widely. In this sense America's innovation contains the seeds of other countries' catch-up growth.

Yet despite America's challenges, there is cause to be cheery about its economic future. Indeed, one conclusion from its successes thus far is that optimism should be the default assumption. Politically, America's tendency towards self-harm has been matched by a capacity for self-correction. At its moments of greatest economic need—the global financial crisis and the covid pandemic—leaders have been able to work together across the aisle. America's governance has also proved resilient: just look at the wheels of justice slowly grinding down the insurrectionists who stormed Capitol Hill on January 6th, 2021. And America's heft gives it extra insulation. If a global trade war does erupt, it would probably come off better than others in a more autarkic world owing to its size and heterogeneity. Small, open economies would suffer the most.

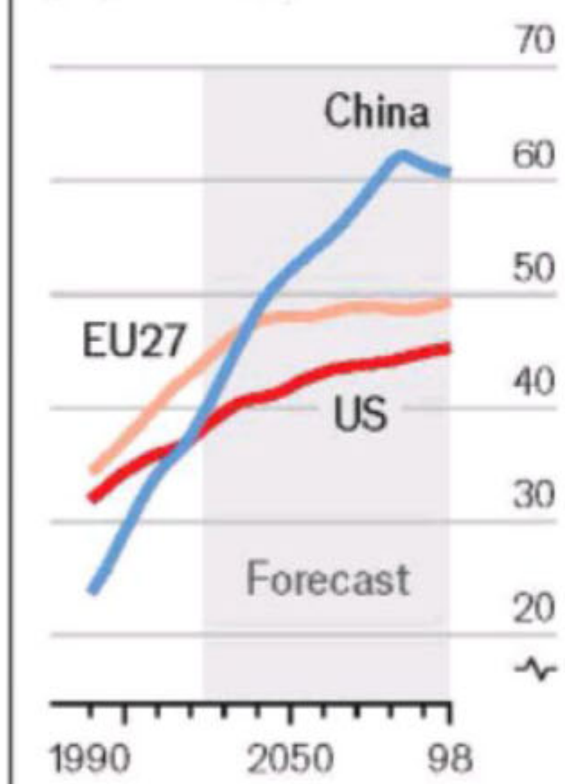
The two essential ingredients in determining a country's ultimate economic potential are its productivity and its population. The foundations of American productivity—a giant, competitive domestic market, many of the world's best universities and the sanctity of the rule of law—are firmly entrenched. They will endure if Mr Trump retakes the White House. That is not an argument for complacency but a recognition that the checks and balances built into the political system are more powerful than any president.

Another American century

America's demographics are also healthier than often appreciated. Like most other countries, it is getting older. But unlike most, it maintains a slightly higher fertility rate and a better ability to absorb immigrants, despite the rising xenophobia in its politics. Even Mr Trump, when not promising expulsions, says the country needs to bring in more skilled workers; he has mused about giving green cards to foreign-born graduates of American universities. Today, America accounts for 4% of the world's population, and by 2100 it will still be about the same, according to projections by the UN. During that same time, China's share is expected to fall from 18% to 6%, while the European Union will go from 6% to 3.5%. And America will, in relative terms, be a younger country (see chart).

These are the roots of sustained economic outperformance. They look as strong today as at any time over the past three decades, which is good news not only for America, but also for the rest of the world. That America, a liberal democracy, remains a bigger economic power than its authoritarian challengers is an unalloyed positive for a global order under intense strain. For other countries to truly benefit, though, America will need to overcome its protectionist impulses, to return to a position where its wealth helps to lift others and it can lead through inspiring example. Our view is that it has ample economic capacity to do just that, as long as its politics allow. There will, of course, be downturns, doubts and drama along the way. But if you want to bet against America, *The Economist* will gladly take the other side of the wager. ■

Forever young
Median age of population, years



Source: UN World Population Prospects

Acknowledgments A list of acknowledgments and sources is included in the online version of this special report

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Europe

Migration

Out of sight, out of mind?

BERLIN AND GJADER, NORTHERN ALBANIA

Italy has begun processing asylum-seekers in Albania. Other European countries are itching to strike similar deals

THE FIRST camp for asylum-seekers built by an EU country outside the EU spreads across an area the size of ten football pitches near the village of Gjader in northern Albania. This week 16 Bangladeshis and Egyptians, who had been picked up in the Mediterranean, disembarked in Albania, destined for the site. It was an important moment, and not just for Italy, which has sponsored and built the Albanian centre. After decades of fruitless discussion and thwarted plans, for the first time an EU country has begun to process asylum claims in a third country.

A metal screen atop a concrete base encircles the three areas of the Gjader facility. The first, made up of prefabricated accommodation units, is for asylum-seekers awaiting the response to their claims. The few that receive a positive decision will be taken to Italy. A secure zone covered with steel mesh is for the rest, who in theory await repatriation. The camp also includes a small jail for criminal offenders. Under the terms of an agreement signed last year between Giorgia Meloni, Italy's prime minister, and Edi Rama, her Albanian counterpart, the centre will remain under Italian control until at least 2028.

The deal applies only to migrants plucked from the high seas (ie, outside Italian waters) by Italian vessels, and not to all of them. Women, children, families and vulnerable men will go to Italy for processing in the normal way. So will anyone who claims to be from a country not on Italy's "safe" list of 22 (which includes Bangladesh, Tunisia and Egypt, whose nationals often attempt to reach Italy). The rest—arguably, the guileless, who either admit to citizenship of a safe country or retain ID documents demonstrating it—will be shipped to Albania.

In 2023 irregular migration on the central Mediterranean route reached its highest level since Europe's crisis of 2015-16, though numbers have since fallen (see chart on next page), owing in part to a deal with Tunisia, from where many migrants depart. Italian ministers say the prospect of diversion to Albania will dissuade those planning to sneak into the EU via the Med. "Its strongest effect will be as a deterrent," agrees Mr Rama, whose government stands to be rewarded with Ms Meloni's help in its bid to join the EU.

Yet whether migrants who have chosen to risk their lives at sea will be put off by the prospect of a spell in the steel embrace of Gjader is questionable. And its potential deterrent effect would seem to be its sole value. Italian officials stress that the site is subject to Italian law, and that nothing can be done there that cannot be done in Italy.

That includes returns to migrants' home countries. In the first half of 2024 Italy issued 13,330 repatriation orders but sent back only 2,242 people, despite its return agreements with most of the safe countries. Sceptics think deportation troubles mean Gjader's maximum capacity of ▸▸

3,000 could quickly be reached—and local officials say that in the medium term they may be able to hold just one-third of that figure. They add that, after three months of detention, failed asylum-seekers, if not yet repatriated, will normally be taken to Italy, released and told to leave the country.

In short, there is plenty of reason to doubt that the centre will make a serious dent in the number of irregular migrants reaching Italy. Yet, as EU countries from the Netherlands to Austria to Poland turn sour on asylum, such is the desperation to get a grip on irregular migration that the Albanian experiment is being closely observed across the club and beyond.

As *The Economist* went to press, the heads of the EU's 27 governments were gearing up for a lively migration discussion in Brussels. On October 14th Ursula von der Leyen, the president of the European Commission, reiterated to them her commitment to find "innovative ways" to tackle irregular migration, a euphemism for outsourcing deals. Notably, she also gave her imprimatur to the old idea of "return hubs": centres in non-EU countries to which failed asylum-seekers may be sent as they await deportation. The Albanian arrangement, added the president, will provide lessons.

Earlier this year the EU passed a long-stalled "migration pact", designed to speed the expulsion of failed asylum-seekers and to distribute the burden of hosting refugees among member states. But that has not dulled governments' interest in pursuing outsourcing deals with other countries. In 2021 Denmark passed a law enabling extraterritorial asylum processing. This May 15 EU governments urged the commission to investigate further.

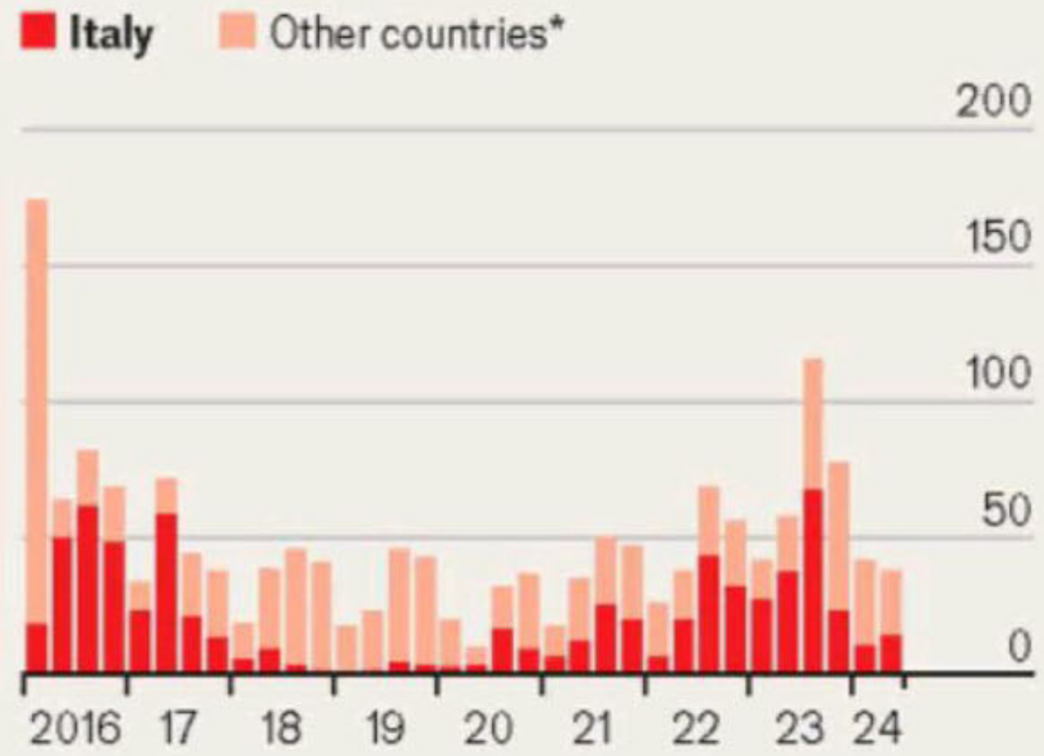
In Germany, which accounts for roughly a third of asylum applications in the EU, the interior ministry will in December present options for external processing. The opposition conservatives, likely to take office after next year's election, are already committed to third-country asylum deals. Some even want to emulate Britain's failed deal with Rwanda, a simpler but more radical proposal that would have dispatched asylum-seekers who reached British shores to Kigali to try their luck there.

Such schemes face countless financial, legal and logistical hurdles. The principle of outsourcing asylum does not appear to violate refugee law, especially the ban on *refoulement*, or returning people to places of danger. But in practice the need to uphold and maintain standards that can pass muster in European courts may prove insurmountable, especially if deals are done with non-European countries. Judges thwarted Britain's efforts; they may yet do for Italy's.

To ease the path, EU governments aim to make legal tweaks, including to the "connection criteria", which stop them sending failed asylum-seekers to non-EU countries to which they have no formal link. Trickiest of all is finding, and keeping, partners. Mr Rama emphasises that his offer does not extend beyond Italy. Other countries in Europe's neighbourhood have ruled themselves out as outsourcing or return hubs. Winning them over will require a deftness of diplomacy not often associated with the EU and its disputatious members. But rarely has Europe been so determined to reduce the number of irregular migrants reaching its shores. ■

Not going away

Southern EU borders, irregular migrant arrivals by sea and land, '000



Source: IOM *Bulgaria, Cyprus, Greece, Malta and Spain

Moldova's election and referendum

Small boat, big waves

CHISINAU AND COMRAT

Russia wants to sink reform but is swimming against the tide

SINCE THE Soviet Union collapsed, a good quarter of Moldovans—no one knows the figure for sure—have chosen to build new lives abroad. Two decades ago roughly half of such emigrants used to head for jobs in Russia, which had ruled them from 1944 to 1991; the other half tried their luck in western Europe. But now the traffic is nearly all westward. Especially since Russia's assault on Ukraine in 2022, the entire country of 2.5m or so people, with a few peculiar territorial exceptions, has been pivoting towards the EU. A presidential election and simultaneous referendum on October 20th are expected to confirm this trend—so long as Russia's unprecedented array of dirty tricks can be fended off.

If the opinion polls are right, the incumbent, Maia Sandu, should easily win the first round of the contest against ten other candidates. Her chief opponent is Alexandr Stoianoglo, a staunch pro-Russian. Even if she does not win outright in the first round, she is expected to prevail in a run-off on November 3rd. She is the most dedicated reformer in Moldova's post-Soviet history—and its most robust fighter against the pervasive blight of corruption.

Source: Entsog

The referendum, however, matters even more. The voters are being asked to change the constitution to endorse the government's decision to seek membership of the EU. Russia, determined to win back influence over its former peripheral domains, is dead against the idea—and is using every trick to kibosh the yes vote in a brazen campaign of hybrid warfare.

This has entailed a mix of disinformation, bribery and low-level violence, including payments for rowdy protests. Cyber-attacks have targeted the health ministry and postal services. In April a string of ATMs were vandalised to spread rumours that the banks were running out of funds.

Disinformation hurts the EU cause hardest. The Kremlin has relentlessly targeted susceptible groups, especially those who speak Russian as their preferred language, about 15% of the total population. They predominate in the breakaway statelet of Transnistria, sandwiched between the rest of Moldova and Ukraine (see map).

The Gagauz, a still smaller minority (about 5%) of Turkish-descended Christians, are as fiercely pro-Russian. The main street of their capital, Comrat, is still named after Lenin, whose statue takes pride of place. Most signs are in Russian, not Romanian, Moldova's main tongue. The governor of Gagauzia is an underling of Ilan Shor, a fugitive banker now believed to be in Moscow, considered Russia's key Moldovan oligarch and a big backer of Ms Sandu's main opponent, Mr Stoianoglo.

Fake news and conspiracy theories against the EU have swamped the popular Telegram app, as well as TikTok, Facebook and YouTube. The EU is said to be a proxy for NATO, seeking to drag Moldova into war. Greedy foreigners will buy up Moldovan land. Children will be inculcated with the EU's supposedly "gay values". "Unfortunately, too many people believe this," la- ▸▸

ments a minister.

Bribery is more straightforward. The security service reckons at least 130,000 Moldovans are on Russia's payroll. Many travel to Russia (often via Turkey or the Caucasus) to collect cash (up to $11,000 may be brought into Moldova in one go) to pay for anti-government demonstrations, to encourage people to vote for pro-Russian candidates in the presidential election and to vote no in the referendum.

But Russia's message may not be heeded as much as before. Some Moldovan bigwigs known to have been pro-Russian in the past may be hedging their bets; some, like the mayor of Chisinau, the capital, say cagily they are now pro-EU. Others say they want Moldova to "balance relations" between the EU and Russia.

Most strikingly, the tide is turning against Russia even in Transnistria. Voters there will still vote en masse against Ms Sandu and the EU, but their economy and trade have tilted sharply away from Russia towards EU countries, especially since Ukraine closed its border after the war began. A transit deal whereby gas from Russia has passed through Transnistria, enabling it to curtail supplies to the rest of Moldova, will soon end as Moldova turns to other supply lines. "Transnistria is losing its last big card," smiles a government adviser.

Victory for Ms Sandu on October 20th will be far from a guarantee of Moldova's stability. Her presidency has been buffeted by covid-19, the war in Ukraine, an influx of refugees and a bout of soaring inflation. Parliamentary elections next July could knock back her party, which may then have to accept a coalition with other less reform-minded parties. Much will depend on the outcome of the war in Ukraine. Says a pro-EU think-tanker: "The battle between the oligarchical system and the reformers is not over." ■

Sandu's struggle

Ukraine

Digging for victory

UDACHNE

Why Russia is trying to seize a vital coal mine

ON THE OUTSKIRTS of the eastern city of Pokrovsk two women stand waiting for their lift. Like most civilians in the city they have already fled elsewhere, but they have come back to collect some belongings. They are standing by a boarded-up petrol station which was bustling just a few months ago. Russian troops are creeping ever closer, and a full-scale battle for the city is about to be joined. New defensive lines have been dug to the west of Pokrovsk to which, if and when it falls, Ukrainian troops will hope to fall back.

A plume of smoke can be seen rising in the distance. The Russians are now barely 8km from Pokrovsk's eastern outskirts. But they have more than this strategic road and rail junction in their sights. The jewel in Pokrovsk's crown is a huge modern mine 15 minutes' drive to its south-west. Just outside the village of Udachne, it towers over the surrounding fields. Last month it took its first war-related casualties when two women were killed in an attack.

The Donbas region, once an area of endless steppe, was industrialised in the late 19th century when it was part of the Russian empire and was found to lie on rich seams of coal. These then powered its iron and steel industries. When Ukraine lost half of Donbas in 2014 to Russian-backed separatists, the loss of mines there meant a loss of 80% of its coal deposits. And in 2022, during the siege of Mariupol, the city's two steel plants were destroyed, devastating Ukraine's steel industry. One of them, Azovstal, became internationally famous as Ukrainian troops staged a last-ditch defence there.

Pokrovsk's mine is far from being a rickety old Soviet relic. It opened in 1990 and now belongs to Metinvest, a company owned by Rinat Akhmetov, one of Ukraine's richest men. Metinvest also owned the two Mariupol steel plants, and one of the largest coking-coal production plants in Europe, which was in Avdiivka and was destroyed last year. Now he faces the loss of this mine too.

It is widely believed that for the Russian leadership, targeting Mr Akhmetov's assets has, apart from undermining the Ukrainian economy, the added benefit of revenge. Until 2014 the oligarch was a key political and economic player in Donbas and Ukraine, and the Kremlin doubtless believed he would side with its separatists and with Russia. When he came down on the side of Ukraine, they saw this as a betrayal and seized his properties. Today even the gleaming stadium he had built in 2009 for the Shakhtar Donetsk football team that he owns lies abandoned.

Along with its associated plants and administration buildings, the Pokrovsk mine group employs 6,000 people, of whom some 1,000 are currently serving in the armed forces. It is the largest coking-coal mine in Ukraine. Its coal, used for smelting iron ore, is vital for the country's remaining steel industry. This year Metinvest hoped to mine 5.3m tonnes of coal there. In 2023 Ukraine's steel plants produced 6.2m tonnes of crude steel. In 2021 though, before the loss of the two Mariupol plants, Ukraine had produced 21.4m tonnes. That year Ukraine was the world's 14th-largest steel producer but in 2023 it had tumbled to 24th.

According to Andriy Buzarov, an analyst, the Russians do not even need to take the mine to throttle Ukraine's remaining steel industry. As they advance, they will try to cut its power supply and shell the road that takes its coal west to the remaining steel plants. They will then do the same at another smaller mine, 18km north of Udachne at Dobropillia, he thinks.

Before the full-scale invasion began in February 2022, steel accounted for a third of Ukraine's exports. Since then, the economy has shrunk by a third. Oleksandr Kalenkov, the head of Ukrmetalurgprom, a metals and mining industry lobby group, said at a conference last month that the loss of Pokrovsk's coking coal would lead to a further disastrous loss in steel output. "This year, we can reach 7.5m tonnes," he said, but "in the event of the loss of Pokrovsk, it will be 2m-3m tonnes." And the Russians know it. ■

Turkey

Autocrats or democracies?

ISTANBUL

The limits of Turkey's strategic autonomy

FOR OVER a decade, BRICS summits have featured the same cast of characters, meaning the leaders of Brazil, Russia, India, China, and South Africa. That will change on October 22nd, when the presidents of Egypt, Iran, Ethiopia, and the United Arab Emirates, which joined the club earlier this year, pose alongside Vladimir Putin and other BRICS veterans in Kazan, in south-western Russia. But an even more unusual guest, the leader of a NATO country no less, is expected to make an appearance. Russia has announced that Turkey's president, Recep Tayyip Erdogan, will be on hand to make the case for his country's BRICS membership.

Flanked by autocrats and populists who say they speak for the global south and hope to shape BRICS into a viable alternative to the Western world order, Turkey's leader should feel right at home. Turkey has long sought to diversify its foreign-policy portfolio, by building new bridges and repairing old ones, with the Middle East, the Caucasus, Africa and Central Asia. But Mr Erdogan has gone farther, especially over the past decade, and begun to preach "strategic autonomy". This is the idea that Turkey needs to chart its own path, reduce its dependence on the West, especially when it comes to the defence sector, and co-operate with allies only when this suits its own interests. Other NATO members can settle for the fixed menu. Turkey dines *á la carte*.

This has come into focus in Ukraine, where Turkey has supplied the Ukrainians with drones and other weapons, sometimes on the sly, while staying chummy with Russia. Turkey has refused to implement Western sanctions, which has allowed its trade with Russia to soar, reaching $56.5bn last year, up from $34.7bn in 2021, and continues to depend heavily on Russian oil and gas. Russia is also building Turkey's first nuclear-power plant, and vying to build its second.

Mr Erdogan has been marching to the beat of his own drum elsewhere. Turkey has clashed with Greece and France by staking a claim to swathes of the eastern Mediterranean, challenged America by launching offensives against US-backed Kurdish insurgents in Syria, and taken on NATO as a whole by holding up the membership bids of Sweden and Finland. It has refused to be drawn into America's stand-off with China. Mr Erdogan is also the only NATO leader to openly embrace Hamas.

But Turkey has no desire to break with the West, and its BRICS bid has been a clear case in point. As soon as Russia leaked the news that Turkey was keen on joining the group, officials in Ankara rushed to say this would not come at the expense of relations with Europe and America. Turkey's foreign minister, Hakan Fidan, went so far as to suggest that the move was less of a geopolitical pivot than a cry for attention. "Perhaps we would not be on such a quest," said Mr Fidan, had Turkey been a member of the EU.

Western capitals might take a dim view of Turkey's BRICS gambit, but they are not alarmed. Membership of BRICS, which remains little more than a talking-shop, is a poor alternative to NATO or the EU, with which Turkey has a customs union.

Still, BRICS may not be ready to roll out the welcome mat just yet. India is rumoured to oppose Turkey's accession, because of Mr Erdogan's support for Pakistan in its dispute over Kashmir. Russia, too, is of two minds. On paper, Turkey's BRICS membership would be a coup for Moscow, which welcomes any chance to drive a wedge between Turkey and its Western allies. But the Russians may be uneasy about having a NATO state in BRICS, fearing to water the group down even further.

Turkey may be backpedalling already. At a conference in Istanbul on October 14th, a Turkish diplomat said he was "not aware" whether his government had lodged an application to join BRICS. The BRICS bid was supposed to shine the spotlight on Turkey's global ambitions. It may end up exposing their limits. ■

Poland

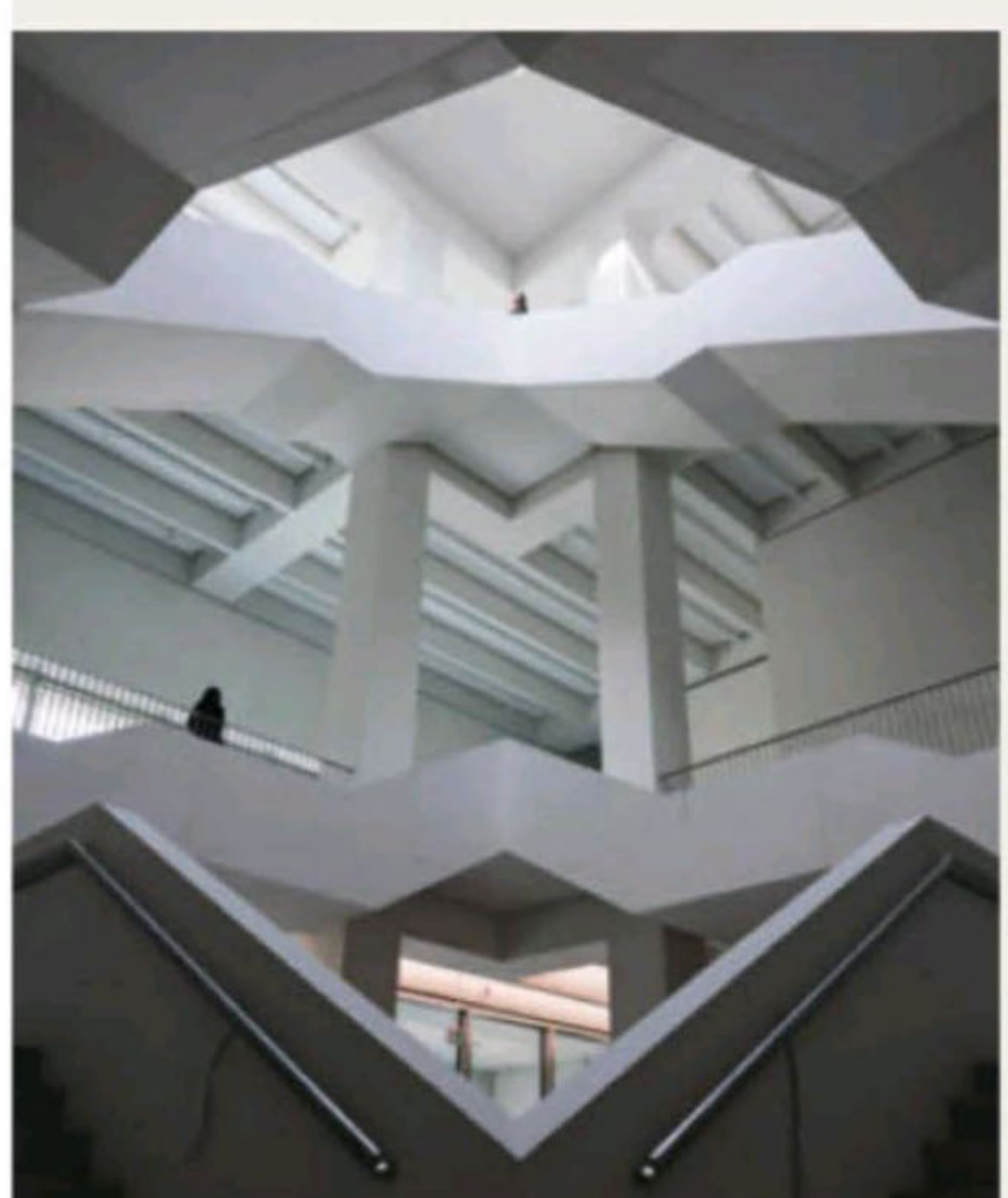
Reclaiming the centre

WARSAW

Poland's new modern-art museum aims to give the capital a fresh look

IT HAS BEEN compared to a shoebox, a parcel locker and an unmarked IKEA warehouse. Ahead of its opening on October 25th, Warsaw's new Museum of Modern Art is an emotive topic for Varsovians. Some praise the three-storey white box for its cool minimalism. Others say it is a missed opportunity to create a statement building, like the Guggenheim in Bilbao, to beautify the scarred Polish capital.

Warsaw's chaotic central square tells the city's turbulent history. Some 90% of its buildings were razed by German occupiers in the final year of the second world war. It was rebuilt with soulless Soviet grandeur, with wide thoroughfares and an ornamental skyscraper.



Not very Soviet

The chief task for the museum's architects was "breaking the trauma" of the barren square, says Joanna Mytkowska, the museum's director. The winning project, by Thomas Phifer, an American architect, did so through its austerity. It pays tribute to Warsaw's legacy of modernist architecture, largely buried by the war. It subtly nods to its own archaeology: the interior's wonky concrete columns mimic the Soviet-era metro tunnels below; the park outside is designed on the grid of the pre-war streets discovered during construction.

The new gallery is part of a push by Warsaw's mayor to revitalise the city's centre. A matching theatre, in black, is already being erected alongside it. It is also part of Warsaw's broader reinvention. In recent years Varsovians have reclaimed redbrick industrial sites: a power station is now a trendy mall; a defunct vodka distillery houses a Google campus. Several museums celebrate chapters of Polish history: the science of Copernicus, the music of Chopin and, since September, the chocolate of Wedel, the region's Willy Wonka. Its burgeoning skyline, including Varso Tower, the EU's tallest skyscraper, signals that eastern Europe's biggest EU capital is becoming a business destination.

CHARLEMAGNE

The Vatican, but make it Muslim

Inside Albania's plan to put the "state" in "Islamic state"

CHARLEMAGNE MAKES it a point to lay off heavy liquor until after lunch. But what if the booze being proffered is a mere thimble of *raki*, a fruity firewater Balkan hosts foist upon visitors in a gesture of hospitality? What if, furthermore, the host in question is a Muslim cleric, unexpectedly keen to lubricate your columnist as he explains the tenets of his faith while himself puffing away at a stubby cigar? And what if, finally and yet more improbably, the bottle-wielding holy man is soon to become the head of the world's newest state, a diminutive Muslim sovereign enclave carved out of the low-rent suburbs of the capital of Albania? It was pushing noon after all. Perhaps a small shot.

When put in proximity to each other, the words "Islamic" and "state" tend to induce more panic than enthusiasm. To Albanians practising an easy-going local variant of the faith—far removed from the *fatwas, jihads,* caliphates and other Western bugbears—that is a perversion to be defied. Proud of the liberal strand of Islam known as Bektashism that is prevalent in this corner of the Balkans, the authorities have decided to grant the order its own state, with flag, passports and all. The birth of most countries can be traced to decades of battles, upheavals and revolutions. The new Bektashi country, in contrast, was announced out of the blue by Edi Rama, the Albanian prime minister, in an interview with the *New York Times* last month. Once a few legal niceties are settled, the world will celebrate its 200th-or-so country perhaps as early as the end of the year—if anyone recognises what has inevitably been termed the "Muslim Vatican".

If Vatican this is, Baba Mondi, Charlemagne's genial host, is the Holy Father. Donning a 12-sided hat as he greets visitors in the compound outside Tirana, his white beard flowing over embroidered green robes, the grandfatherly preacher winces at the comparison with the Catholic headquarters in Rome. But that is more an act of modesty than rebutting a theological offence (there are pictures at hand of the head *baba* greeting various popes). The pontiff tends to a billion-strong Catholic flock from the grandeur of Rome. The Bektashi World Centre, squeezed between an industrial estate and some fields being gnawed at by sheep, measures just 11 hectares, barely a few football pitches. A newly built auditorium and museum offer a focal point for visitors keen to add to their country tally. It is no Sistine Chapel, but it will do for now.

There are even more Muslims than Catholics in the world, though only a fraction would recognise their faith in this Albanian variant. Formed in the 13th century in Turkey, the Bektashis are a Sufi mystic order, combining learnings from the Koran with devotion to their own traditions. Once the religion of the Ottoman military elite, the order took in teachings from far and wide until being banned there in the 19th century. When Turkey went secular in the 1920s, the Bektashis' leaders moved to Albania. Through their love of the arts, the order's dervishes have been credited with helping the country shake off the Ottoman yoke in 1912; some describe it as the Albanian "national religion" though more people adhere to mainstream Sunni Islam. The creed's reward was to face persecution, alongside all other faiths, at the hands of the pound-shop Stalinist regime that ran Albania from 1944.

Bektashis claim 20m followers spread thinly across three dozen countries. That may be an exaggeration. Counting its adherents is all the harder given its easy-going ways: some describe it as more of a philosophy than a religion. Baba Mondi, the eighth *dedebaba* since the move to Albania, speaks with reverence for all faiths. "Don't constrain yourself while God has made you free," just about sums it up. There is a bit of fasting (but not a whole Ramadan's worth), some daily praying (but no imposing mosques or minarets), and a lot of talk of humans "sharing the same destiny". Being a good Bektashi is about exuding love and tolerance. Their leader calls himself a friend to all, including Israel, whose president he met just last month—hospitality unlikely to be extended in Tehran or Mecca, say. The Bektashis shun politics and decry violence. They are, in other words, easily compatible with the God-shunning ways that prevail in most of Europe these days.

Rome Baba

If Baba Mondi is the Bektashis' religious leader, Mr Rama serves as the faith's chief ambassador. In an evening chat with your columnist, the former artist delights in his munificence towards the order, describing them as "a national treasure you have to help survive the rest of time". Never mind his own (latent) Catholic faith, succouring his Muslim brethren is a roundabout way of showing off Albania's proud history of tolerance. It was the only country occupied by Nazis during the second world war to end the conflict with more Jews than it started with. A majority-Muslim country, it celebrates Mother Teresa, a Catholic nun with local roots. Why stigmatise do-gooders based on something as mundane as faith? The Bektashis are a deserving lot. "It is precisely because some people in Europe have a problem with the word "Muslim" that this is something to be done," says Mr Rama.

Not everyone is a fan of granting the Bektashis their own enclave, decrying what they see as an attempt at religious engineering. Other Muslim interests are busy trying to gain ground in the Balkans; last week Recep Tayyip Erdogan, the Turkish president, swung by Tirana to open an 8,000-capacity mosque. Plenty see the Bektashi move as a PR ploy by Mr Rama, a big man—literally, as a former professional basketball player, as well as politically, given over a decade in power with few domestic rivals—in a small country. Perhaps. But the intention is noble, in keeping with the Bektashis' kindly ways. Showing off Albanian tolerance while subtly shaming that of fellow Europeans is surely worth redrawing a few maps for, and a swig of *raki.* ■

Britain

An interview with the prime minister

Elevator pitch

Sir Keir Starmer makes his case for investment in Britain

INVESTOR SUMMITS follow a standard recipe. First come the speeches. The 200-odd executives who made it to an international investment summit in London on October 14th heard from Sir Keir Starmer, the prime minister, that after almost a decade of political turmoil in Britain, stability has returned. Labour's landslide majority on July 4th means that the government's decisions can be "measured in years, not months", Sir Keir told *The Economist* in an interview. Then comes the glitz. Delegates were whisked to St Paul's Cathedral, to be greeted by Charles III and serenaded by Sir Elton John, a musician.

Conferences, kings and cathedrals get you only so far, however. What is the new government's actual pitch to investors? The answer is a bit like Sir Keir himself: a mixture of the sensible, the potentially radical and the frustratingly unclear.

First, the sensible. To make life as easy as possible for investors, the government wants to create a "concierge" service. That is in line with the recommendations of Richard Harrington, a Conservative peer, who in a report last year warned of deals being scotched because of a "disorganised, risk-averse, siloed and inflexible" Whitehall. Poppy Gustafsson, a former boss of DarkTrace, a cyber-security firm, has been belatedly appointed as investment minister; the Office for Investment, a unit of government, will be enlarged and plugged into Number Ten, the Treasury and other Whitehall departments.

"I want a central place where investors can go and say, right, this is the door through which I walk," says Sir Keir. "Under the last government, every time they finally got to the right door, there'd be somebody else behind it." To make a one-stop-shop work, Lord Harrington notes, the minister will need the clout to extract visas, grants and other goodies from across government. Will Ms Gustafsson have that authority? "Absolutely," says Sir Keir. "Not just from my office, but from me, because this is our number-one mission."

Stop the political somersaults, rationalise Whitehall and give investors a number to call: all of this is conventional and reasonable. But Sir Keir is also capable of boldness. If the new government has a guiding philosophy, it is an idea in vogue among the centre-left known as "productivism". It holds that Britain's congenitally low rate of public and private investment—the country has been bottom of the G7 rankings for 24 of the past 30 years, according to the Institute for Public Policy Research, a think-tank—is at the root of its weak productivity growth. Fixing this problem implies expanding the productive capacity of the economy, and particularly what Sir Keir terms "the fundamentals" of housing, transport and energy. ▸▸

On Britain's planning system, Sir Keir's rhetoric has, if anything, become more radical since taking office. "It's just too slow, and it's got to be stripped down," he says. "[Investors] don't have to invest in this country. They have choices." He urges backers of schemes mothballed under the previous government to resubmit them for review. He wants a new planning framework and a change of mindset. "For urban housing, we need to get to a position where there's a default position of 'yes' and we can move forward at pace. But for all projects, I want there to be confidence that the planning rules will be simpler, faster, and that even if it's a 'no', it's a quick 'no', not a slow 'no'."

There is more than a touch of Thatcherism to this. "There's too much regulation, and it's inconsistent, different regulatory bodies pulling in different directions," he says. But in one area at least, Sir Keir is a fan of making more rules. For 40 years Britain's relatively liberal labour market has been regarded by successive governments as a draw for investors. This one is heading in the opposite direction. On October 10th it published an Employment Rights bill of striking width, combining plans for new individual rights (such as an obligation on employers to protect employees from harassment) with lower thresholds on union recognition and industrial action.

The risk, aired by some business lobbies, is that the bill chills hiring; many of its provisions are subject to further consultation. But Sir Keir argues that these reforms are in the long-term interests of investors themselves if giving people more secure working conditions helps tame populist discontent. "The values that we've had as a country as a sort of open, trading country that the investors here know and understand...are under threat politically with populism, which is bearing down on those values. So, yes, this is an economic argument for the better of the country to make people better off, but it is also a fight for the values of freedom and democracy that we fundamentally believe in."

That argument may not cut much ice with the moneymen. Although the summit went well, verdicts on the party's first 100 days in office are varied. In opposition the party courted businesses with the promise of tight co-operation. Many now report frustration at ministers being harder to reach than promised, and at an undercooked policy agenda. "We expected a much more hit-the-ground-running approach from Labour," says one City figure.

Conclusive judgments will be reserved until after the budget that will be unveiled by Rachel Reeves, the chancellor, on October 30th. Prior to the election Labour promised higher levies on private schools, private equity and non-domiciled residents. To make its sums add up, the government will need to raise other taxes; these may include a higher rate of capital-gains tax (which is paid on the sale of assets), employer payroll taxes or tweaks to the inheritance-tax regime. Surveys show that business confidence has become more fragile since the election.

"We've had to be clear that it's going to be a tough budget," says Sir Keir. "The reason we're doing it is to ensure that we clean the slate and there's economic stability. That is what investors want to hear." At St Paul's attendees were cooked for by Clare Smyth, a Michelin three-star chef. The dinner was doubtless delicious. The aftertaste will only emerge at the end of the month. ■

Taxing the rich

The ticked-off well-off

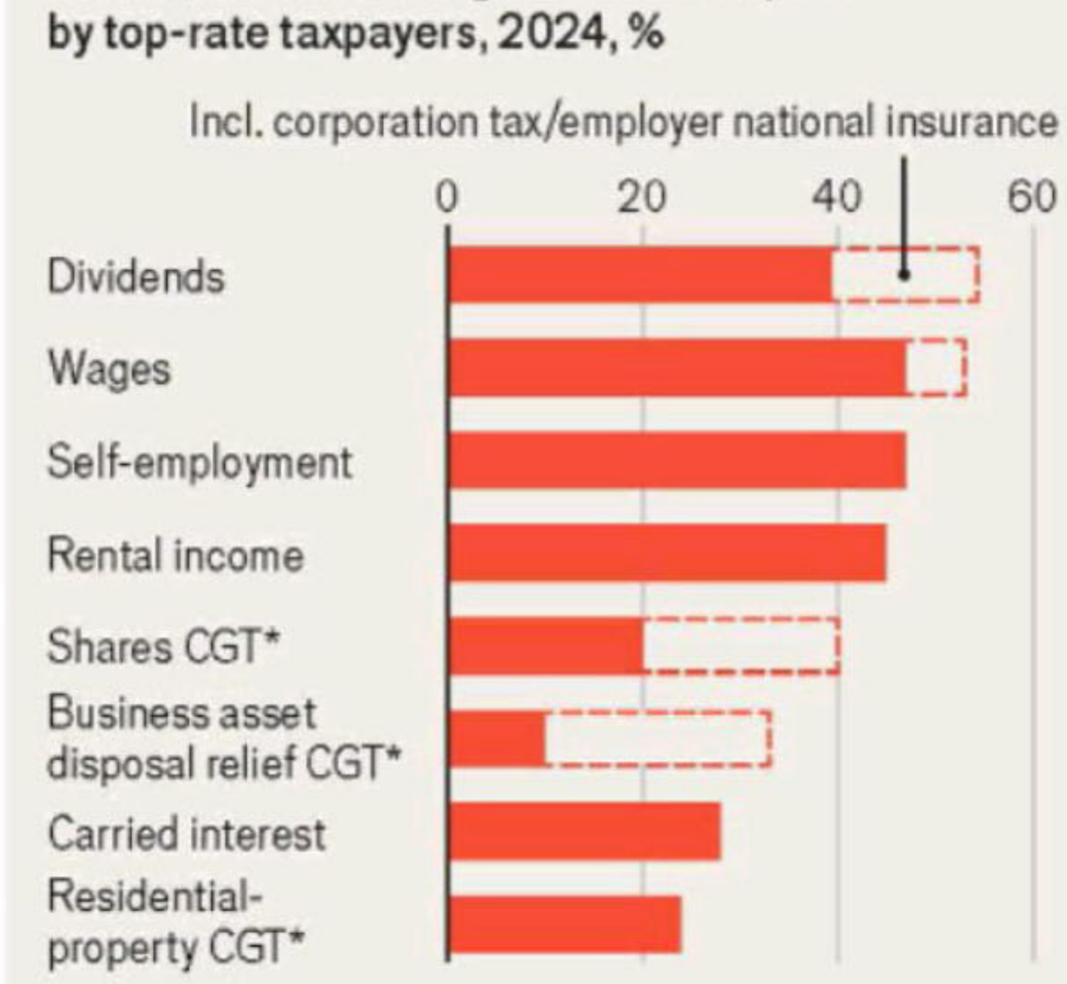
Is Britain's government at war with the wealthy?

Wealthy people have distinctive hobbies. One of them is talking, often noisily, about moving abroad to escape high taxes. In the run-up to the Labour government's first budget, due on October 30th, rich Britons have some cause for concern. Rachel Reeves, the chancellor, has spoken of the need for higher taxes but also pledged no further levies on "working people". Sir Keir Starmer, the prime minister, has said that "the broadest shoulders should bear the heavier burden".

A centre-left government proposing a slightly more progressive tax system should hardly come as a surprise. But might a too-zealous programme of soaking the rich backfire on a government that says it is committed to boosting the economy and to wealth creation?

Unequal treatment 1

Britain, selected marginal tax rates paid by top-rate taxpayers, 2024, %



Source: Resolution Foundation

*Capital-gains tax

Labour trailed several policies aimed at squeezing more out of the better-off in its manifesto ahead of the election: putting VAT on private-school fees, tightening the screws on non-domiciled (non-dom) taxpayers and raising the tax on private-equity performance fees. Potentially also on the chopping block are inheritance-tax exemptions on pensions, farmland and shares listed on the London Stock Exchange's Alternative Investment Market (AIM). Most consequentially, the government has also hinted that capital-gains tax (CGT) may go up.

Some of these are sensible reforms. The "carried interest" provision which lets buyout barons pay capital-gains tax rather than (usually higher) income tax on their firms' investment profits is a loophole that should be closed. The main inheritance-tax exemptions are highly distortive—among other things they push up the price of farmland (perversely hurting farmers who are seeking to expand) and channel money into the underperforming AIM market. Putting VAT on private-school fees has class-war overtones but is also a tiptoe towards a much-needed cull of Britain's many VAT exemptions.

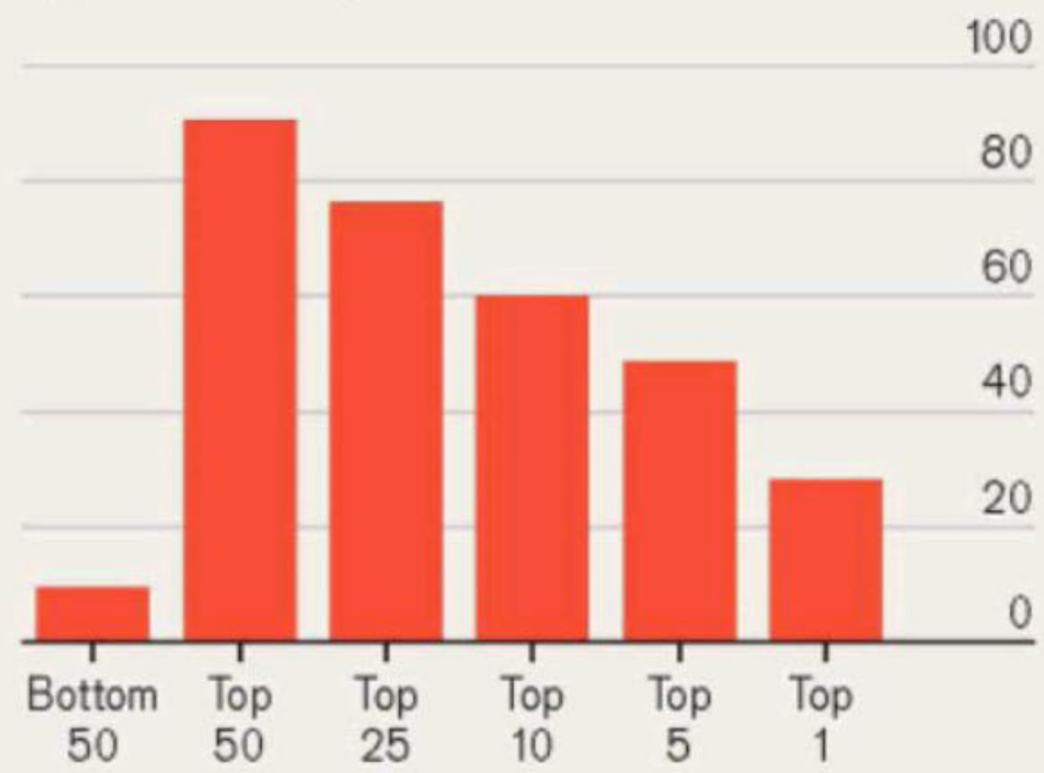
The situation is messier for non-doms, people who are deemed not to be domiciled in Britain and who are not liable to pay tax on income generated abroad. Ms Reeves's Tory predecessor, Jeremy Hunt, already abolished non-dom status in his final budget in March; from April 2025, wealthy foreigners will be taxed based on how long they have lived in Britain. The Office for Budget Responsibility, Britain's fiscal watchdog, estimates this will raise around £3bn ($3.9bn) annually. Labour's manifesto proposed to juice that amount by opening non-doms' trusts up to inheritance tax, but some reports suggest the Treasury now questions whether, as now laid out, the policy would raise money at all. Plenty of non-doms would sooner leave Britain than face a 40% tax on estates often largely earned abroad.

CGT is the biggest potential revenue-raiser on the list. There are also solid economic reasons to question why capital income is taxed so much more generously than labour income (see chart 1). But simply jacking up the headline rate would be an error. A better approach would be to reform the tax base, marrying a higher rate with a generous allowance that excludes gains up to (and potentially above) the risk-free return on cash, removing exemptions for the selling of business assets and ending the regime whereby capital-gains on assets are reset to zero for inheritors when someone dies.

Even then, Ms Reeves should be wary of pushing too far: pinning down taxpayers' likely response is tough. Many will either have already sold assets ahead of the ▸▸

The broadest shoulders 2

Britain, share of total income-tax liabilities, by percentile of pre-tax income, 2024, %



Source: HMRC

budget (there are rumblings in the property sector about a glut of second homes and buy-to-let units being put on the market) or will hold onto them in case future governments pull CGT back down.

All this raises a deeper question about what Ms Reeves's goal for the budget is. There is a decent case for cleaning up a few exemptions that advantage the wealthy and for reforming CGT. But these policies simply aren't big enough to deliver the tens of billions that Ms Reeves needs to stop public services from deteriorating further, let alone mend them.

Nor is it clear that, overall, Britain's tax system is insufficiently progressive: half of income-tax revenue comes from the highest 5% of earners (see chart 2). Indeed, there are plenty of growth-blocking inefficiencies that penalise the rich. A truly productivity-obsessed budget would also eliminate stamp duty for shares (a distortive financial-transaction tax) and tidy up the bizarrely high marginal tax rates that hit those with children who have incomes in the low six figures.

Predicting the movements of the wealthy and footloose is difficult. Sociologists at the London School of Economics recently interviewed several dozen of Britain's one-percenters to suss out how tolerant they would be of tax rises. The bulk struggled to imagine themselves leaving. "I can't see myself budging. I can see myself cursing and having to pay a lot of tax," said one. Another despaired at the feeble cultural offerings in tax havens: "You think, well, I'd quite like to go and watch an opera, well, you can forget that, there's not a theatre in the Bahamas."

But the allure of museums and opera can go only so far. A decent offering for the wealthy—and all Britons—has to start with a faster-growing economy. It would be an own goal if Ms Reeves were to jeopardise that with too punitive a tax raid. And irrespective of where the budget ends up, plenty of the rich have been spooked. As an exercise in communications, it has already done some damage. ■

Workers' rights

Tech brothers

Trade unions have their eye on Britain's tech sector

TECH FIRMS are known for the large salaries and ostentatious perks they bestow on workers: office slides, ball-pit meeting rooms and back massages. These companies tend to be less keen on the idea of employees joining a trade union. In Britain, however, they will soon have less choice in the matter.

Cycles of mass redundancies in the industry mean that workers are warming to membership, according to John Chadfield, one of the founding members of United Tech and Allied Workers (UTAW), a branch of the Communications Workers Union. "People want job security rather than ping-pong tables." The Labour government's plans for beefed-up workers' rights should make it easier for British tech employees, and their peers in other industries, to join up.

The Employment Rights bill, which was introduced to Parliament on October 10th, proposes a raft of potentially radical reforms, including a wave of rights for all employees on the first day they are hired, enhanced sick-pay entitlements and a clampdown on zero-hours contracts. Stronger union rights are a big part of the bill. Under its provisions, employers would be required not only to inform new recruits of their right to join a union but to remind them of that right on a regular basis. Unions in turn would be granted more rights to enter workplaces and recruit members.

The bill would also make it easier for unions to organise industrial action. It would scrap the need for at least 50% of those eligible to vote to cast their ballot, leaving only the requirement for a majority of votes cast to be in favour of striking. Where trade unions are now required to give employers at least 14 days' notice of a walkout, in future they would be required to give only seven. The bill would also repeal laws that allow employers in health care and other selected industries to impose minimum-service levels during strikes.

This would all be good news for the unions themselves. They have endured a protracted decline in membership, owing to fewer jobs in heavily unionised sectors such as manufacturing and a rise in self-employment and casual work. Around 13m British workers were members of a trade union in the 1970s; today there are 6.4m members, the lowest level in nearly three decades.

It is too early to predict a new era of union militancy, not least because much of the bill is subject to consultation. But industries like technology, which have historically avoided unionised workforces, may have to get used to the idea of comrade coders.

On the march again

BAGEHOT

War on prices: British edition

Too often, politicians see prices as something to be wrestled into submission

EVERY FEW decades the American government declares war on a noun, and the British government meekly follows along. In the 1970s it was Richard Nixon's war on drugs, which shaped British drug policy for a generation. In the 2000s it was George W. Bush's war on terror, which the British government keenly joined. Now another war has come along: the "war on prices".

The term was popularised by Ryan Bourne, an economist at the Cato Institute, a free-market think-tank. It explained how America's politicians had come to see prices as something to be fought rather than a vital part of a market economy. Like its forebears, the war on prices has caught on across the Atlantic. Like an inept general, the British state has intervened when it should have steered clear; where action was necessary, it has often blundered.

The British war on prices started with a skirmish. In 2013 Ed Miliband, then the leader of the opposition Labour Party, argued for a cap on energy bills. What was once dismissed as a hopelessly left-wing idea became policy in 2017 under the Conservative government of Theresa May. Four governments later, it is still in place. Each quarter Ofgem, the regulator of Britain's privatised energy market, decides how much a firm can charge its customers.

New fronts in the war keep opening. If the state can set energy prices, why not fiddle in the private rental market? A renter's bill designed to mitigate the casual humiliation of tenancy in England—landlords must now remove mould *quickly*—has morphed into the introduction of a soft version of rent control. The removal of no-fault evictions means tenants can be more gung-ho about challenging rent rises. A tribunal of lawyers and experts will decide the "market rate" (mainly by firing up Zoopla, an online portal). This will be a one-way bet: a tenant will never have to pay more than the initial offer. Likewise, flat-hunters will be forbidden from going above the advertised asking-price. In the war on prices, "market prices" are too vital to be left to the market.

At times, this is a dirty war. British politics has taken a scatological turn, in which leaders of a G7 country spend a surprisingly large amount of time discussing sewage. Again, inept pricing is to blame. Since privatisation in 1989, Ofwat, the water regulator, has focused on low prices rather than on compelling higher investment from private water companies. The result is waterways that are less clean than they might be. Worse, thanks to stricter rules on measuring sewage spills, voters in England now know exactly how bad things are (there were 464,056 spills in 2023). Faced with a choice of poo in the rivers or price rises, "neither!" is the war-cry of British voters.

The water industry is not the only one to suffer from the British habit of marketising a service that struggles to function as a market. Universities are another victim. Tuition fees were capped at £9,000 ($11,725) in 2012, in the expectation that some universities would charge less to attract students. Instead, practically all universities—from Cumbria to Cambridge—charged the highest amount possible. The government then refused to allow price rises (other than an increase of £250 in 2017, seven years and one inflation shock ago). Many universities are now broke. Labour is considering allowing fees to rise to £10,500 by 2029. It is not much of a peace offering.

What happens if the price of something is prevented from rising? Look beneath your feet. In Britain it is common to see paving slabs or intricate brickwork spoiled by streaks of tarmac left behind by utility companies. "Street scars", as they have been dubbed by Create Streets, a design consultancy, are a consequence of the war on prices. According to a law passed in 1991, a company must pay up to £2,500 if it leaves a street in a state. What was once a stiff price is now spare change. Every year it is a little bit cheaper to leave Britain's public realm resembling a battlefield.

The war on prices was, for a time, a phoney war rather than truly damaging one. Sadiq Khan, the mayor of London, made a show of freezing bus and Tube fares. Keeping fares flat in an era of low inflation and low wage growth was a cheap sop to voters. But in an era of sticky inflation and healthier wage growth, the fighting is expensive. Between 2016 and 2024 bus fares in London rose by 17% to £1.75, with any rises smuggled through between election years. In contrast, the starting salary of a London bus driver rose by 43% to £33,000. London's transport network is cash-strapped and the war on prices is, in part, to blame.

The Price Is (Not) Right!

Surrender in the war on prices is not necessary. At times the British state is a model of Hayekian rationality when it comes to prices. It is, for instance, happy to put a price on life. The National Institute for Health and Care Excellence, a regulator, is admirably clear that if a treatment costs more than £20,000-30,000 per quality-adjusted life year, it is generally not available on the National Health Service. This is the necessary sociopathy of the state, whose fundamental duties often boil down to who dies and how.

Prices are sometimes deployed for cuddly but complex goals. Britain is a pioneer when it comes to "biodiversity net gain" credits, which see developers pay from £42,000 for disturbing heathland to £650,000 for ruining a peat lake. For all its flaws (what *is* the right price for a bog?) this is better than the previous system, which priced these habitats at either zero or infinity, with building being simply banned. It is in less knotty areas—such as tuition fees or bus prices—where the war does most needless damage.

But there is hope there, too. London was the first major city to introduce a congestion zone; it was also the first to introduce an ultra-low emissions zone, sticking with it even when masked vigilantes started chopping down enforcement cameras. Many battles have been lost. Peace in the war on prices is still possible. ■

International

Russia's intelligence agencies

Going feral

Vladimir Putin's "everything, everywhere, all at once" strategy of assassination, arson, sabotage and hacking against the West

"WE'VE SEEN arson, sabotage and more: dangerous actions conducted with increasing recklessness," warned Ken McCallum, the head of MI5, Britain's domestic security and counter-intelligence agency, of the threat posed by Russia and the GRU, its military-intelligence agency. "The GRU in particular is on a sustained mission to generate mayhem on British and European streets," he said on October 8th. Other European intelligence agencies are equally concerned. On October 14th Bruno Kahl, Germany's spy chief, said that Russia's covert measures had reached a "level previously unseen". Thomas Haldenwang, the head of Germany's domestic intelligence services, told lawmakers that an act of sabotage had almost caused a plane to crash earlier this year as he warned that "aggressive behaviour" by Russian spies was putting lives at risk.

Russia's war in Ukraine has been accompanied by a crescendo of aggression, subversion and meddling elsewhere. In particular, Russian sabotage in Europe has grown dramatically. "We see acts of sabotage happening in Europe now," Vice-Admiral Nils Andreas Stensones, the head of the Norwegian Intelligence Service, said in September. Sir Richard Moore, the chief of MI6, Britain's foreign-intelligence agency, put it more bluntly: "Russian intelligence services have gone a bit feral, frankly."

The Kremlin's men have squeezed the West out of several African states. Its hackers, Poland's security services said, have tried to paralyse the country in the political, military, and economic spheres. Russia's propagandists have pumped disinformation around the world. Its armed forces want to put a nuclear weapon in orbit. Russian foreign policy has long dabbled in chaos. Now it seems to aim at little else.

Start with the summer of sabotage. In April Germany arrested two German-Russian nationals on suspicion of plotting attacks on American military facilities and other targets on behalf of the GRU. The same month Poland arrested a man who was preparing to pass the GRU information on Rzeszow airport, a hub for arms to Ukraine, and Britain charged several men over an arson attack on a Ukrainian-owned logistics firm in London. The men were accused of aiding the Wagner Group, a mercenary outfit now under the GRU's control. In June France arrested a Russian-Ukrainian who was wounded after attempting to make a bomb in his hotel room in Paris. In July it emerged that Russia had plotted to kill Armin Papperger, the boss of Rheinmetall, Germany's largest arms firm. On September 9th air traffic at Stockholm's Arlanda airport was shut down for more than two hours after drones were spotted over runways. "We suspect it was a deliberate act," a police spokesperson said. American officials warn that Russian vessels are reconnoitring underwater cables.

Even where Russia has not resorted to violence, it has sought to stir the pot in other ways. The Baltic states have arrested a number of people for what they say are Russian-sponsored provocations. French intelligence officials claim that Russia was responsible for the appearance of coffins draped with the French flag and bearing the message "French soldiers of Ukraine" left at the Eiffel Tower in Paris in June. Many of these actions are aimed at fanning opposition to aid for Ukraine. But others are intended simply to widen splits in society of all kinds, even if these have little or no link to the war. France says that Russia was also behind the graffiti of 250 Stars of David on walls in Paris in November, an effort to fuel antisemitism, which has surged since the start of the Israel-Hamas conflict.

Much of Russia's activity has been virtual. In April hackers with ties to the GRU seem to have manipulated control systems for water plants in America and Poland. In September America, Britain, Ukraine and several other countries published details of cyber-attacks by the GRU's Unit 29155, a group that was previously known for assassinations in Europe, including a botched effort to poison Sergei Skripal, a former Russian intelligence officer. The GRU's cyber efforts, which had been ongoing since at least 2020, were not just aimed at espionage, but also "reputational harm" by stealing and leaking information and "systematic sabotage" by destroying data, according to America and its allies.

Beyond Europe, GRU officers have been in Yemen alongside the Houthis, a rebel group that has attacked ships in the Red Sea, ostensibly in solidarity with Palestinians. Russia, angered by America's provision of long-range missiles to Ukraine, came close to providing weapons to the group in July, CNN reported, but reversed course after strong opposition from Saudi Arabia. The fact that Vladimir Putin, Russia's president, was willing to alienate Muhammad bin Salman, the kingdom's de facto ruler whom he had courted for years, is an indication of how Russia's war has cannibalised its wider foreign policy.

Everything everywhere

"What Putin is trying to do is hit us all over the place," argues Fiona Hill, who previously served as the top Russia official in America's National Security Council. She compares the strategy to the Oscar winning film: "Everything Everywhere All at Once". In Africa, for instance, Russia has used mercenaries to supplant French and American influence in the aftermath of coups in Burkina Faso, Mali and Niger.

Russia's meddling in America takes a very different form. In May Avril Haines, America's director of national intelligence, called Russia "the most active foreign threat to our elections" above China or Iran. This was not merely about trying to shape America's policy on Ukraine. "Moscow most likely views such operations as a means to tear down the United States as its perceived primary adversary," she said, "enabling Russia to promote itself as a great power." In July American intelligence agencies said that they were "beginning to see Russia target specific voter demographics, promote divisive narratives, and denigrate specific politicians".

These efforts are generally crude and ineffectual. But they are prolific, intense and sometimes innovative. In September America's Justice Department accused two employees of RT, a Kremlin-controlled media outlet that regularly spews out Russian talking points and lurid conspiracy theories, of paying $10m to an unnamed media company in Tennessee. The firm, thought to be Tenet Media, posted nearly 2,000 videos on TikTok, Instagram, X and YouTube. (Commentators paid by the company denied wrongdoing.) The department also seized 32 Kremlin-controlled internet domains designed to mimic legitimate news sites.

Russian propagandists are also experimenting with technology. CopyCop, a network of websites, took legitimate news articles and used ChatGPT, an AI model, to rewrite them. More than 90 French articles were modified with the prompt: "Please rewrite this article taking a conservative stance against the liberal policies of the Macron administration in favour of working-class French citizens." Another rewritten piece included evidence of its instructions, saying: "This article...highlights the cynical tone towards the US government, NATO, and US politicians."

Russian disinformation campaigns are hardly new, acknowledges Sergey Radchenko, a historian of Russian foreign policy, pointing to episodes such as the Tanaka memorandum, an alleged Soviet forgery that was used to discredit Japan in 1927. Nor are proxy wars or assassinations a novelty. Soviet troops were already fighting in Yemen, disguised as Egyptians, in the early 1960s, he notes. The KGB's predecessors and successors have killed many people abroad, from Leon Trotsky to ex-spy Alexander Litvinenko.

The genuinely new part, says Mr Radchenko, "is that whereas previously special operations supported foreign policy, today special operations *are* foreign policy." Ten years ago the Kremlin worked with America and Europe to counter Iran and North Korea's nuclear programme. Such co-operation is now fanciful. "It is as if the Russians no longer feel they have a stake in preserving anything of the post-war international order," says Mr Radchenko. This period reminds him more of Mao's nihilistic foreign policy during China's Cultural Revolution than the Soviet Union's cold-war thinking, which included periods of pragmatism and caution. Ms Hill puts it another way: "It's Trotsky over Lenin."

Mr Putin embraces these ideas. "We are in for probably the most dangerous, unpredictable and at the same time most important decade since the end of World War II," he said in late 2022. "To cite a classic," he added, invoking an article by Vladimir Lenin in 1913, "this is a revolutionary situation." That belief—that the post-war order is rotten and needs rewriting, by force if necessary—also gives Russia common cause with China. "Right now there are changes the likes of which we haven't seen for 100 years," Xi Jinping told Mr Putin last year in Moscow, "and we are the ones driving these changes together."

Russia's foreign-policy strategy, published in 2023, offers the bland reassurance that it "does not consider itself an enemy of the West...and has no ill intentions". A classified addendum acquired by the *Washington Post* from a European intelligence service suggests otherwise. It proposes a comprehensive containment strategy against a "coalition of unfriendly countries" led by America. That includes an "offensive information campaign" among other actions in the "military-political, trade-economic and informational-psychological...spheres". The ultimate aim, it notes, is "to weaken Russia's opponents".

This does not mean Russia is unstoppable. It is increasingly a junior partner to China. Its influence has slipped in some countries, such as Syria. It does not always back up its own proxies—dozens of Wagner fighters were killed in an ambush by Malian rebels, aided by Ukraine, in July. And Russian subversion can be disrupted, says Sir Richard, by "good old-fashioned security and intelligence work" to identify the intelligence officers and criminal proxies behind it. The fact that Russia is increasingly reliant on criminals to carry out these acts, in part because Russian spies have been expelled en masse from Europe, is a sign of desperation. "Russia's use of proxies further reduces the professionalism of their operations, and—absent diplomatic immunity—increases our disruptive options," says Mr McCallum.

Russian meddling is intended to put pressure on NATO without provoking a war. "We also have red lines," says Ms Hill, "and Putin is trying to feel those out." But if he is truly driven by a revolutionary spirit, convinced that the West is a rotten edifice, that suggests more lines will be crossed in the months and years ahead. ■

Business

Autonomous cars

The robotaxi fantasy

Scaling up self-driving cabs will be hard, and competition will be fierce

ELON MUSK'S choice of Warner Bros Studios for the long-anticipated launch of his robotaxi on October 10th was entirely appropriate. Hollywood's film studios are as much a dream factory as Tesla, his electric-car company. The vision he served up, accompanied by whoops of delight from the superfans in the audience, is an autonomous Cybercab so cheap that it will serve as "individualised mass transit". But Mr Musk's promises were, like many Hollywood movies, long on bombast and short on reality. The road to self-driving taxis will be long, and Tesla will face intense competition along the way.

The Cybercab, a two-seater car without a steering wheel or pedals, will be on sale "before 2027", according to Mr Musk, though his timelines often slip—he once promised a fleet of 1m robotaxis by 2020. He also showed off a Robovan, which will carry 20 passengers, and modestly predicted that his humanoid robot will be the "biggest product ever of any kind". Yet the event, which was light on details, disappointed investors; Tesla's share price fell by 9% the following day.

In recent years robotaxi services have popped up in a growing number of cities. Waymo, a division of Alphabet, has raced ahead in America. After 15 years and perhaps $30bn of investment it now has a fleet of 700 self-driving cabs operating in Los Angeles, San Francisco and Phoenix, and will soon launch in Atlanta and Austin. Farther back is Cruise, whose biggest investor is General Motors. It also operates in Phoenix and is resuming tests in San Francisco after regulators slammed on the brakes following an accident last year. Zoox, Amazon's contribution to driverless travel, is testing vehicles in five locations including Las Vegas and Miami.

China has also become a hotspot for autonomy. Apollo Go, the robotaxi unit of Baidu, a Chinese tech giant, launched its service in Wuhan in 2022 and has since expanded to ten other Chinese cities. It aims to double its Wuhan fleet to 1,000 robotaxis by the end of the year. Other Chinese firms including Pony.ai, WeRide and Didi, the country's biggest ride-hailing firm, are also experimenting with robotaxis in a number of big cities.

But a series of pilots in a handful of cities is far from the go-anywhere vision that Elon Musk has espoused, and there is still no guarantee of meaningful profits in the foreseeable future. Waymo and its competitors so far mostly operate in places where the weather is fine and the roads are straight and wide. Expanding to trickier ▸▸

→ ALSO IN THIS SECTION

cityscapes will take time and money. To deploy its service in a new city, Waymo has to invest significant sums upfront to compile detailed 3D maps and build other necessary infrastructure.

The cost of the self-driving vehicles themselves—around $150,000 apiece for Waymo—also remains a problem. Around two-thirds of that is estimated to come from hardware. To operate their vehicles autonomously, Waymo and others are relying on a battery of expensive sensors including cameras, radars and lidars, which use lasers to create a 3D image of the vehicle's surroundings, as well as oodles of in-car computing power to make sense of all the data.

Roadblocks

Human drivers account for well over half the fare of ride-hailing services such as Uber and Lyft, which might suggest a big opportunity for self-driving cabs. Yet Waymo still employs remote "safety drivers" to keep an eye on its vehicles. Significant amounts of real estate are also needed close to city centres in order to charge, clean and maintain robotaxis. Bernstein, a broker, calculates that once all costs are considered, fares for self-driving taxis will remain higher than for human ones for some time. What is more, replacing the fleet of Uber and Lyft cars in America with robotaxis would require up to 400,000 vehicles, Bernstein reckons. At the current cost of a Waymo, that would mean an investment of around $60bn.

Tesla is betting it can make a cheaper option work. Its "full-self driving" system, which will be the underlying tech for its robotaxis, relies only on cameras to collect information. Data from these will go into an "end-to-end neural network"—an algorithmic black box trained on 9bn miles of driving data from the 6m Teslas already on the road—to produce driving commands. As a result, Tesla says its robotaxis will cost under $30,000 and will be easier to transfer from one city to another.

Even if Tesla can make the technology work, it will still need to convince regulators of its approach. Its neural network will be far less transparent than the modular systems used by Waymo and others. And regulators may not trust that relying solely on cameras will be sufficient to deal with rare and unusual "edge cases". Officials are already wary of safety after Cruise's accident last year, in which one of its vehicles dragged along a pedestrian thrown into its path by a human hit-and-run driver.

Mr Musk believes his approach will gain regulatory approval once it proves it is safer than human drivers. But any incidents that do occur could still turn off would-be passengers. And some cities may also resist robotaxis if they are perceived as a threat to public transport and local jobs or a source of traffic congestion.

Also unresolved is the question of who will own and operate all these robotaxis. Ride-hailing firms are one possibility. Uber has signed deals with Waymo and Cruise to make their vehicles available on its platform in some locations. It has also invested in Wayve, a British autonomy startup. But the company, which has only just begun to turn a profit after years of torching cash, may be reluctant to pour vast sums of money into acquiring a self-driving fleet.

During his presentation, Mr Musk speculated that "an Uber or Lyft driver today" could one day operate a fleet of self-driving cabs "like a shepherd tends their flock". That kind of wishful thinking is part of the reason why JPMorgan Chase, a bank, does not expect "material revenue generation...for years to come" from Tesla's robotaxis. Standing expectantly by the roadside for a driverless lift will, for most people, involve a long wait. ■

Luxury

On the rack

Fashion designers are coming and going faster than the latest trends

A GIANT BIRDCAGE held models wearing Chanel's latest clothes at its show for Paris fashion week on October 1st. The exhibit in the Grand Palais had all the hallmarks of the 114-year-old fashion house: sophistication, skirt suits and even a little black dress. Yet at the end there was no designer to take the applause. In June Virginie Viard, Chanel's creative director since 2019, stepped down. Ms Viard was only the third person to hold the role. She took over from Karl Lagerfeld, a sharp-tongued German who held the role for 36 years and once called sweatpants "a sign of defeat". Mr Lagerfeld's predecessor was Coco Chanel. The front rows of runway shows are now rife with gossip about who will bag fashion's most prestigious job. An announcement is expected this month.

Cagey

Ms Viard is but one among many superstar designers to have left their jobs recently. In July Peter Hawkings, creative director at Tom Ford, left after less than a year in the role. On October 2nd Hedi Slimane quit the top design job at Celine, owned by LVMH, a French luxury conglomerate; on October 11th Kim Jones left the same post at Fendi, another LVMH *maison*. Fashion designers are coming and going faster than the latest trends.

The turmoil can be attributed in part to a slowdown in sales of luxury goods. Softening demand, notably in China, has hurt fashion houses. On October 15th LVMH reported that revenue for its fashion and leather-goods division for the quarter from July to September fell by 5%, year on year. The slump is making investors and bosses jittery, in turn giving established designers less freedom to experiment and newly appointed ones less time to find their feet.

At the same time, designers are increasingly being asked to do more than just fashion clothes. Karen Harvey, a consultant who helped appoint Calvin Klein's lead designer this year, says there is a growing expectation in the industry that creative directors will be able to "rescue a brand". Virgil Abloh, a streetwear entrepreneur and creative collaborator of Kanye West, transformed the staid image of Louis Vuitton's menswear by working with younger talent. He once told an interviewer, "I am not a designer." After he died in 2021, aged just 41, the company replaced him with Pharrell Williams, a singer who had also branched out into streetwear. According to Ms Harvey, customers now expect a mix of "fashion, zeitgeist and culture" from luxury brands—all of which creative directors are meant to supply.

Whoever replaces Ms Viard at Chanel will at least have one advantage: the world's second-biggest luxury-fashion brand by sales (behind Louis Vuitton) is privately owned by two French brothers, Alain and Gérard Wertheimer. That should mean there will be less focus on short-term financial results. Yet Chanel is not entirely shielded from the forces buffeting the industry. It has been aggressively chasing growth in recent years; between 2020 and 2023 its sales nearly doubled, to around $20bn. Much of that is a result of hefty price increases. Bernstein, a broker, estimates that from 2020 to 2023 like-for-like prices at Chanel increased by almost 60%

on average. Among other luxury brands it examined, only Dior put its prices up by more. Amid weakening demand, further big increases may be difficult to pull off.

That will make the job of Chanel's fourth-ever creative director trickier. In the running are said to be Mr Slimane, recently of Celine; Pierpaolo Piccioli, who left Valentino in March; and Marc Jacobs, who was the creative director at Louis Vuitton for 16 years and now has his own label. Whoever gets the job will hope to make a strong impression quickly—lest they be pushed aside for Chanel number five. ■

Polish business

Little frog, bigger pond

WARSAW

Poland's biggest IPO in years could help revive its struggling stockmarket

IF A POLE runs out of milk on a Sunday morning, they will probably head to Zabka, a convenience store. It is rarely a long walk. Roughly 17m people, nearly half of Poland's population, live within 500 metres of one of its more than 10,500 outlets. Some may now buy a slice of the retailer itself: on October 17th its owner, CVC, a European private-equity firm, listed a third of Zabka's shares on the Warsaw Stock Exchange (WSE) at a valuation of 21.5bn zlotys ($5.5bn). The deal has brought a boost to Poland's beleaguered bourse.

Zabka, whose name means "little frog" in Polish, has grown rapidly in recent years. Between 2021 and 2023 its revenue rose from $3.2bn to $5bn. It plans to open 4,500 more shops by 2028, moving beyond cities and into smaller Polish towns, as well as abroad—in May it entered Romania under the name Froo.

Already Europe's largest convenience-store chain by number of outlets, Zabka has earned its popularity. Its small shops are cleverly designed: customers are in and out in 106 seconds on average. Each store's inventory is optimised for the appetites of local customers. A snazzy mobile app holds vouchers and receipts and gives customers access to its cashierless "Nano" stores, which are open 24/7. It helps that Zabka is now one of the few places you can get groceries on a Sunday in Poland: it is exempt from trading restrictions introduced in 2019 owing to its franchise model.

Zabka's choice to debut on the WSE was a rare coup for the struggling stockmarket. Valuations of Poland's listed firms have not kept pace with the country's economic growth of late. Its stockmarket took a hit in 2013 when the first government of Donald Tusk, who returned as prime minister last year, overhauled the country's pensions system. Private pension funds were absorbed into a government system in an effort to reduce the state's debts, leading to a reduction in investment in the WSE.

Warsaw's exchange has been in a doom loop ever since. The market capitalisation of companies listed on the WSE fell from 40% of Poland's GDP in 2013 to 26% in 2023, putting it well behind other European countries (see chart). Domestic investors have been put off by poor past performance. That, in turn, has sidelined Poland's stockmarket as a source of funding; in 2021 InPost, a Polish parcel-locker company, chose Amsterdam instead to raise €2.8bn ($3.4bn) in equity. The number of companies listed on the WSE reached a peak of 482 in 2017, but has since steadily fallen to 410.

The WSE is now dominated by state-controlled banks and energy firms. These have often pursued the government's aims by pouring profits into state-backed projects, rather than dividends, and hiring and firing executives on political whims, says Andrzej Stec, editor-in-chief of Bankier.pl, a Polish financial-news outlet.

Yet there are still good reasons for Zabka to debut in Poland. As the fourth-largest IPO ever on the WSE, it has gained plenty of attention in the country; orders for its shares, priced at the top of their proposed range, were heavily oversubscribed. Jon Eastick, the chief financial officer of Allegro, an online marketplace that listed on the WSE in 2020 in the exchange's biggest-ever IPO, explains that his firm chose the local bourse to attract retail investors who use its service. Listing in Poland might also be a way for companies to stay in the government's good books. Changes to the Sunday trading laws are listed first among the risks to Zabka in its prospectus.

More headline-grabbing IPOs like Zabka's could inject much-needed sparkle into Warsaw's dull stockmarket, drawing in first-time investors and perhaps charting the way for smaller companies seeking funds. Zabka's pond may soon grow. ■

Commodities

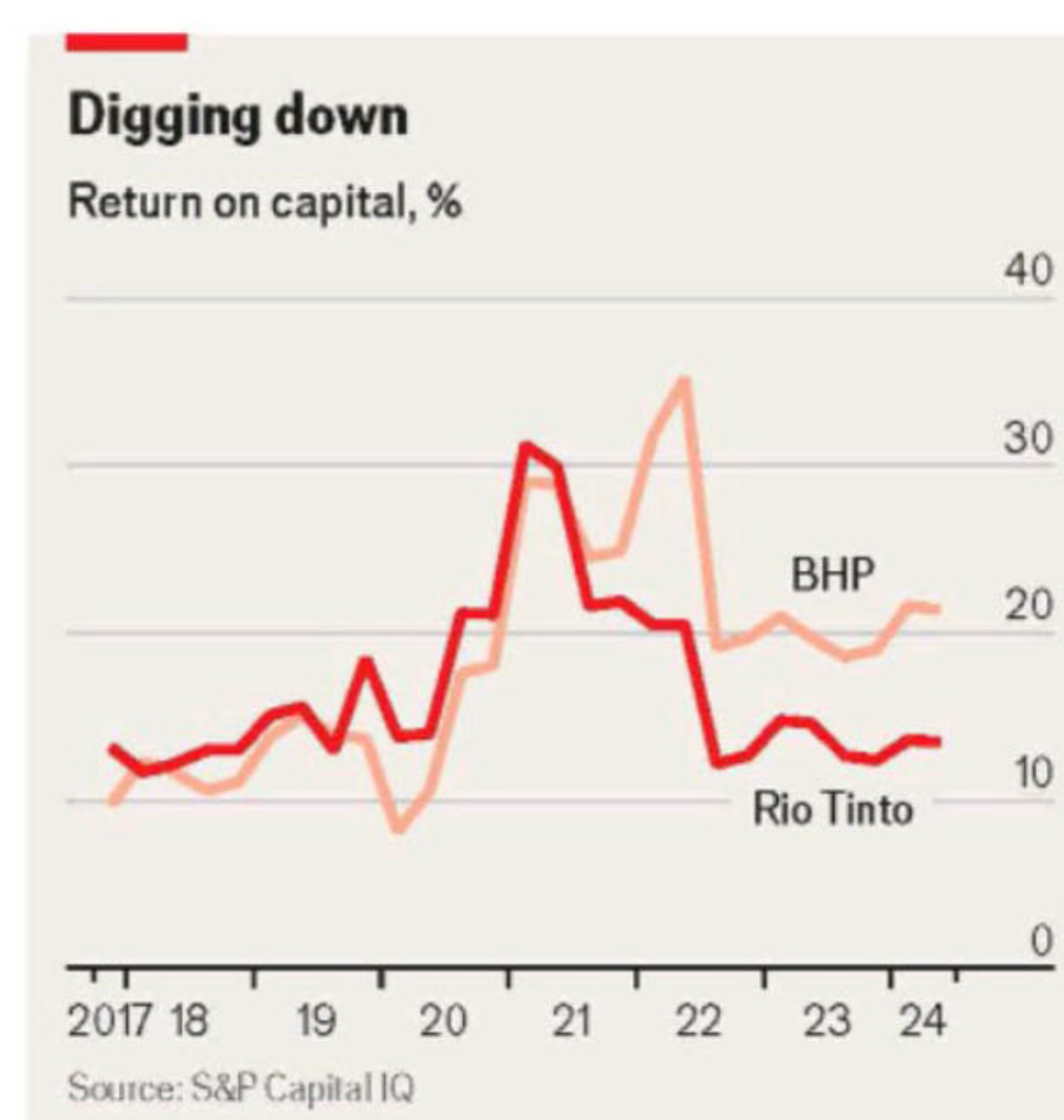
Mine your own business

The world's two most valuable miners are going in different directions

FOR YEARS BHP and Rio Tinto, the world's two most valuable miners, moved in lockstep. During the 2000s the twin Anglo-Australian giants rose on the back of China's demand for commodities, particularly iron ore. In 2007 they even explored a merger (regulators rebuffed the idea). Then, when the commodity supercycle crashed in 2015, both landed in investors' bad books, and were forced to shed assets and pay down their debts. Now, as the pair look to make the most of the energy transition, they are placing diverging bets on the future.

On October 9th Rio, the smaller of the two by market value, announced it was buying Arcadium Lithium for $6.7bn in one of the largest mining deals of the past decade. The purchase will make Rio the world's second-biggest producer of lithium, a critical element in batteries, with mines from Argentina and Australia to Canada and China. It follows various other lithium investments by the company in recent years, including the acquisition of a site in Argentina for $825m in 2022 (expected to begin production before Christmas) and a project in Serbia that has been delayed by a backlash over its potential environmental impact.

Rio's bet on lithium is bold. Prices of the metal have plunged by more than 80% over the past two years as the market for electric vehicles has decelerated and concerns around oversupply have spooked traders. Yet Jakob Stausholm, Rio's boss, is confident that demand for lithium will outpace supply over the course of the decade, leading prices to rise again. He adds that Rio's mines will be better quality and lower ▸▸



cost—and therefore more profitable—than those of its competitors. The acquisition of Arcadium should help with that: the miner is a pioneer in so-called direct lithium extraction, a group of technologies that draw lithium from brine without relying on evaporation, which is less efficient.

"Lithium is a differentiator between Rio and all the other big miners," says Mr Stausholm. That includes BHP. Mike Henry, the bigger miner's boss, has said in the past that he doesn't "see the opportunity" in lithium. He is more interested in copper, a metal that is also critical to the energy transition as well as to the data centres powering the artificial-intelligence revolution. Earlier this year BHP tried to buy Anglo American, another big miner, for $39bn, primarily for its copper assets. After that fell through, it announced it would buy Filo Corp, an exploration company with copper assets, for about $3bn, in partnership with Lundin Mining, a Canadian miner. Although Rio has also invested in copper, it produces far less of it than BHP.

Aluminium is another area in which the two have diverged: BHP divested its aluminium business a decade ago; since then Rio has continued to expand its role in the West's supply chain for the metal. It is now one of the world's biggest miners of bauxite, the ore that is refined into aluminium. On October 16th Rio reported it produced 15m tonnes of the stuff in the quarter from July to September, up about 8%, year on year. Last year the company said it would invest $1.1bn to expand its aluminium smelting operations in Quebec. And earlier this year it acquired a 50% stake in a producer of recycled aluminium for $700m.

On the whole, Rio has been far more aggressive in its pursuit of growth than its rival. Besides BHP's investments in copper and, to a lesser extent, nickel and potash, it has kept its purse-strings tight. The book value of its operating assets is roughly what it was in 2019; Rio's, by contrast, has surged by a fifth over that period. As BHP has concentrated more on mines in Australia, Rio has made investments in far-flung places from Guinea to Mongolia. The pair's preferred commodities are also telling. Lithium's price may be more volatile than copper's, and its market currently smaller, but demand could rocket: the International Energy Agency, an official forecaster, predicts that in a net-zero scenario demand for lithium in 2040 will be about 8.7 times its level today, compared with 1.5 times for copper.

Rio's focus on expansion, however, has come at a cost. In 2019 the return on capital for the two miners was almost identical, at roughly 15%; Rio's has since fallen to below 14% while BHP's has risen to 21% (see chart on previous page). To surpass its long-standing rival, Rio will need to find ways to turn more of its earth into profit. ■

Microsoft Excel

Reign of the spreadsheet

The business world's favourite software program has entered its 40th year

FOR MANY, Microsoft Excel is the epitome of corporate drudgery. Its dreaded #VALUE! error has driven an incalculable number of users to despair. Yet among financial analysts, management consultants and even the odd business journalist, the spreadsheet program, which this month entered its 40th year, is a handy tool for everything from interrogating company financials to pricing assets. Satya Nadella, the boss of Microsoft, has called it the "best consumer product" the tech giant ever made. The program even has its own world championship in Las Vegas, where spreadsheet wizards pivot, concatenate and VLOOKUP their way to victory.

Excel was not the first spreadsheet for PCs. That honour belongs to VisiCalc (short for visible calculator), built in 1979 by Dan Bricklin, then a student at Harvard Business School. By 1983 a rival program, Lotus 1-2-3, had taken the lead. When Microsoft released Excel in 1985, it brought a few clever twists. Instead of recalculating every cell when one changed, it updated only the affected cells. This made it much faster, especially on early PCs. Microsoft also ditched the clunky command-line interface for an easier-to-use graphical one.

Excel quickly became one of the most popular business tools. Exact figures are hard to pin down because the software is bundled with other Microsoft products, but last year the company reported that its cloud version had nearly 400m paid users. Mastery of Excel is prized: more than 100m LinkedIn users list it as a skill, compared with 61m for Google Sheets, a rival program, according to Senacea, a spreadsheet consultancy.

Excel has featured in plenty of workplace blunders—though its defenders will be quick to blame human error. The financial world is littered with tales of costly spreadsheet errors. Excel has also been blamed for botching gene names in over a third of genomics papers (because it labelled them as dates); underreporting covid-19 cases in England (because it only had a limited number of rows in which to record the results); and disrupting the trial of January 6th rioters in America (because sensitive information was left in hidden cells).

Such snafus have not dented Excel's dominance. Might artificial intelligence (AI) steal its crown? With whizzy new tools powered by the technology promising to make data analysis easier, the familiar grid of numbers and calculations could soon feel outdated. Rather than replacing spreadsheets, though, AI might make them even better. Last month Microsoft introduced an AI assistant for Excel which lets users crunch data using natural-language prompts. Excel, and its faithful, aren't ready to be filtered out just yet.

Count on me

AI in action

Called out

SAN FRANCISCO

Can artificial intelligence rescue customer service?

IT'S NOT easy being a customer-service agent—particularly when those customers are so angry with a product that they want to yell at you down the phone. That's the sort of rage that Sonos, a maker of home-audio systems, encountered in May when it released an app update so full of glitches it caused its share price to plunge.

One of the agents dealing with the ensuing customer tirades was a rookie. But not a human one. Prior to the debacle, Sonos had hired Sierra, a startup co-founded by Bret Taylor, the chairman of OpenAI, to provide it with a customer-service bot powered by generative artificial intelligence (AI). It could have been a disaster; the only thing worse than a malfunctioning product is being trapped in an automation prison by a robot giving you the runaround. Yet the bot beat expectations. After digesting Sonos's technical materials, it came up with its own workaround for one of the problems with the Sonos app.

Customer service is one of the few industries where the use of generative AI is already taking root. In a survey of customer-service executives published earlier this year by Gartner, a research firm, almost half said that AI customer assistants would have a significant impact on their organisations in the next 12-18 months. Startups and established tech firms alike have launched a volley of new products at the industry that promise to transform customer service—and millions of jobs.

Customer service is a big industry. Most companies have some sort of customer support, whether in-house or outsourced to call centres. In America alone there are almost 3m customer-service workers, according to the Bureau of Labour Statistics. At a median salary of around $40,000 a year, that works out at roughly $120bn in wage costs. Many more work in call centres in places like India and the Philippines, where these jobs are seen as ladders to the middle class.

In recent years, however, the industry has become notorious for driving customers mad with its use of technology. Its poor reputation is deserved, reckons Andy Lee, co-founder of Alorica, an American contact-centre business with 100,000 employees. It is expensive for firms to use humans to solve their customers' problems, so they make the process as cumbersome as possible by forcing them to press a bewildering combination of numbers or chat with a bot that regurgitates generic responses—a strategy known as "deflection". Once human agents are involved, it is in the financial interests of outsourcing firms to make the process as labour intensive as possible, raising costs and frustrating everybody.

Now entrepreneurs and investors are betting that generative AI can make things less awful. Funding for startups developing customer-service tools that use generative AI reached $171m globally in the third quarter, up from $45m in the same period last year, according to PitchBook, a data gatherer (see chart). This month Crescendo, co-founded by Alorica's Mr Lee, raised money at a valuation of $500m. Sierra, which raised funds at a valuation of about $1bn in January, is now said to be seeking more at a valuation of $4bn, raising eyebrows even among some AI-crazed venture capitalists.

It is not just startups entering the field. Tech titans like Alphabet, Amazon and Microsoft are bringing generative AI to their customer-service offerings. Software firms like Salesforce are, too. Some companies are also using large language models like those produced by OpenAI to create their own customer-service bots.

Unlike their rote-learning predecessors, generative-AI bots do not regurgitate canned answers to narrow questions. Instead, they create their own responses informed by the firms' training materials and previous customer-service interactions.

We apologise for any inconvenience

Providers are divided on the role these bots should play. One approach, advocated by Crescendo, is for humans to continue managing conversations with customers with an AI buddy in the background giving tips. But plenty of others think that generative-AI bots are now clever enough to handle most conversations themselves. This month Twilio, another software firm, announced it would launch a tool to enable clients to build a customer-service bot that can listen and talk, rather than merely read and type. A number of generative AI startups in the industry have adopted "outcome-based pricing", charging for their technology when a customer query is resolved, rather than per agent or minute of interaction, as is standard.

That raises two questions. One is how customers feel about all this. Advocates for the technology say that customers will no longer have to wait endlessly for a person to pick up the phone, and point out that bots will be fluent in many languages and have easier-to-understand accents than foreign call-centre agents. Customers, though, are yet to be convinced: 64% of those surveyed by Gartner said they would ▸▸

prefer companies not to use AI for customer service, mostly because they worry it will make it even more difficult to reach a person. People still value human-to-human contact, insists Rob Goeller, co-founder of Clearsource, a customer-service firm based in Utah with employees in America, Costa Rica, India and the Philippines.

What is more, generative-AI bots have a tendency to project utter confidence in their responses even when they are wrong, which could wreak havoc. Earlier this year Air Canada was forced to compensate a customer who was incorrectly promised a discount by the airline's AI chatbot.

A second question is what all this means for the jobs of call-centre agents. Last year Gartner predicted that generative AI would lead to a 20-30% reduction in customer-service jobs by 2026. For now, Mr Goeller says Clearsource is focused on using generative AI to help train its human agents and assist them with summarising calls. But he adds, "I would be putting my head in the sand if I said [generative AI] wouldn't replace people."

Previous waves of customer-service technology, including email and those pesky voice menus, stoked concerns about job losses, only for them to fail to materialise. AI could yet prove different. And if it does, its effects may be salutary. Human agents could be freed up to spend more time on creative and rewarding tasks, like using feedback to make products better—and less time listening to irate customers. ■

BARTLEBY

The reply-all email thread

Easy to start, impossible to stop

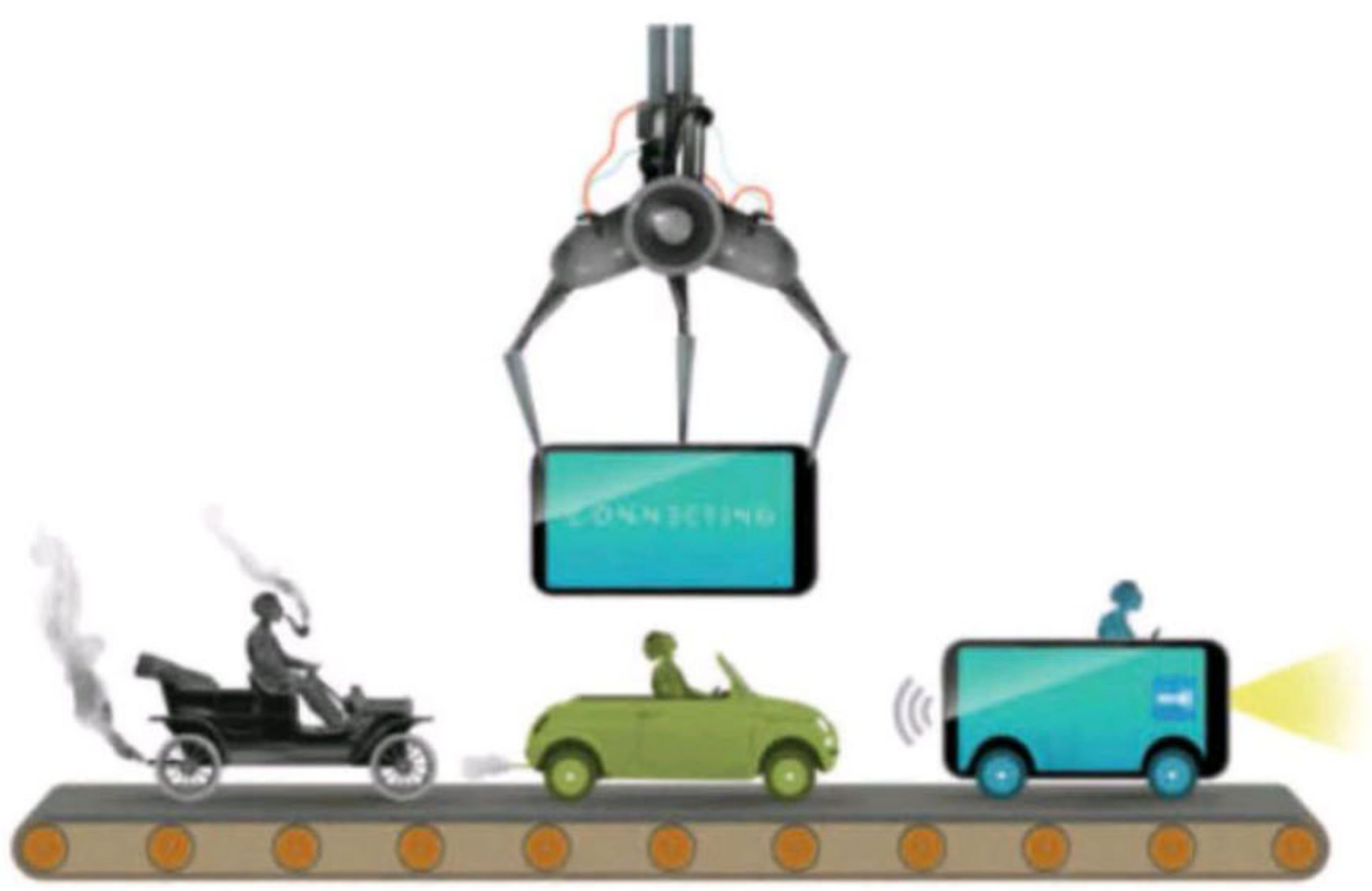
Derek Smith to AllStaff: Someone has taken my mug again. This is the third time this month. Please return it immediately. Derek
Natalie Flank to AllStaff: What does it look like? Natalie
Mark van Deen to AllStaff: Round with a small curved handle?! Mark
Tim Tandy to AllStaff: Sounds like someone I know! T
Tim Tandy to AllStaff: *Tim Tandy would like to recall this message*
Tim Tandy to AllStaff: Sorry about that everyone. Was meant to be a private message. Tim
Derek Smith to AllStaff: It's red and has my name on it. I know you all think this is funny but it's my property and I'd like it back. Derek
Natalie Flank to AllStaff: Where did you last see it? Natalie
Derek Smith to AllStaff: It was in the cupboard in the kitchen.
Megan Gutfreund to AllStaff: Why don't you keep it on your desk, Derek? It's much less likely to be taken from there. Megan.
Derek Smith to AllStaff: Because I don't expect to have to keep everything by me at all times in case it gets stolen. This isn't Tegucigalpa. It's Bracknell. D
Sam Kernel to AllStaff: Where is Tepucigalga?
Will Adams to AllStaff: Tegucigalpa. It's in Honduras.
Mark van Deen to AllStaff: It's the capital of Honduras. Tegucigalpa.
Iris Lee to AllStaff: I don't know why you are accusing your colleagues of stealing. Someone has picked it up by accident. It's in a cupboard full of mugs.
Alex Arkle to AllStaff: If anyone would like to opt out of this fascinating conversation in order to do some work, there is an option to mute it. Just go to the "More" symbol at the top of the page, click on it and you should see it. Alex
Ava Mayer to AllStaff: Honduras.
Derek Smith to AllStaff: It literally has my name on it, Iris. It's the third time this has happened. It's not an accident. And Alex, implying that I should be muted is appalling. This is not Pyongyang. Derek
Tim Tandy to AllStaff: I stand with Derek. Liberate the M4 corridor one!
Tim Tandy to AllStaff: *Tim Tandy would like to recall this message*
Alex Arkle to AllStaff: If anyone would like to know how to reply to only one person on an email thread, please do get in touch. Alex
Varun Rama to AllStaff: I actually sympathise with Derek on this. The mug was a gift, and it presumably has sentimental value. I am still waiting to get my charger back, by the way. Varun
Derek Smith to AllStaff: It wasn't a gift.
Megan Gutfreund to AllStaff: You bought a mug with your own name on it?
Derek Smith to AllStaff: Yes. Why?
Tim Tandy to AllStaff: That would be helpful, Alex. I keep replying to everyone!

Christ alive, what a bunch of dreadful whingers our colleagues are! Tim
Tim Tandy to AllStaff: *Tim Tandy would like to recall this message*
Flora Hawn to AllStaff: Varun, you're not alone. I have lost about a million chargers, too. F
Ren Moult to AllStaff: Coming to this late: it's in Honduras.
Sumayah Habib to AllStaff: I bring soya milk into work for health reasons and people keep using it. And before you ask, Megan, I have no choice but to keep it in the fridge. Sumayah
Gabriel Palpate to AllStaff: My bicycle was stolen from outside the office the other day. I know this isn't relevant but it is something to be aware of. Gabe
Sally Williams to AllStaff: I'm so sorry to hear that, Gabriel. I doubt the police took much notice!
Megan Gutfreund to AllStaff: I do understand the difference between a mug and milk, Sumayah. But thanks so much for making it clear.
Gabriel Palpate to AllStaff: I didn't even bother telling them! G
Sally Williams to AllStaff: Good call!!
Tim Tandy to AllStaff: Someone's going to get palpated!
Tim Tandy to AllStaff: *Tim Tandy would like to recall this message*
Sumayah Habib to AllStaff: I'm glad you know the difference between a mug and milk, Megan. What about your arse and your elbow?
Derek Smith to AllStaff: Panic over. I found it. Sorry, everyone! D
Megan Gutfreund to AllStaff: Idiot.
Derek Smith to AllStaff: Megan, I have no idea what I have done to deserve that. The level of rudeness you have just shown is completely inappropriate. This is not New York. It's Berkshire.

Continues for rest of eternity

SCHUMPETER
Foxconnification

The car industry may go the way of consumer electronics



CARS AREN'T what they used to be. This is not a petrolhead's lament. It is a statement of technological fact. These days even automobiles powered by a growling V8 engine contain a few kilometres of electrical wires, up from a few hundred metres in the 1990s, plus a thousand semiconductor chips and millions of lines of computer code to control everything from locks and antilock brakes to infotainment. And that is before you get to the electric vehicles (EVs) that are set to one day hog the world's roads, a recent slowdown in sales notwithstanding, let alone to Elon Musk's self-driving Cybercabs. The battery and other electronics make up more than half the value of components in an EV, compared with a tenth in that V8. Now, 17 years after Apple gave the world the iPhone and 13 since Toyota somewhat prematurely coined the phrase "smartphone on wheels", modern cars have a lot in common with consumer gadgets.

One Taiwanese company would like them to share another commonality—namely itself. Foxconn wants to be to carmakers what it already is to Apple and other consumer-electronics brands, which is to say their contract manufacturer of choice. On October 8th the firm unveiled two new EV "reference" models, an unexpectedly handsome people-carrier and an ungainlier small bus. They join a line-up of six earlier designs for car companies to pick from, fine-tune to their liking and slap their badge on. One of these, an SUV, has become a domestic EV bestseller for Luxgen, a 15-year-old Taiwanese carmaker. Next year Foxconn aims to be mass-producing a version of it with an American partner. One day it would love to be churning out Teslas.

If an EV is a smartphone on wheels, why not build it like a smartphone? And who better to do this than the world's leading assembler of electronics? For Foxconn, the $4trn global car market is a big prize as smartphone sales tail off. For EV newcomers with no manufacturing chops and legacy car giants with the wrong sort, farming out assembly could be a way out of "production hell", as Mr Musk once memorably described Tesla's efforts to expand capacity. And what automotive CEO would pass up an opportunity to be more like Tim Cook at Apple, overseeing a revered brand, ungodly profits and a $3.5trn market capitalisation?

This should not be a huge leap for carmakers. Their suppliers nowadays contribute two-thirds of the value of a vehicle, estimates Matteo Fini of S&P Global Mobility, a research group, leaving them to do the design, final assembly, marketing and distribution. Moreover, integrating all the disparate subsystems is a growing headache. Already some BMWs, Jaguars and Toyotas, notably low-volume, high-margin coupés and convertibles, are put together by contractors such as Magna Styer. In 1999 Ford toyed with getting out of metal-bending entirely in order to focus on the immaterial bits of the business. As a Ford executive summed it up to *The Economist* at the time, "Auto companies are seen as firms which invest a lot and get little return. Consumer companies are seen as investing little and earning a lot."

That idea proved too futuristic for turn-of-the-century Detroit and was ditched. But the executive's words rang true then and ring truer today. Ford and Apple each maintain $40bn or so in fixed assets and spend $8bn-10bn a year on capital investments. Yet in 2023 the iPhone-maker raked in more than twice Ford's revenue and 23 times its net profit. Even if you add its $30bn in research and development (R&D) costs to its capital expenditure, Apple is matched by Volkswagen and Toyota, the world's two biggest carmakers, neither of which sells as much. As a share of revenue, Apple's combined R&D and capital spending, at 10%, is dwarfed by that of BYD, China's EV champion, which last year spent 27%.

There are two problems with the Apple comparison. First, the challenge of replicating one of the best businesses ever may intimidate even car bosses known for their lorry-sized egos. Second, Apple relied on contract manufacturers for its iPhone from the beginning, making it impossible to tell how much of its outperformance is down to this strategy rather than some other commercial *je ne sais quoi*.

An earlier consumer-electronics pioneer offers a more instructive analogy. In 1993 Hewlett-Packard, then one of the world's biggest makers of computer hardware, began outsourcing the production of its PCs, printers and servers. By 2000 virtually all its computers were made by third parties. In that period HP increased its revenues from $20bn to $49bn. It pulled this off while barely growing its fixed-asset base and nearly halving the share of sales going on R&D and capital expenditure, from 16-18% in 1988-92 to 9% by the end of the decade. Its global workforce shrank from 96,000 to 88,500. Net profit more than trebled. Return on equity improved from 12% in the early 1990s to an average of 19% between 1994 and 2000.

HP sauce

Now imagine that Toyota or Volkswagen trimmed their outlays along similar lines. Cutting their R&D and capital spending by half would free up $19bn apiece in each firm's cashflow after capital expenses. Assuming their shares kept trading at a typical recent multiple of this free cashflow, Volkswagen would stand to gain $170bn in market value and Toyota some $270bn, more than doubling and quadrupling their market values, respectively.

This presupposes other things being equal (they aren't), powerful labour unions giving the nod (they wouldn't) and Foxconn remaining content with margins that make gaps in a Rolls-Royce's bodywork look gaping (fat chance). And it still leaves the car firms a country mile behind Apple. But as they struggle to reinvent themselves for the electric-vehicle age, understanding what made consumer electronics so successful is a good place to start. ■

Finance & economics

Financing conflict

How to defy America

Our investigation uncovers Iran's secret, multi-billion-dollar oil trade

IN A WAR with Israel, Iran would need money. Not just to buy weapons and keep its economy afloat, but to re-arm militias such as Hamas and Hizbullah. Many assume that, after years of sanctions, it would struggle. They are wrong. Every year Iran funnels tens of billions of dollars from illicit oil sales to bank accounts all over the world. This huge, secret treasure was used to fund Hamas's attack on Israel a year ago, swarms of Russian drones in Ukraine and Iran's own nuclear programme. It has already seeded many crises—and could soon fuel the mother of them all.

To understand how Iran can amass so much cash, zoom in on its petro-economy. Six years ago, when the Trump administration reimposed a blockade, Iran's exports of crude oil collapsed. Since then, however, they have grown twelve-fold, to 1.8m barrels a day in September. Last year these sales generated \$35bn-50bn; petrochemical exports added another \$15bn-20bn. Smuggling oil on hundreds of tankers is hard. Covertly laundering billions of dollars via the global banking system is even harder. America keeps a watch on any bank, even foreign, that processes transactions in greenbacks. So how is Iran getting paid? And how does it move, store and spend such large amounts of money?

The Economist has spoken to a range of people with first-hand knowledge of Iran's oil system. To check and verify what they told us, and flesh out the detail, we then sought information from other sources, including former sanctions officials, Iranian insiders, intelligence professionals and WikiIran, a third-party website soliciting leaks. Our investigation shows that the country has built sprawling shadow financial channels, which run from its oil rigs to the virtual vaults of its central bank. China, Iran's main buyer, is an architect of this system, and its chief beneficiary. Global banks and financial hubs, often unknowingly, are used as vital cogs. A source familiar with Iran's books says that, as of July, it had \$53bn, €17bn (\$19bn) and smaller pots of other currencies lying abroad.

Although enforcement has weakened in recent years, Iran is subject to the broadest sanctions America has imposed on any country. Aimed at forcing Iran to curb its nuclear enrichment and funding of terrorism, they target swathes of its economy, as well as the government. No other country imposes such stringent sanctions, so, in theory, most can deal with Iran. In practice, few do so openly, as America bans its firms not just from trading with Iran, but also with foreigners that knowingly do so. It is especially tough for Iran to receive and move dollars, as every such transaction, almost anywhere in the world, must eventually be cleared by an American bank.

But our report shows that, with patchy enforcement, determination and help from a greedy partner, a country under a de facto global embargo can end up flouting it on a cosmic scale. Many of Iran's tactics are reminiscent of those a drug cartel would use to market products and recycle ▸▸

proceeds into other dark enterprises, often via seemingly legitimate businesses. Iran's subterranean oil system is governed by rules as much as by threats. The task is to construct an elaborate charade that will dupe sanctions-enforcers.

Barrelling about

Most petrostates export oil via a state-owned giant, but Iran is different. The National Iranian Oil Company (NIOC), its state oil firm, has a monopoly over production. NIOC's Swiss-based subsidiary, Naftiran Intertrade Company (NICO), helps market oil abroad. A growing portion, though, is allocated to Iranian ministries, religious outfits and even pension funds to sell for themselves. "It's almost medieval," says a former American official. "The lords are being given pieces of the kingdom."

In a country that lacks hard currency, crude is an alternative form of liquidity. Iran's budget last year allowed the armed forces to sell $4.9bn-worth of oil. Allocations also reward loyalists: in 2022 individuals vetted by the regime were offered a combined $3.6bn of petroleum. The Islamic Revolutionary Guard Corps (IRGC), the regime's praetorian guard, also receives a great deal of oil, often off-book. A former Iranian official says that the Quds Force, the IRGC's foreign wing, earned $12bn from such sales in 2022.

All these entities have distinct sales channels, though NICO and the IRGC often lend their services to others. Sometimes a front company orchestrates the whole thing. According to the American Treasury, Sahara Thunder, in Iran, runs sales for the armed forces while posing as a private trading firm. Iran regularly outsources sales to a third party abroad, such as ASB, a Turkish firm, according to America's Department of Justice. But Iran insists on guarantees. Baslam, an ASB subsidiary, transferred 51% of its shares to the Quds Force when it started working for them, according to a leaked contract between ASB and an IRGC commander.

The salesmen's first task is to find a buyer. Even though China absorbs 95% of Iran's crude exports, its sanctions-wary state firms do not want to touch the oil. So three or four Iranian front companies must scout the market. Documents shared by a source show that Litamos International Limited and Haosi Trade Limited did this until 2021, when both were dissolved. China has its own brokers, whose clients supply plants the state has authorised to process Iranian oil. Most are small, independent refineries, dubbed "teapots".

Once a buyer is found, a formal agreement is signed, usually between two front companies. Given the sums—a shipment of Iranian crude can easily cost $50m-100m—business cannot work on trust. Papers specify every detail, from trial runs and inspection schedules to the size of future shipments. The price usually tracks Brent, the global oil benchmark, minus a discount of $10-30 a barrel. Accepted currencies include the dollar and, more rarely, euros, Emirati dirhams or yen.

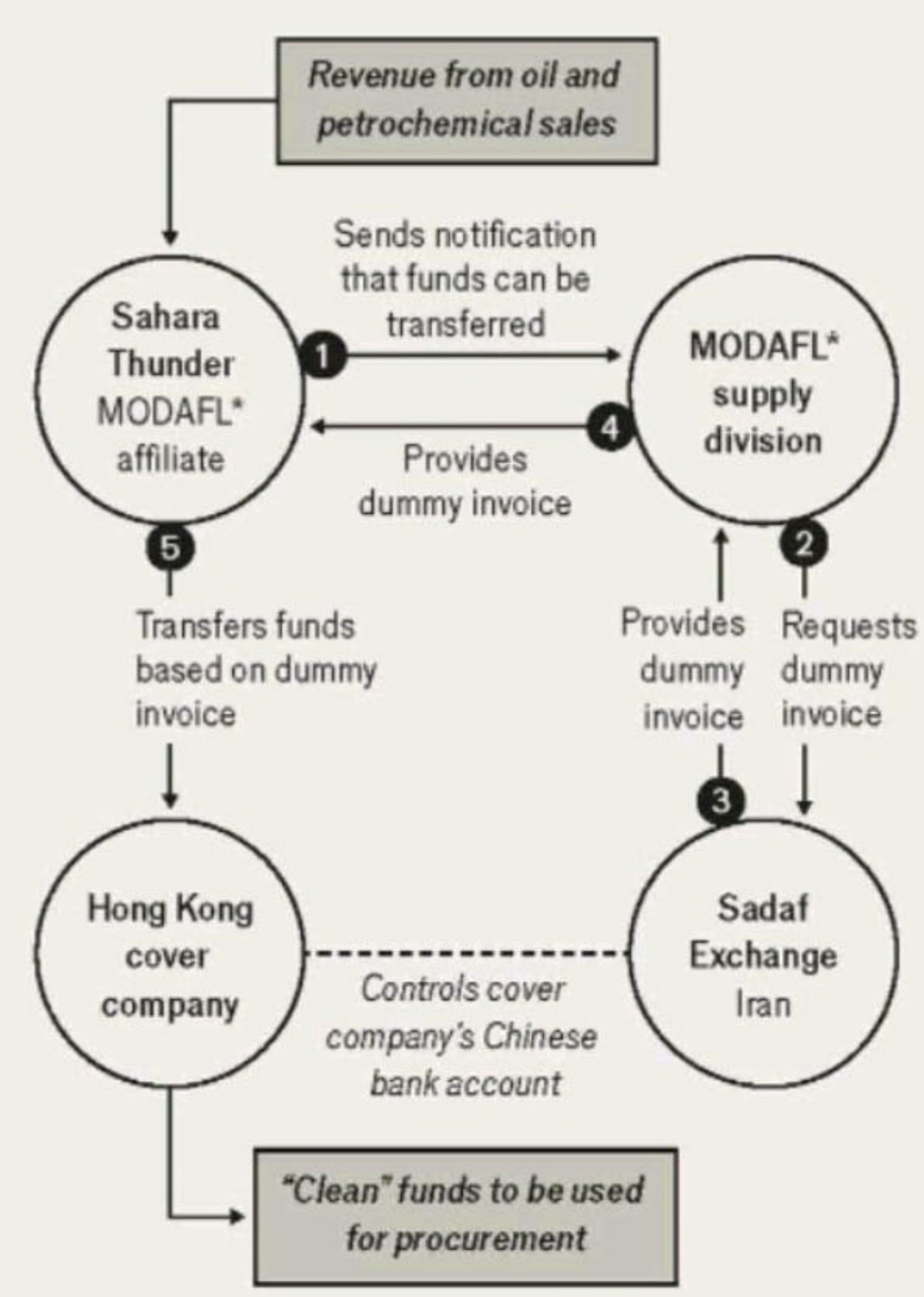
What many contracts do not mention is the oil's provenance, which is usually stated, falsely, to be Iraqi, Malaysian or Omani. The actual origin is often confirmed in a confidential letter, with the true nature of the export spelt in caps: IRANIAN oil.

More than 100 front companies exist to procure tankers, says a source. Many are decades-old ships flagged in Panama, a permissive harbour, and renamed to confuse trackers. The vessels start by picking up oil at one of Iran's export terminals. To avoid attention, they often lend transponders to other ships circling the area, or use software to make it look like they are elsewhere. The ships then sail to Iraq or Oman, where their cargo may be transferred to a new vessel. Another transshipment may occur off Malaysia or Singapore, after which the cargo heads to China.

Iranian agents receive reports at every stage. Decisions are referred to senior officials, who may hide behind nicknames ("Roger", in a recent example of an IRGC commander) in WhatsApp messages and voice notes. False certificates of origin and papers are provided throughout. Even the most secretive parts of the trips are closely managed. One checklist, shared by a source, comprised 24 questions for a transshipment off Malaysia involving *Remy*, now known as *Wilma II*, a tanker that tracking information from Kpler, a data firm, suggests has carried Iranian crude.

A web is spun

Iran's money-laundering tactics, an example



Source: Treasury Department
*Iranian Ministry of Defence

Sometimes things go wrong. A sale may fall through once a tanker is en route. The cargo sometimes vanishes, triggering threats of violence from IRGC commanders. Some ships are simply abandoned. Usually, though, goods are delivered without a hiccup, and within 45 days payment comes due. This is where Iran's shadow banking system, the most impressive part of the scheme, comes into play.

Special FX

The story so far shows the extent to which Iran's economic survival relies on China. The coming chapter underlines this dependence. Iran believes it has found a friend—its most powerful ally in an anti-Western axis. Yet China is mostly interested in a good deal. Taking advantage of Iran's weak position, it will offer assistance so as long as it does not risk burning important bridges with America, its geopolitical rival but also its biggest trading partner. Thus it creates the perfect conditions for Iran's smuggling to thrive, without ever appearing, officially, to be involved.

Iran's shadow-banking system is a feat of bureaucratic brilliance. The country's largest oil companies, including NIOC and PCC, a major petrochemical exporter controlled by the defence ministry, have big financial departments which act as banks, says a source familiar with them. These units have incorporated firms in Iran, dubbed "money exchanges", that handle illicit foreign payments not just for oil exporters, but for large parts of Iran's economy.

Each local exchange has created front companies (known as "trusts"), with the sole purpose of collecting and transferring money. These are based around the world. Most have monikers straight out of random-name generators: "Rainbow International Commercial Company", say, or "Glorious Global Limited", both of which are based in Hong Kong. The listed owner's role is limited to liaising with local authorities and providing powers of attorney to Iranians, or Iranian agents. One former high-ranking Iranian official says around 200 Iranian nationals with dual passports oversee such companies in Europe.

When an oil exporter wants to be paid, it sends an email to its preferred exchange, stating the amount it needs to receive and from whom. The exchange then checks balances across its network to determine where it would rather have the money arrive. Next it will tell the oil firm to inform its client that they should expect an invoice from a named trust. Some payments are made in yuan that Iran recycles within China. But yuan are not convertible, and there is only so much Iran can buy from China. So Iranian firms often ask for hard currency. The same mechanism works in the other direction, too, allowing Iranian firms to pay covertly for imports.

What sanctions?

Iran, crude-oil exports, barrels per day, m

Source: Kpler

Banks where the front companies have accounts, and which process transfers, provide Iran with access to the international financial system. Many Western experts insist that Iranian fronts are almost entirely banked by provincial Chinese lenders that do no business in the West and are therefore immune to American retribution. Bank of Kunlun, the only Chinese bank placed under Iran-linked sanctions, is registered in Xinjiang, a far-flung province. Off the record, however, some banking-compliance veterans report that big institutions are also used in this way. "There's a lot of dollars to move," says one.

Drawing on leaks from an Iranian oil firm, in April last year WikiIran listed the details of 218 bank accounts linked to 71 trusts it found to be managed by Amin, one of Iran's largest money exchanges. A look at the associated database indicates that just 67 of these accounts were hosted by a small Chinese bank. Of the rest, 99 were at one of China's top 20 banks. We ran the other account numbers through IBAN Checker, a website that verifies bank details. This indicated that 30 accounts were held in the UAE, including at the country's two largest lenders; ten were at European banks (CBC, ING, OTP, Commerzbank and three Sparkassen, as Germany's savings banks are known); and another five were at Turkish banks. Two were at European fintechs—Paysera and Wise—that process cross-border payments.

There is no suggestion any of the banks or fintechs knew that they were dealing with front companies acting on behalf of Iran, and nothing in the documents indicates that they did know. In response to emails from *The Economist*, CBC and Wise said they could not comment on individual accounts. ING said it launched an internal investigation last year that revealed transactions with entities mentioned on WikiIran and resulted in the closure of accounts at its Belgian unit. OTP said the relevant accounts were closed in August 2019.

Documents we obtained show that, at least at one point since 2021, front companies facilitating or soliciting payments linked to Iran's oil trade have had accounts at Citibank in Hong Kong, HSBC in Hong Kong and China's top four banks. Again there is no suggestion that the banks knew they were dealing with front companies acting on behalf of Iran, and nothing in the documents indicates that they did know. (Citi said it found no record of the alleged transaction. HSBC did not reply in time for publication.)

Our investigation nevertheless suggests that a number of front companies are successfully evading screening methods used by banks. Most such accounts, and many of those previously mentioned, are denominated in dollars; others are in euros. Transaction receipts show Iranian fronts use some global lenders as "correspondents"—international banks that clear smaller banks' foreign-currency transactions through big financial centres.

Chinese banks are often used at the start of a petrodollar's odyssey. This is where the buyers of oil have their money and arranging a domestic transfer is more discreet than sending the money abroad. The opacity of China's banking system then allows Iran's exchanges to shuffle money around on the mainland with less scrutiny. For local bankers, it is akin to "any other type of commodity business", says Justine Walker of the Association of Certified Anti-Money Laundering Specialists.

Big Chinese banks have another attraction: subsidiaries in Hong Kong, where China's closed money loop meets global finance. The territory is home to the only sizeable dollar-clearing system outside America. USD CHATS, powered by accounts that banks fund with dollars, allows members to transact with each other in greenbacks without involving institutions in America. All international banks with decent business in Asia, including nine of China's ten largest, use it. Neither they nor HSBC, which runs the system, are required to report transactions to Uncle Sam.

The coast is clear

Cities hosting Iranian entities under US sanctions, Aug 2024

*Based on a journey of the ships *Aroon* and *Bendigo* in August/September 2024
Sources: Kpler; Sayari

Under a deal with America, Hong Kong banks must still check that payments they route through CHATS comply with American sanctions, even though Hong Kong does not enforce them. But the fact that America cannot monitor transactions gives room for manoeuvre, says David Asher of the Hudson Institute, a think-tank. Last year the system processed an average of $60bn in payments a day, a volume that makes dubious transactions hard to spot.

Later in their journey Iran's funds may move via other financial hubs. Documents leaked to WikiIran suggest that, prior to May, the Dubai branch of Banque Misr, an Egyptian bank, hosted as many as 38 front companies used by the finance arm of PCC, the petrochemicals exporter. (Once again, the documents do not indicate it did so knowingly. Bank Misr did not reply to our queries in time for publication.) Exchanges use the UAE to shift money between trusts in order to keep accounts balanced, often after converting dollars into dirhams, a source explains. Wads of banknotes shuttle between banks. Some exchanges maintain "cash lockers" to top up accounts.

Phantom finance

At many banks hosting front companies, signs that should raise red flags are not picked up, say sources. The registered owners may be Filipino or Indian nationals with unsuitable qualifications. On inspection, the accounts' behaviour may look strange, with the company receiving money from oil trades and making payments for unconnected things. A source familiar with NIOC says that banks which knowingly work with Iran can earn commission of up to 15% of the value of transfers.

Where does the money end up? Some funds stay in or flow back to Asia, the source of many Iranian imports, including weapon parts. Others are hidden in the Levant, where they pay wages for Hamas, Houthi and Hizbullah fighters. Sometimes the money is stored in less obvious places—such as bank branches in Budapest or Aachen, a spa city bordering Germany's Eifel mountains. London is the world's sixth-biggest base by number of Iranian-linked entities blacklisted by America.

Iran's money exchanges keep track by maintaining internal ledgers: huge spreadsheets netting out debits and credits across hundreds of trusts. Their clients—the Iranian companies—settle positions by buying or selling virtual dollars via an online platform, called NIMA, usually at subsidised exchange rates. Although the hard currency stays offshore, it is ultimately the property of Iran's central bank, which runs NIMA. The bank has its own meta-spreadsheet to record the virtual reserves it is ▸▸

holding abroad, says someone familiar with how the country runs its books.

The system is costly. Inclusive of discounts, rewards for intermediaries and financial fees, Iran receives 30-50% less currency than it would in an open market, estimates a source. Trustees of front companies sometimes disappear with the till.

This wasteful complexity, however, also makes the network resilient. Although American enforcers have unmasked hundreds of Iran-linked firms, new ones quickly crop up. Emails between bosses at PCC show that in 2022, when hundreds of trust accounts were exposed, it took just a few months for the firm to exfiltrate the money and replace most of them. Forcing banks to screen Iranian fronts more diligently, perhaps by punishing egregious cases, could have more impact. Despite warnings that it might do so, the Biden administration is yet to blacklist a single bank.

Proponents of such half-baked enforcement say it does not matter. Sanctions, they argue, are achieving their goal: reducing the revenue Iran earns from sales without hurting global oil supply. The problem is that costs are largely borne by Iranian households, which face double-digit inflation, and independent merchants, who lack the connections to secure imports. Meanwhile, regime loyalists profit and amass missiles, as the country grows closer to building nuclear weapons. Iran's laundromat is an affront to the West, a boon to China—and a menace to the world. ■

BUTTONWOOD
Uninvestment advice

Why buy-and-hold types should still avoid Chinese stocks

NOTHING CHANGES sentiment like price, according to one investing maxim. The world-weary saying reflects the fact that after a stockmarket surge speculators usually scramble for reasons to believe further price rises are on the way. A recent surge in the Chinese market is one such example.

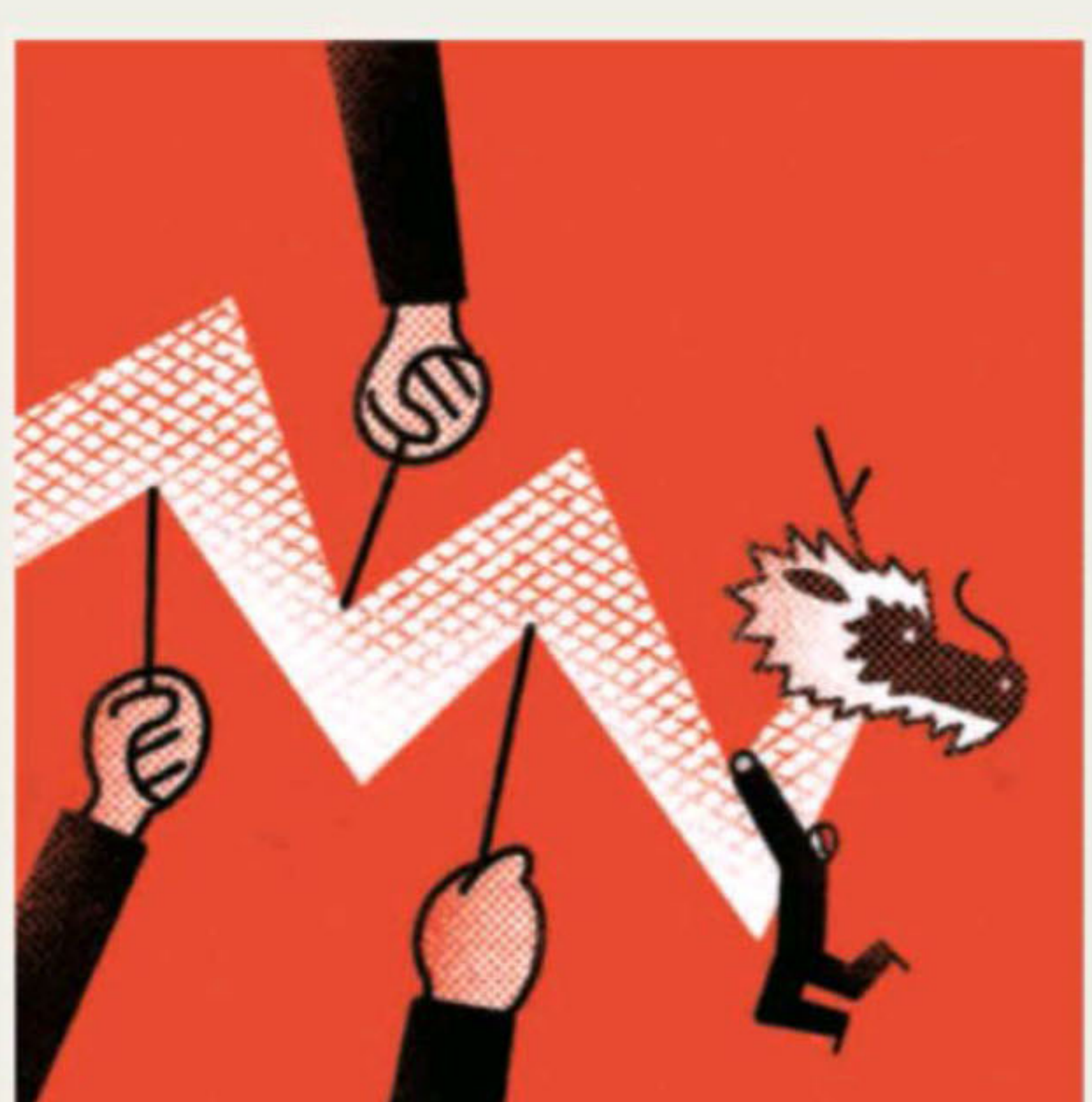
On September 13th the CSI 300 index, made up of the largest stocks listed in Shanghai and Shenzhen, was at its lowest in five years. Since then it has gyrated wildly, rising by as much as 35% and then falling by 11%. Stocks are being buffeted by waxing and waning expectations for stimulus from the central bank and the government. On October 12th China's finance ministry pledged that it would boost consumption and shore up support for struggling local governments, although it fell short of putting a precise figure on such spending.

So has a new dawn broken over Shanghai and Shenzhen? Investors would desperately like an end to three years of misery, during which time Chinese stocks have been battered by a property crisis, the government's turn against parts of the private sector and an increasingly fraught relationship between Beijing and Washington. A debate about whether Chinese stocks are in reality "uninvestable" has roiled since 2022, when JPMorgan Chase, a bank, published (and subsequently withdrew) a briefing note suggesting as much.

What it means for a stockmarket to be uninvestable has always been a little uncertain. JPMorgan did not intend for its provocative turn of phrase to refer to the Chinese market in perpetuity. Alex Yao, the analyst responsible, was referring to a particular moment of political uncertainty, which he and his colleagues expected to last for 6-12 months. This year he has been much more optimistic about the country's tech firms.

Some investors are undoubtedly finding the market investable. Chinese equity funds saw their largest recorded inflows in the week ending October 9th, according to EPFR, a data provider, with almost $40bn flooding in from investors at home and abroad. Moreover, there is plenty of room for foreign allocations to grow. Goldman Sachs, another bank, believes that were allocations to return to levels proportional to the size of the Chinese stockmarket, it would mean another $48bn flowing into the country.

New arrivals will also find Chinese stocks to be far more investable, in the technical sense, than they have been previously. In July 85 exchange-traded funds that are listed on the mainland were made available through the Stock Connect system, which links mainland exchanges with Hong Kong. The quotas and limits on purchases of stocks by so-called qualified investors were removed four years ago, and recent rule changes have made hedging currency risk easier, too.



But the question for most investors is simpler: is buying Chinese stocks a good idea? Even as speculators reap quick returns, for those who wish to buy and hold the answer is clearly still "no".

Whatever the deeper problems with Chinese markets, a lack of economic growth is not among them. In fact, mainland stocks have been an abysmal way to benefit from the astonishing growth of the world's second-largest economy. The CSI 300 index has risen by less than a quarter in the past 15 years, while China's nominal GDP has quadrupled.

The deeper problems include poor corporate governance, a high share of state-owned firms and the government's habit of blindsiding investors with policy shifts. A campaign in 2021 against firms in education and technology was one such shift. Officials have made encouraging noises about the private sector recently, but it is hard to be confident there are no more value-destroying campaigns in the offing—a situation that cannot be resolved by stimulus and a burst of consumption growth.

Even recent improvements in market conditions demonstrate this point. Reading the runes for changes in policy is an all-important skill when investing in a country with a closed-off political system. For investors who get such Kremlinology correct, the rewards can be enormous. Yet most will never manage to do so, and will lose money trying.

Perhaps it would be better if the debate about the uninvestibility of Chinese stocks was retired. Its terms are unclear and, in some ways, China is becoming more accessible. Still, that does not change the most simple—and most important—analysis. For most potential buyers, Chinese stocks are simply not a worthwhile investment.

Europe's laggard

Mein Gott

BERLIN

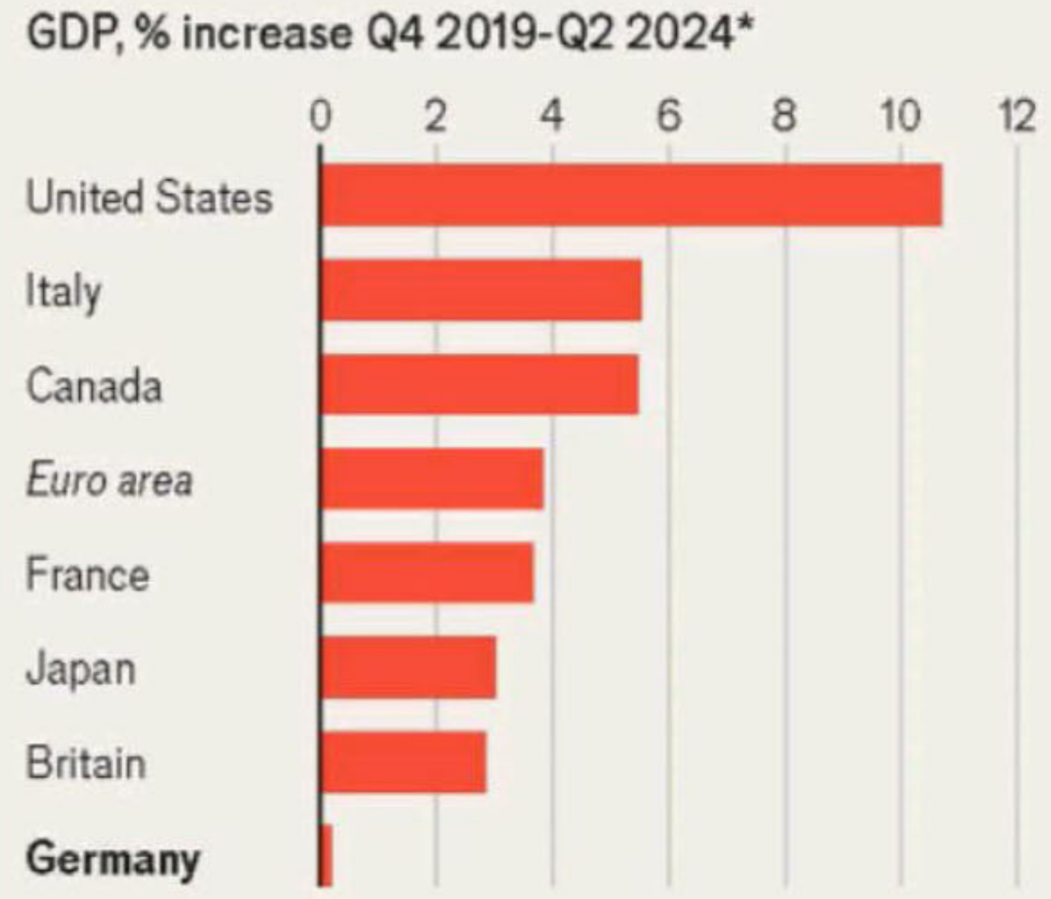
Germany's economy is going from bad to worse

IT WAS WITH Teutonic understatement that Robert Habeck noted economic conditions were "not satisfactory". Germany's economy minister was speaking on October 9th, just after official forecasts for the year had been revised from growth of 0.3% to a contraction of 0.2%. This would follow a 0.3% decline in output last year, meaning that Germany faces its first two-year recession in more than two decades.

Europe's largest economy has barely advanced since covid-19 struck, lagging behind the rest of the rich world (see chart 1). Isabel Schnabel of the European Central Bank has noted that euro-zone growth excluding Germany has been "remarkably resilient" since 2021 and faster than that of many other big economies. But talking about the euro-zone economy without Germany is like talking about the American economy without California and Texas. The country, once a motor of European growth, has become a drag.

Berlin's blunders 1

GDP, % increase Q4 2019-Q2 2024*



Source: Haver Analytics | *Seasonally adjusted

It is difficult to imagine a worse confluence of circumstances for the export-dependent and manufacturing-heavy German economy than those it has faced since 2021. Soaring energy prices followed Russia's invasion of Ukraine; now China's industrial overcapacity is causing havoc abroad. Comforting as it might be to blame economic weakness on external factors, however, Germany's problems run deeper, with many of them homegrown. On top of this, a fractious three-way coalition is hampering the political response.

Industrial production has struggled in recent years. Energy-intensive industries, such as chemicals, metal-work and paper manufacturing, have been hit particularly hard (see chart 2). These sectors account for just 16% of German industrial output, but consume almost 80% of industrial energy. Many firms responded to higher energy costs by pausing production.

Shifting patterns in global demand are a bigger problem for most firms. As Pictet Wealth Management has noted, Germany's economic relationship with China has shifted. In the 2010s the two countries' growth was complementary: Germany sold cars, chemicals and machinery to China, and in turn bought consumer goods and intermediate inputs, such as batteries and electronic components. Now China is able to produce for itself much of what it once imported and, in some cases, has become a serious rival for export markets, not least in the old German staple of cars.

Yet the gloom about German industry can be overdone. Although manufacturing production has fallen since 2020, its gross value added has been remarkably stable. Manufacturing firms, in many cases, have been able to shift into producing higher-value items even as they have lost market share. And last year, as the overall economy contracted, trade continued to make a contribution to growth, something that looks set to repeat this year.

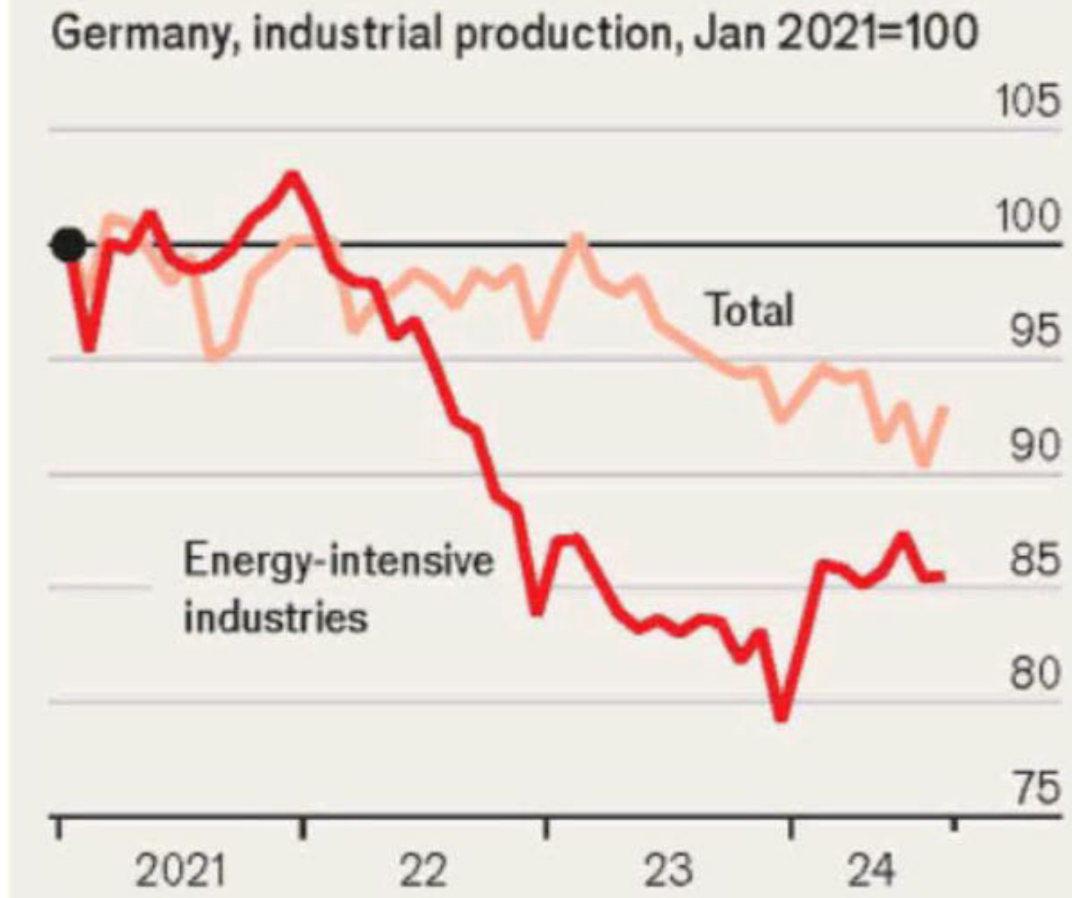
Higher real household incomes, as inflation comes down, have been slow to lead to greater demand, but they should eventually show up in consumer spending. The worst of industry's energy squeeze is in the past, too. Most observers expect a pickup in growth next year. The government has pencilled in growth of 1.1% in 2025 and 1.6% in 2026, based on the assumption that private consumption will begin to rebound. To some scepticism, ministers assume this will happen in part owing to their own growth-inducing policies.

But an overdue upswing would not mean an escape from longer-running structural problems. In reality, Germany's economic weakness predates recent geopolitical and economic shocks. As Ms Schnabel noted this month, German GDP at the end of 2021 was only 1% higher than its level of four years earlier, compared with 5% growth in the rest of the euro zone and more than 10% in America.

German success in the 2010s reflected the country's competitive advantage against the rest of Europe. At the start of the century, Germany was struggling with reunification. Its price level was higher than others in the common-currency area (see chart 3 on next page). Then, in the early 2000s the Hartz reforms, which included labour-market liberalisation, put a lid on costs by weakening labour's bargaining power. At the same time, debt-fuelled ▸▸

In the wars 2

Germany, industrial production, Jan 2021=100



Source: Destatis

growth in southern Europe drove the price level higher in the euro area as a whole.

Over time, though, this competitive edge eroded. After the debt crisis of the early 2010s, peripheral European economies embarked on their own structural reforms. From 2015, after a decade of moderation, German wage costs began to grow faster. By 2019 the price-level gap between Germany and the rest of the euro area had narrowed. The impact of the energy squeeze, with Germany especially reliant on Russian gas, pushed the country's price level higher. For the first time in more than two decades, Germany does not have a cost advantage over its euro-zone peers.

As Germany deals with this loss of competitiveness, it must also contend with demographic shifts. In recent years the country's ageing population has been balanced by high immigration. But fewer migrants are now arriving, leaving firms short of workers. All told, the IMF expects the German working-age population to shrink by 0.5% a year for the coming five years, the steepest decline of any big economy.

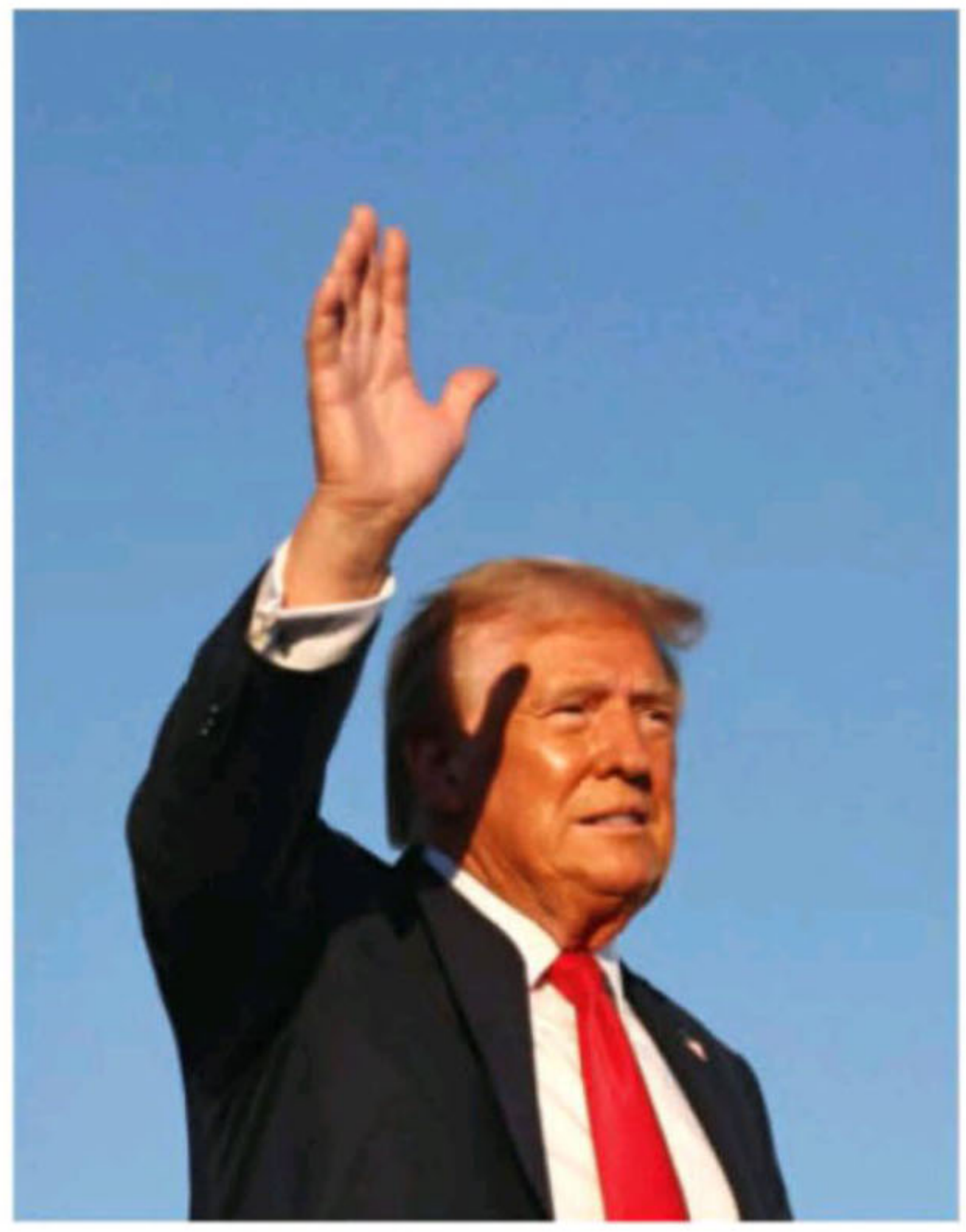
IMF officials say that, unless productivity improves, German economic growth will settle at 0.7% a year, half its pre-pandemic level. More government spending could provide a boost, but ministers are constrained by self-imposed fiscal rules. Annual net public investment has fallen from 1% of GDP in the early 1990s to zero. Although criticism of the "debt brake", which limits the federal structural deficit to 0.35% of GDP a year, has become more common, few observers expect any change before next year's federal election.

Germany's recession is painful both for Germans themselves and for the broader euro zone. An economic recovery next year, produced by lower inflation and lower energy costs, will not alleviate structural problems. Germany's economy was showing signs of strain long before the pandemic struck, Russia invaded Ukraine and China began to throw money at struggling industries. It will continue to show signs of strain for some time to come. ■

Competitive disadvantage 3

GDP price deflator, Q2 2002=100

Sources: Pictet; Eurostat



America's election

Blue-sky thinking

WASHINGTON, DC

Donald Trump's trillion-dollar tax cuts are spiralling out of control

For American policy wonks, the final stretch of the presidential election has given rise to a new parlour game. What is the next tax that Donald Trump will promise to cut? The Republican candidate has trotted out a range of pledges, from no taxes on overtime work to no taxes on retirement benefits. Last week alone he proposed three new exemptions, including making interest on car loans tax-deductible. It is easy to figure out what Mr Trump hopes to gain. Yet the economic implications are dispiriting: not just a bigger fiscal deficit but a much messier tax code.

Set against the federal government's $4trn in annual tax revenue, some of Mr Trump's most attention-grabbing ideas are inexpensive. For instance, exempting tips from taxes would cost about $118bn over the next decade, according to the Tax Foundation, a think-tank. Others would be much bigger. He has proposed reinstating a rule to let Americans fully deduct taxes paid to state and local governments from their federal tax bills. That could cost $1trn over the next decade, the Tax Foundation says. And these all come on top of Mr Trump's baseline pledge to extend the income-tax cuts that he made in 2017, which are due to expire at the end of next year.

One obvious concern is that these various cuts would push up an already bloated federal deficit. In an estimate published on October 7th, the Committee for a Responsible Federal Budget, a non-partisan group, projected that the deficit would climb to as much as 12% of GDP by 2035 under Mr Trump, up from about 7% last year. As a result, the national debt would soar to vertiginous heights (see chart).

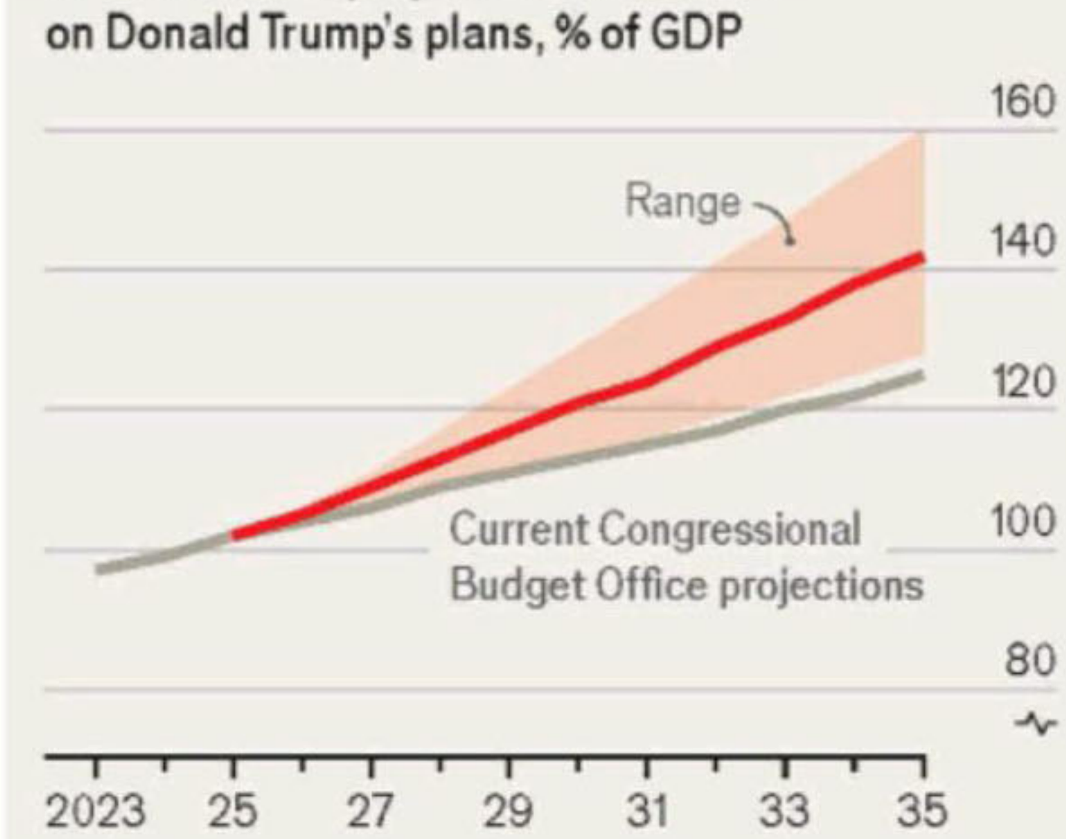
Taken together, the proposals also represent a shift from Mr Trump's approach to taxes during his first term. The Tax Cuts and Jobs Act of 2017—his biggest legislative accomplishment—simplified the tax system and broadened the base of taxpayers in order to clear the way for cuts. What he is proposing now, however, is the creation of a dizzying array of loopholes. Philosophically, it is hard to defend many: why, for instance, should wage workers pay taxes on their entire income, whereas workers who receive tips avoid taxes on some of their income? Moreover, practically it will be a mess: individuals will have to spend more time itemising their tax returns, and the Internal Revenue Service, already overwhelmed, will struggle to monitor all the claimed exemptions.

The saving grace is that many of Mr Trump's proposed tax cuts are probably empty promises. Fiscal legislation must make it through Congress to become law. Even if Republicans end up controlling both the Senate and the House, moderates in the party would surely push back against Mr Trump's zanier proposals. Douglas Holtz-Eakin, a long-time Republican economic adviser, argues they are mostly transactional—cheap pledges made to win an election that are easily discarded afterwards. "They don't come from a place of deep, personal belief," he says.

But Erica York of the Tax Foundation says Mr Trump could still complicate the debate about how to handle the expiration of the tax cuts of 2017 by throwing unhelpful ideas into the mix. "That's just going to add to the pressures that Congress faces next year," she says. And there is one type of tax Mr Trump really does care about: tariffs. Here, too, his promises are inflationary. At the start of his campaign he vowed to place levies of 60% on Chinese products; on October 15th he upped his threat to 2,000% tariffs on Chinese cars. ■

Debt president

United States, projected debt based on Donald Trump's plans, % of GDP



Source: Committee for a Responsible Federal Budget

FREE EXCHANGE

Nations fail, academics succeed

This year's Nobel prizewinners tackled the most important question of all

WHY ARE some countries rich and others poor? The question, full of childlike curiosity, is the most important in economics. A person's living standards are mostly determined not by talent or hard work, but by when and where they were born. Historically, models of economic growth focused on the accumulation of factors of production, labour, capital and, more recently, technology or ideas. The greater the capital stock per worker and the more productive its use, then the richer a country would be.

Yet that still left a gap. Why did some countries manage to accumulate more of these factors than others? This year's winners of the Nobel prize in economics argue that the answer depends on the quality of government. In 2001 the three men—Daron Acemoglu and Simon Johnson, both of the Massachusetts Institute of Technology, and James Robinson of the University of Chicago—published what has become one of the most cited papers in economics, "The Colonial Origins of Comparative Development: An Empirical Investigation". In the paper they developed a schema for institutions, dividing them into "inclusive" (those which shared prosperity) and "extractive" (those where a small group took from the rest). Inclusive institutions encourage investment in human and physical capital. Extractive ones discourage it.

The idea that institutions are central to economic growth was not new. It had been the contention of Douglass North, who won the Nobel prize in 1993, along with Robert Fogel, a historian. The problem investigated by this year's laureates was whether development encourages liberalism, rather than the other way round. Richer societies could, for instance, lead to democratic reforms.

Messrs Acemoglu, Johnson and Robinson used an "instrumental variables approach" to solve the riddle. This exploited variations in the mortality rate among settlers to identify which European colonies developed inclusive institutions and which developed extractive ones. In colonies with a high rate of mortality, owing, say, to tropical diseases, colonial powers exploited native labour. That could be in the form of the *encomienda* system in South America, which enslaved locals, or the rubber plantations of the Belgian Congo. Meanwhile, low death rates in English-speaking offshoots—America, Australia and Canada—attracted European settlers by offering them a chance to share in the wealth they produced via private property and free markets.

As such, there was a "reversal of fortune" among colonies. The richest in 1500, as measured by urbanisation, became the poorest in modern times. Messrs Acemoglu, Johnson and Robinson hypothesised that this was because the greater wealth of the once-rich colonies encouraged the development of methods of extraction, while the higher population provided a labour force that could be coerced to work in mines and plantations. A later paper augmented the research with the "quasi-experiment" of North and South Korea, where half of the peninsula became a rich, liberal democracy and the other half authoritarian and destitute.

Messrs Acemoglu and Robinson theorised that states could become stuck with poor institutions. In a highly unequal society the poor could threaten revolution. Any commitment by the elites to redistribute wealth in response was not credible; they could always change their mind when the threat disappeared. As a result, unequal states were prone to instability. Checks and balances represented a response to this commitment problem: if elites were restrained then their promises to redistribute would be taken seriously and any revolutionary threat would be forestalled. This was, the authors suggested, why European states had expanded the democratic franchise in the early 19th century.

Few economists will doubt the influence of this year's prizewinners. Mr Acemoglu, in particular, has long been regarded as a future Nobel laureate for his work on technological growth and labour economics, as well as development. Research on the persistence of institutions, using quasi-experimental techniques such as instrumental variables, has grown vastly more popular in recent years. But as often happens with empirical work, the prizewinners' methods have been questioned. David Albouy of the University of Illinois has suggested that their estimates of settler mortality are incorrect and selectively cited. Edward Glaeser of Harvard University pointed out that there were ways settler mortality could affect growth other than through institutions. Europeans brought over education and trade links with them as well, for instance.

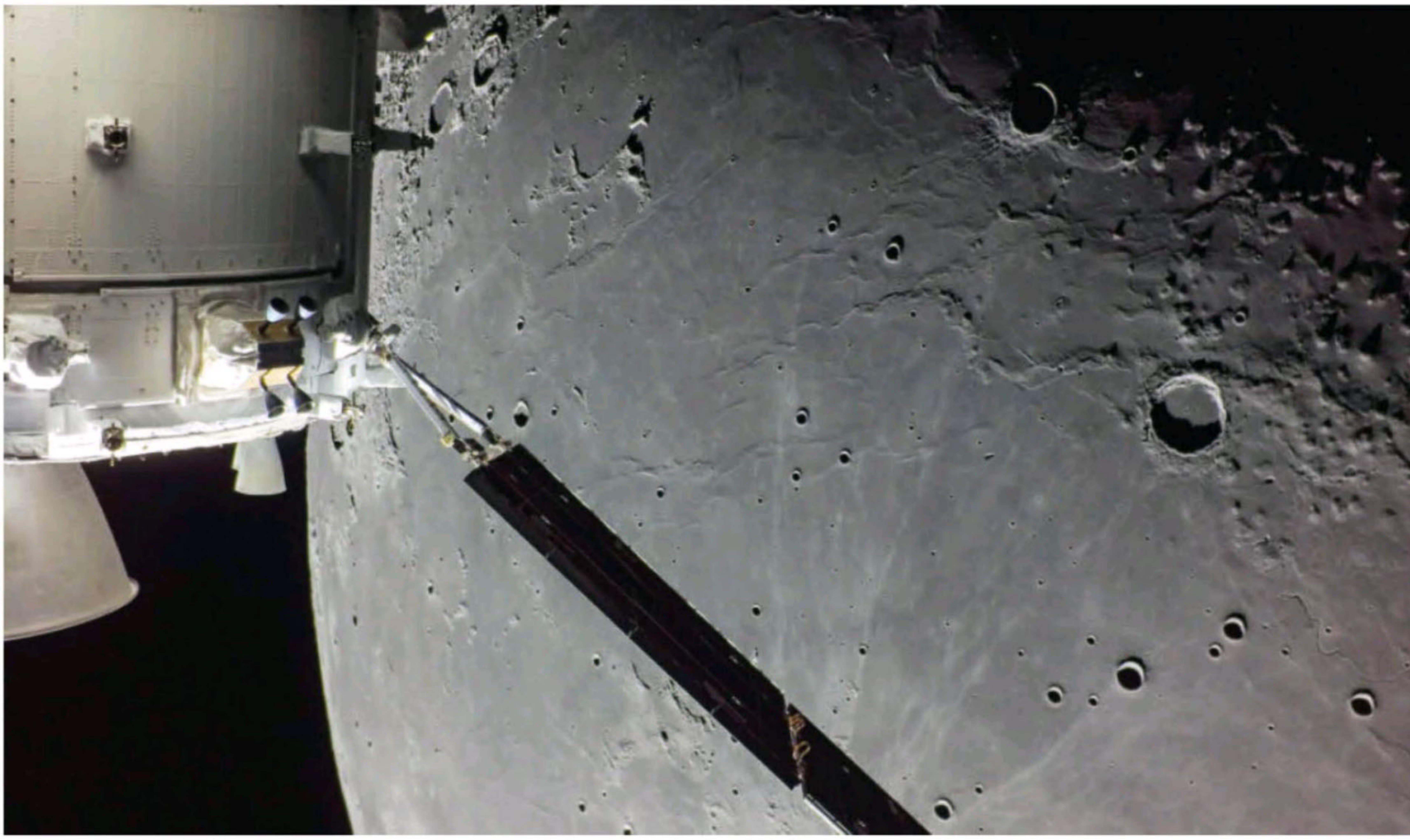
Historians, too, have questioned the neat division of extractive and inclusive institutions. South Korea developed under a military dictatorship. England's Glorious Revolution in 1688, which Messrs Acemoglu and Robinson have identified as the point at which the country's rise began, allowed Parliament to dispossess peasants as well as constrain the king. America's development combined individual rights and democracy for white men with slavery and later disenfranchisement for their black peers.

For all the debate over methods, the prizewinners' research undeniably demonstrated the importance of historical specificity, moving development economics away from abstract growth models. Their work was a break from theories assuming an inevitable, deterministic path to modernisation based on the unusual experiences of western Europe. Although Messrs Acemoglu, Johnson and Robinson may not have been able to provide a complete account of why some countries are rich and others poor, new generations of economists have a firm foundation on which to build. ■

Listen to Money Talks

In this week's podcast, we interview Daron Acemoglu and Simon Johnson. It can be found at: **economist.com/economics-nobel**

Science & technology



Sending humans to the Moon

Team of rivals

Starship's success is necessary for NASA to return to the Moon; it also puts the agency's failings into sharp relief

IT WAS SOMETHING amazing—an expensive, delicate ship falling out of the sky with such precision that it could be caught in a waiting pair of giant, gentle arms. If you wanted an illustration of the fact that Americans can do things in space beyond the reach of other earthlings the return of the booster stage of SpaceX's fifth Starship test flight on October 13th could hardly be bettered.

It is a far cry from the days when America first kindled spacefaring fire in its belly. When, in May 1961, John F. Kennedy presented Congress with the goal of putting "a man on the Moon by the end of the decade" America seemed to be clearly lagging behind the Soviet Union; it would not put its first astronaut into orbit until the following year. But Kennedy's advisers had chosen their target in the knowledge that the technology needed to go to the Moon was of a different order from that needed just to get into orbit. The USSR's prowess in the latter was little help to it in the former. America consequently beat them to it, developing the mighty Saturn V rocket and the Apollo spacecraft which sat on top of it remarkably quickly.

Today America has not one, but two rockets which have more power at lift off than the Saturn V: SpaceX's Starship and the Space Launch System (SLS) developed by the National Aeronautics and Space Administration (NASA). Thus equipped, it might seem that getting Americans back to the Moon, as the agency was told to do by then-vice-president Mike Pence five years ago, should be a doddle.

Yet the Artemis programme, named after Apollo's sister, has yet to see a crewed flight (the picture, above, is from its first and only uncrewed flight). NASA's claim that its third flight, Artemis III, could see an American woman set foot somewhere near the Moon's south pole, its primary target, in 2026 sits in the area where optimism is increasingly blurring into deceit. Some internal NASA documents make 2028 look more likely; outside observers, including some former insiders, talk of later still.

NASA programmes have a costly habit of being long drawn out; without competition, there is little to focus the mind. On the lunar front, though, there is clear competition. China has plans to fly its own astronauts to the Moon by 2030, and many Americans have a neuralgic reaction to the idea that America's current geopolitical rival might put people on the Moon before America manages to return them there. Some fear it would look like a re-run of the space race of the 1960s, but one in which America loses, thereby demonstrating some terrible decline.

That would be the wrong conclusion to draw; America's technological lead in space is broad enough that to be pipped to the post in one symbolically loaded (though scientifically unimportant) venture would not demonstrate all that much. But symbolism matters. NASA officials play down the very idea that they are in a race with China. "We've already been to the Moon, [so] we already beat China to the Moon," says Cathy Koerner, associate administrator in the agency's Exploration ▸▸

Systems Development Mission Directorate. But if a day comes when a five-starred red flag hangs at the south pole of the Moon with no stars and stripes nearby, it will be a bad day to be NASA administrator, and a tense one on which to be president.

In a way, though, the more fundamental rival is SpaceX. Over the past ten years NASA has started to move away from the time-honoured model which sees it tell private industry exactly what it wants built and then pay the price, with a handsome guaranteed profit added on. Instead NASA tells companies what it wants done; lets them say how they would do it, how much new stuff they will have to develop and what that will all cost; and then offers fixed-price contracts to the best bids. The enlightened goal is to build up a thriving competitive market in such services.

A starship is born

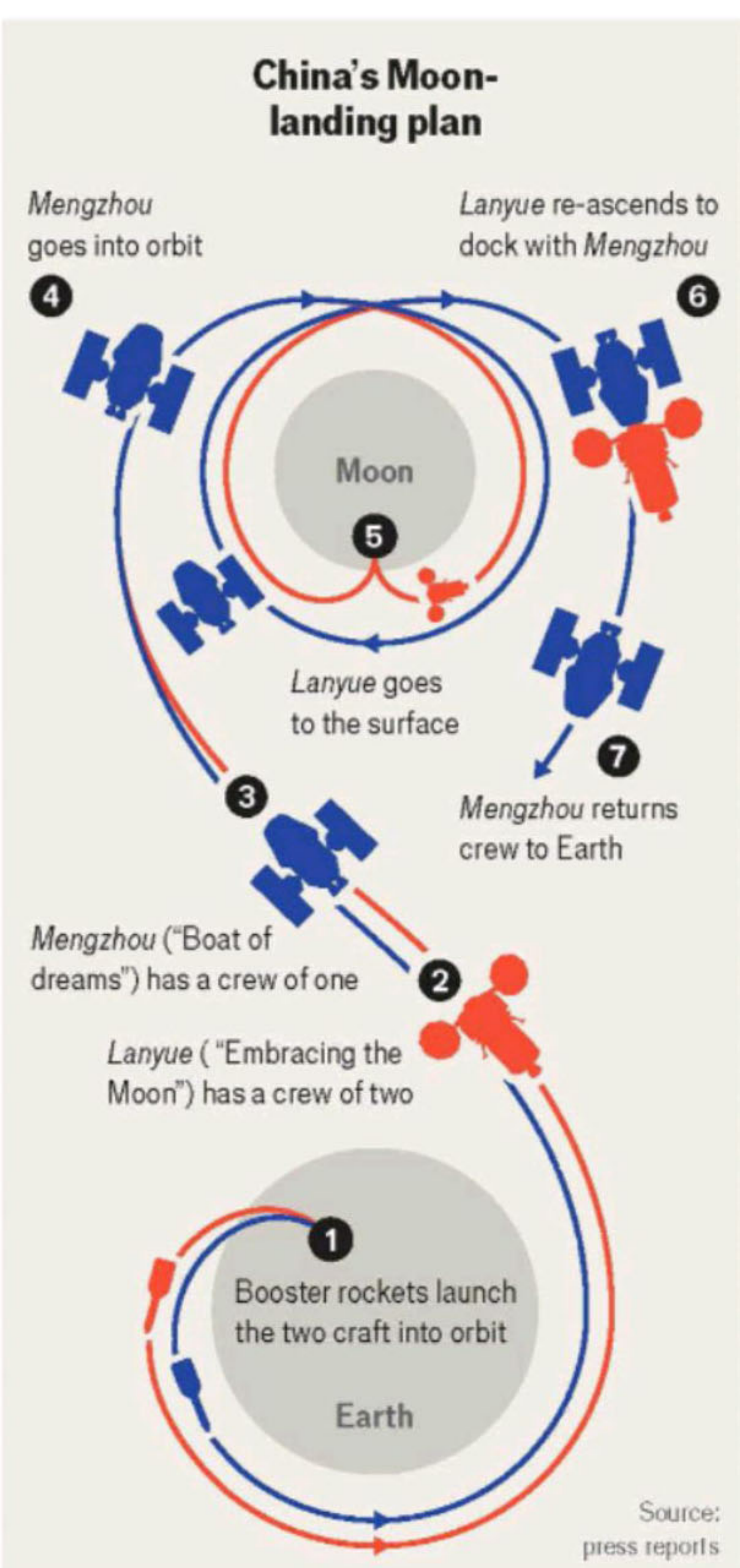
The result has been the building up of SpaceX. The contracts the company won for delivering cargo and crews to the International Space Station (ISS) were fundamental to the development of its Falcon 9 rocket (which among many other things currently launches all the cargo destined for the ISS) and its Dragon space capsule.

In some ways this worked well for NASA; one internal study found that developing the space-station resupply capability in-house would have cost NASA $4bn, rather than the $300m SpaceX has charged. But the competitive market hardly appeared. The rockets which were used by the only alternative cargo supplier have been discontinued. Boeing's attempt to build a capsule to compete with Dragon has been a costly and embarrassing flop.

SpaceX is not a contractor like others NASA is used to. It does not know its place. It did not just develop the Falcon 9: it made it reusable, which NASA would never have dreamed of doing. And it has real plans to do things once reserved for national programmes. Elon Musk, SpaceX's founder and CEO, says he wants to send uncrewed Starships to Mars within a few years, and crewed ones soon after (see leader). Those plans far outstrip NASA's.

The supporting-player-turned-star dynamic is clearly visible in the needless complexity of the Artemis programme. Moon programmes, be they American or Chinese, named after male gods or female ones, all have two things in common: a crew capsule for getting people from the Earth to the vicinity of the Moon and back; and a lunar lander that takes people from that capsule down to the surface and back.

The genius of the Saturn V was that it was sized to carry a smallish capsule and lander all in one flight. A model unveiled in February 2024 suggests that China is planning two launches. One Long March 10 rocket (a souped-up version of the already operational Long March 5) puts a single astronaut into orbit around the Moon in a capsule called *Mengzhou*, ("Boat of dreams"). A second Long March 10 then sends the lander *Lanyue* ("Embracing the Moon"), to the surface of the Moon with two more people on board. They spend six hours doing science, taking selfies and raising flags before a part of the lander takes them up to dock with *Mengzhou*. Then all three astronauts head back to Earth (see graphic, left).



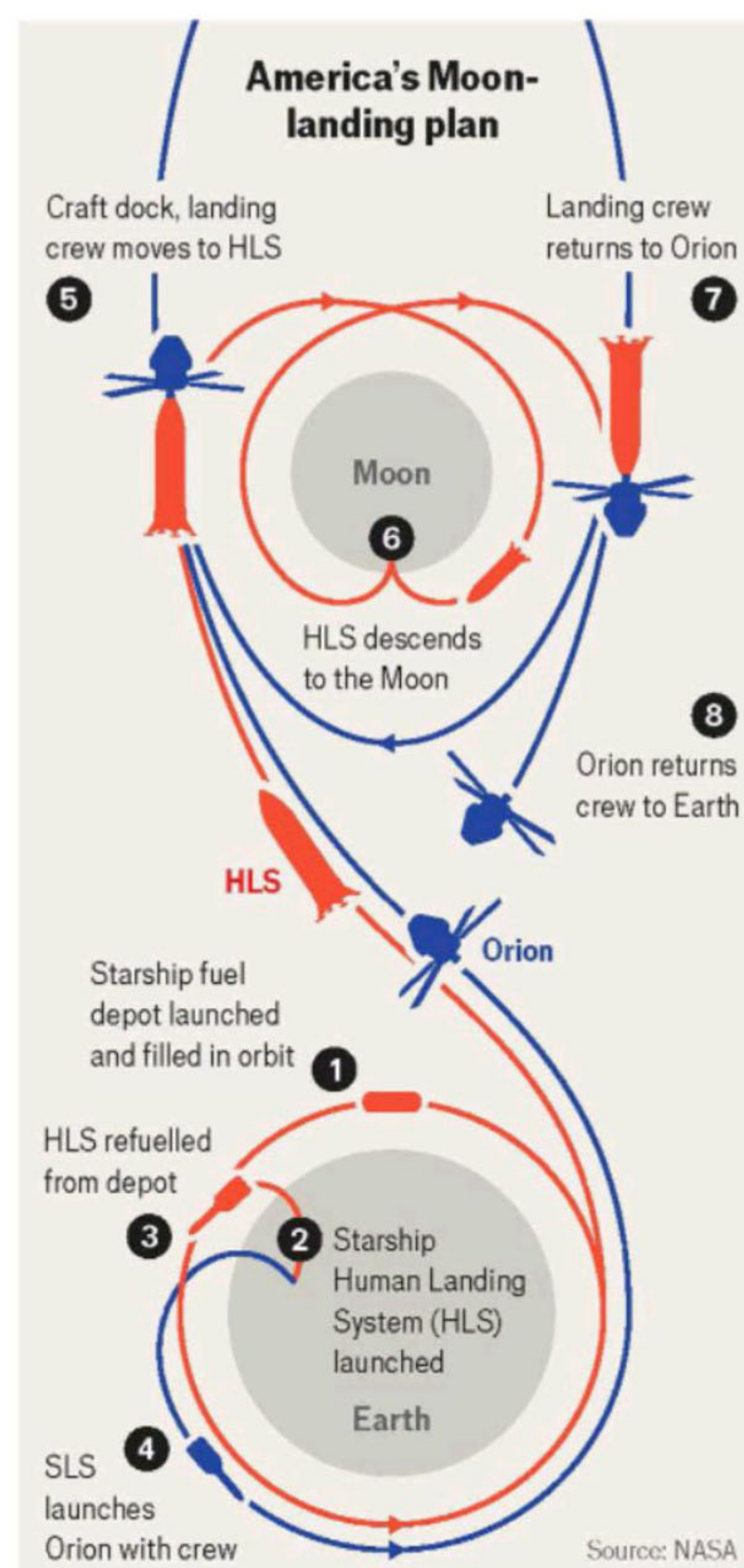
With Artemis things are more complex, because NASA is using hardware not specifically designed for the task: a capsule, Orion, which Lockheed has been working on since the 2000s, and the rocket meant to launch it, the SLS which Boeing and others have been working on since the 2010s. Both programmes have gone well over schedule, and cost more than $20bn each, though, thanks to a mixture of politics (big space programmes have strong support from politicians from states where the money is spent) and the sunk-cost fallacy, they are what Artemis must use.

Unfortunately, Orion is quite a large capsule, and though SLS can produce tremendous power at launch, it is less effective thereafter. This means that the SLS as currently configured cannot put Orion into the sort of low orbit around the Moon that Apollo used and China is planning. Instead, Artemis mission plans have Orion loitering in the Moon's vicinity in a highly elongated "near-rectilinear halo orbit" (NRHO). The good thing about an NRHO is that you can get an Orion into one using an SLS. The bad thing is that getting down to the Moon from one requires considerably more oomph than getting down from a low orbit. So does getting back up.

The SLS cannot deliver a lander capable of such things to the halo orbit chosen for Orion. So NASA put the problem of making up for the deficiencies of its plan out to tender. It asked industry for a "Human Landing System" (HLS) which could get from Earth to the halo orbit, down to the Moon and back up again. The winning bid was SpaceX's offer of a modified Starship.

Long and winding road

The HLS starship will take the same approach to the Moon as Mr Musk wants to take to Mars. First, SpaceX launches a Starship modified to serve as a propellant depot. This will sit in low-Earth orbit where yet more Starship launches, perhaps a dozen or so, will fill it up. Then another Starship will take off and fill up its tanks. Fully fuelled, Starship has enough oomph for a one-way mission to Mars—or, alternatively, for a trip to a lunar NRHO, then on to the surface of the Moon and back up to the waiting Orion (see graphic, below).



The only reason anyone has for thinking such a scheme might work is that SpaceX has a truly remarkable record in terms of engineering. It is not hard to believe that the company will, in time, build a fleet of Starships which are fully reusable. Transferring large amounts of propellant between craft in orbit is a new challenge, but surely not an unmeetable one. And the company has already developed one life-support system, for Dragon: there is no reason it should not, in time, develop a second capable of keeping the Moon walkers on the Starship HLS alive for the duration of their flight and lunar sojourn.

The idea that this will all be done in the next couple of years, though, stretches credulity. In "Reentry", his recent book about SpaceX, Eric Berger, a journalist, talks about what the engineers there call Mr Musk's "green lights to Malibu" approach to timelines. In principle, if every light is green and if you drive at 15 miles per hour over the speed limit, you could get from the company's former headquarters in Hawthorne to Malibu in under half an hour. But because that never happens, you cannot. The first flights of the crewed version of the Dragon, of the Falcon Heavy and of the Starship all took place years after Mr Musk had said they would. Having the Starship HLS ready to take part in Artemis III in 2026, as NASA claims may happen, is green lights to Malibu and back over and over again.

Makes or Mars

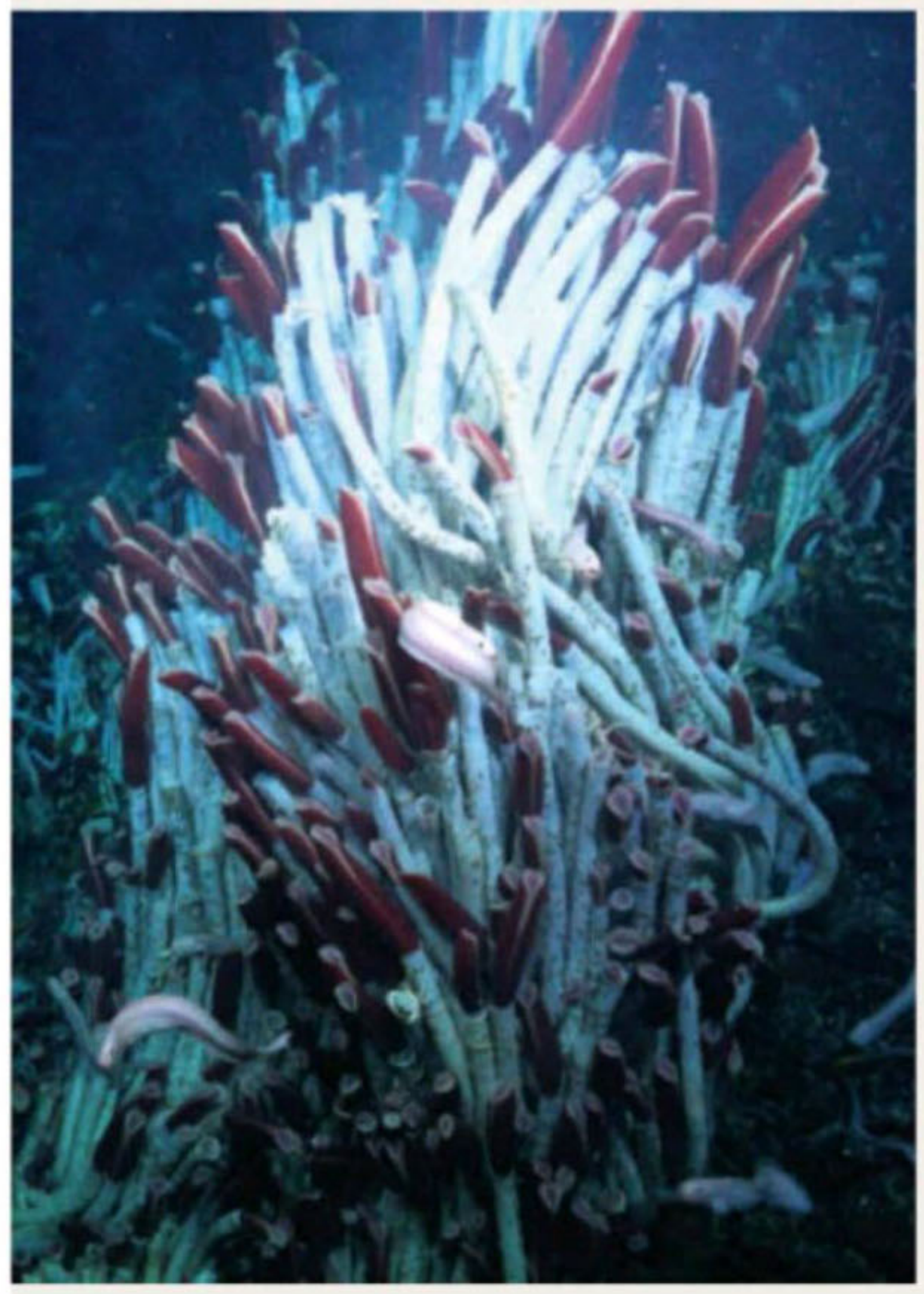
When it finally happens, though, SpaceX will have versions of Starship tailored for Mars ready, too; the Mars-bound version just has to combine the landing-vertically-on-its-own legs capability needed for the HLS with the thermal protection already needed by the everyday version of Starship (to shield it from the heat generated by passage through a planetary atmosphere). Once Mr Musk has a Mars-capable Starship he will use it at the first opportunity. So by the time SpaceX has completed an uncrewed dry run of an Artemis landing there is every chance that it will also have sent a number of uncrewed Starships off to Mars. The odds are even better that this will impress people more. With good reason: SpaceX will be showing it can do things NASA pretty much can't.

For America and for Mr Musk, to the extent that their interests align, that looks great. For NASA it does not. In the 1960s landing on the Moon was not an end in itself. It was the means to something else: a challenge, in Kennedy's words, "to organise and measure the best of our energies and skills". The engineers at SpaceX demonstrate America still has remarkable energies and skills; NASA's Artemis programme is neither organising them well nor discovering the best they can offer. ■

Subseafloor life

Hunting tubeworms

Some live in hellish conditions beneath the crust around deep-sea vents



HYDROTHERMAL VENTS are the planet's exhaust pipes. Kilometres below the ocean surface, they relentlessly belch out searing hot water rife with harsh chemicals from beneath Earth's crust. When they were first discovered in 1977, nobody expected these inhospitable sites to bear signs of life. And yet, thriving alongside these vents were colonies of tubeworms, mussels and clams entirely new to science. It is hard to think of an environment that could be more hostile. Now, however, new work is revealing evidence that these animals are raising their young in just such a place: the fractured rocks underneath the vents themselves.

The tubeworms found at hydrothermal sites are unlike almost all other animals on Earth, in that they do not consume other organisms for food. Instead, they get essential nutrients from bacteria that live within them. These bacteria, in turn, live off the chemicals released by the vents. This unorthodox lifestyle (known as chemoautotrophy) results in tubeworms having neither mouths nor guts.

Tubeworms have an additional idiosyncrasy. For years it was assumed that they were distributing themselves to new vents by releasing their larvae into ocean currents that would sweep them away to locations new. The problem with this theory, however, is that tubeworm larvae have never been detected in open water. Aware of this, Sabine Gollner at the Royal Netherlands Institute for Sea Research and Monika Bright at the University of Vienna wondered if the larvae might, instead, be going underground. It was a radical notion which required a radical test: breaking open the crust beneath a hydrothermal vent.

Working with a team of marine biologists and deep-sea technical experts, Drs Gollner and Bright headed out to the volcanically active East Pacific Rise, far to the west of South America. Working from the research vessel *Falkor Too*, the team sent a remotely operated vehicle (ROV) down 2,500 metres to a hydrothermal site known as Fava Flow Suburbs, where chemoautotrophic worms abound, to investigate the crust.

Drs Gollner and Bright report in *Nature Communications* this week that the area below the vent crust was teeming with a variety of complex animals, not only the hardy bacteria and viruses they had expected to find. They found carnivorous polychaete worms and heat-tolerant limpets that seem to have slipped between the cracks in the seafloor to colonise the cavities underneath. There were also tubeworms.

Although the team did not find tubeworm larvae, the adult worms they found beneath the crust were living in clusters of individuals of the same size, and therefore age. This suggests they were drawn into the cavities by cool water currents as groups of larvae before settling down when the temperature and chemical conditions are right. Precisely what those conditions might be remains unclear, but measurements collected by the ROV indicated that the cavities boast sulphide concentrations that are much higher (and more toxic) than those above the crust, oxygen levels that are much lower than those above and temperatures of around 25°C (well above the 2°C of the ocean floor).

The discovery reveals that the strange ecosystems documented around vents are by no means limited to the surface of the ocean crust. As Dr Gollner aptly puts it, "The study of subseafloor animal life has only just begun."

Astrobiology

Waterworld

A probe to Jupiter's moon Europa will examine one of the solar system's most promising places for life

BESIDES EARTH itself, Mars is the most-studied planet in the solar system. One reason for the abundance of probes and landers, of course, is that Mars is relatively close. Another is that Mars appears to have once had plenty of liquid water on its surface. And where there is water, astrobiologists whisper about the possibility of life.

But Mars and Earth are not the only places in the solar system that either have, or have had, water. On October 14th a NASA probe called *Europa Clipper* blasted off from Florida. As its name suggests, the mission's target is Europa, one of the biggest of Jupiter's 95 known moons.

Europa is a snowball slightly smaller than Earth's moon. It has an atmosphere that is thin to the point of non-existence, a crust of water ice and a surface temperature of around -180°C. But scientists think a vast ocean exists beneath the ice, kept liquid by friction produced as Europa is kneaded by Jupiter's powerful gravity. Over the past few decades scientists have become steadily more excited about the life-bearing potential of such "icy moons". Besides Europa, these include Ganymede and Callisto, two other Jovian moons; Enceladus, which orbits Saturn; and Triton, the biggest satellite of Neptune.

Europa's icy crust is thought to be tens of kilometres thick. *Europa Clipper* will, therefore, not be able to tell whether there actually are any aliens swimming around in the depths. Instead, its job is to assess whether the moon is the sort of place where life might plausibly arise. One of the probe's tasks will be to characterise the size and saltiness of the ocean. NASA's present best guess is that it varies from 60km to 150km deep. If that is right, then, despite its small size, Europa would have about twice as much liquid water as Earth does.

But although water is thought to be extremely useful (and possibly even vital) to the development of life, it is not enough on its own. To qualify as habitable, a world needs enough other elements to allow complex chemistry. Besides the hydrogen and oxygen in water, a common shortlist adds carbon, nitrogen, phosphorus and sulphur. All of these have already been found on a different icy moon—Enceladus.

On Enceladus, plumes of ocean water jet out into space through cracks in the crust. In 2008 *Cassini*, another American spacecraft, flew straight through one of those plumes, discovering six of the elements on the astrobiological list.

Whether such plumes exist on Europa is an open question, says Robert Pappalardo, *Europa Clipper*'s chief scientist. Europa's ice shell is much thicker than Enceladus's, he says, which makes it less likely that surface cracks or fissures would reach all the way to the ocean. Some tantalising—but uncertain—images from telescopes nevertheless show things that look plume-like. But follow-up observations with the space-based James Webb Space Telescope have so far failed to spot any.

If plumes do not exist, then *Europa Clipper* will have to content itself with examining the moon's surface. That surface is notably smooth and relatively free from impact craters, which suggests it is regularly renewed by processes a bit like plate tectonics on Earth. That, in turn, suggests that chemicals that form on Europa's surface might have a way down to the ocean, and vice versa. Studying Europa's surface may, therefore, give valuable clues as to what lies beneath.

The final ingredient for a habitable world is a source of energy for life to exploit. Whatever that might be on Europa—far from the Sun, and beneath kilometres of ice—it will not be sunlight. That is a bit of a problem. On Earth almost every living thing ultimately depends on photosynthesis for its energy, including the rich ecosystems in the ocean depths (see previous page), discovered in the 1980s and which helped the idea of life on Europa gain a foothold. Their inhabitants do not benefit from sunlight directly, but their metabolisms are powered by chemicals created in the photosynthesising, oxygen-rich surface oceans far above.

There's none of that on Europa. But there does not have to be. Some of the microbes living in fissures in the earth's sea bed make use of chemicals that come entirely from below, rather than above. It is a scant source of energy, but a real one. And Europa might offer much the same. Analysing Europa's surface chemistry may give clues as to whether something similar could, at least in principle, be happening on its ocean floor.

Two come along at once

And *Europa Clipper* will not be the only probe hanging out at Jupiter. Last year saw the launch of a European probe called the Jupiter Icy Moons Explorer (JUICE). It will likewise examine Europa, as well as Callisto and Ganymede, two other moons that are also thought to have oceans. The vagaries of orbital mechanics mean that, despite its later departure, *Europa Clipper* will arrive in 2030, a year before JUICE.

If the findings from the two missions are sufficiently exciting, then the next step could be to send a lander. Scouting for landing sites on Europa is another of *Europa Clipper*'s goals. But the probe will not be able to build a perfect map of the moon's surface. Jupiter's powerful magnetic field produces areas of intense radiation near the planet, enough to fry any spacecraft that lingers too long. *Europa Clipper* will, instead, make 49 looping flybys, gathering as much data as possible each time before retreating to a safe distance. The world's alien-hunters will be hoping it survives. ■

Culture

Japanese cartoons

Who are you calling cute?

TOKYO

How anime conquered the world's screens

MOST ATHLETES raise their fists in triumph after a win. When Noah Lyles, an American sprinter, won gold in the Olympics 100-metre race in August, he held his hands out in front of him, wrists together and fingers extended, as though getting ready to catch a large ball. The gesture may have seemed odd, but fans of Japanese animation knew immediately that Mr Lyles, an avowed fan of the genre, was making a reference to a popular franchise, "Dragon Ball".

Mr Lyles had more cause to celebrate on October 11th, with the release of a new "Dragon Ball" series and video game (more than 70m people play a mobile game from the franchise). So will Ishiba Shigeru, Japan's new prime minister, another fan. Once a domestically consumed niche product "watched by people with no friends at school", as one veteran producer ruefully recalls, anime has become a global sensation. These days its export value in Japan, alongside other content such as video games, is approaching that of semiconductors or steel; it now claims more fans outside the country than within it. Some estimate that around 800m people globally are animated about anime.

Those unfamiliar with the genre often wonder what anime is. "Animation created in Japan" is the simple definition offered by Rahul Purini, the head of Crunchyroll, an anime-streaming service with around 130m users across 200 countries. But there is also an aesthetic connotation: anime is usually hand-drawn and two-dimensional, unlike the photorealistic 3D animation that has grown more common outside Japan. The characters often resemble hyper-caffeinated Tintins, with unusually large, expressive eyes, small noses, strange hair and easily decipherable emotions.

Anime tends to be set in non-specific places, such as vaguely European-looking cities for some films by Miyazaki Hayao, Japan's most acclaimed creator. The setting makes it easy for non-Japanese audiences to relate; the only barrier is language, and animation is more easily dubbed than live-action films.

Recently anime has raced into people's homes with Lyles-like speed. In 2023 Japan's anime industry hit a record high, with revenues of ¥339bn ($2.3bn), up by nearly a quarter from a year earlier, according to Teikoku Databank, a research firm. Anime now makes almost half its profits abroad. Netflix's anime titles had more than 1bn views across 190 countries last year; the most popular included "Demon Slayer", about an orphaned boy who battles demons to avenge his family, and "My Happy Marriage", about a girl with magic powers who is underestimated by her in-laws.

Two factors help explain anime's surging global popularity. The first is streaming, which made anime easier to find and watch. Fans no longer have to depend on the decisions of network programmers or wait a week for another episode. They can ▸▸

binge, explore and discover on their own. Anime viewership boomed during the pandemic, as the world sat at home in front of screens for months. (The year 2020 was the first time anime made more money outside Japan than within.) Since then viewership numbers have continued rising in Japan and around the world. Increased demand is producing increased supply. In 2023 anime studios licensed some 300 works in regions such as North America, South-East Asia and western Europe.

Second, audiences have grown tired and suspicious of Hollywood's neat resolutions. As Susan Napier, a professor at Tufts University and expert on anime, explains, "Technology hasn't brought us the utopia we thought it would, and the post-cold-war world has become more dangerous than we imagined," which makes happily-ever-after endings implausible. Anime is willing to have heroes killed off and characters suffer huge loss. At the same time, the protagonists are often cute and relatable. "It's a dark world out there," Ms Napier says, so audiences "want that fluffy cuteness".

Anime's global growth has been made possible by its own evolution. Japanese comic books and graphic novels, collectively known as "manga", have long provided the source material for anime. Unlike comic books in Britain and America, manga are not primarily or even mostly for children. Thousands of new manga are published every year, on virtually every subject imaginable, from pornography to reflections on war, which gives anime an inexhaustible range of sources.

About 30 years ago, studios started producing more anime aimed at girls, such as "Sailor Moon", which was less focused on fighting and robots and more on storylines and magic. And as the fan base got older, creators began making more sophisticated works, often with more adult themes. Mr Miyazaki won an Oscar in 2003 for "Spirited Away", a baroque, fantastical story about a girl who rescues her parents.

Around that time "Dragon Ball" and "Pokémon" were engaging a new generation of fans. Japan's government noticed and eventually took action: in 2013 it launched an initiative called "Cool Japan", in which it invested some ¥90bn to propel Japan's creative industries abroad. It was a flop, because of poorly chosen investments, but that has not stopped the government from trying again: it wants to quadruple the value of Japan's content industry overseas by 2033.

The painstaking nature of hand-drawn, two-dimensional animation is providing inspiration for creators outside Japan. Earlier this year, Usman Riaz, a Pakistani director, released a 2D feature film with an anime-inspired aesthetic called "The Glassworker", animated entirely in Pakistan and originally voiced in Urdu. And the forthcoming "Lord of the Rings" film, "The War of the Rohirrim", to be released in December, is in that same style. It is directed by Kamiyama Kenji, who has spent his career working on anime.

Other creators are taking that aesthetic in new directions. Netflix's superb "Blue Eye Samurai", about a revenge-seeking young woman in Edo-period Japan, won an Emmy for animation and was among the service's ten most popular shows in 50 countries following its premiere last year. Created by a Japanese-American woman and her white American husband, its lavish aesthetic and gore pay homage to directors such as Quentin Tarantino.

Yet appealing to anime fans need not entail animation: last year Netflix launched a live-action show, "One Piece", based on the popular manga of the same name (the original show, launched in 1999, was one of anime's most popular brands ever, with over 1,100 episodes and 500m copies of the manga books sold).

But for all the experimentation, traditional anime shows no signs of flagging. "People are aware of a world that's more amorphous and more dangerous, [and have] less ability to believe in the happily ever after," Ms Napier of Tufts suggests. Bad news for the world, but good for Japanese animators. ■

Adventures into the unknown

The aquatic underworld

Is the deep ocean more magnificent than outer space?

The Underworld. By Susan Casey. *Doubleday; 352 pages; $32. Penguin; £10.99*
Sing Like Fish. By Amorina Kingdon. *Crown; 336 pages; $30. Scribe; £16.99*
Playground. By Richard Powers. *W.W. Norton; 400 pages; $29.99. Hutchinson Heinemann; £20*

More is known about the surface of Mars than the floor of the ocean. By one count America spends 150 times more on space exploration than ocean research. Scientists have mapped almost every Martian crater but only about 20% of the seabed. Yet interest in the ocean is growing. A trio of new books plunge into the deep. They journey through the bioluminescent realm of the twilight zone (between 200-1,000 metres) and into the murky depths of the midnight zone (1,000-4,000 metres).

Susan Casey, a Canadian writer, ventures even further into the abyss. In "The Underworld" she describes her trip to an underwater volcano off the coast of Hawaii in 2021, alongside Victor Vescovo, an explorer. When the deep-sea submersible parked 5,017 metres down, she found a world of "languid beauty". On the "pale gold" seabed were obsidian rocks with "patches of neon-orange" and sea cucumbers grazing "like tiny translucent-purple cows". Mr Vescovo has previously explored the deepest part of the Mariana Trench (nearly 11,000 metres down), where the wa-

Sea me now?

ter pressure is so high it feels like 50 jumbo jets stacked on top of you.

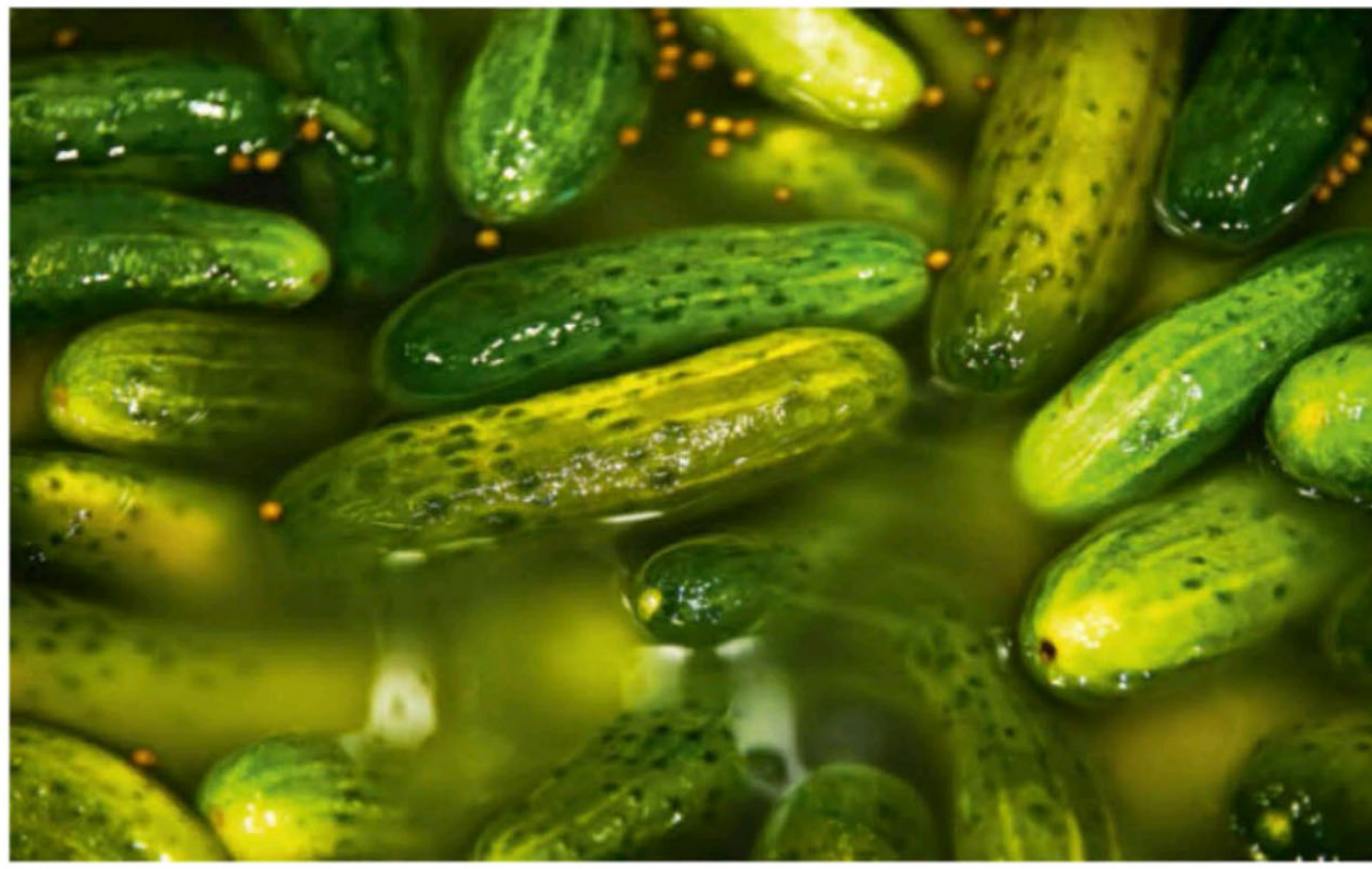
Ms Casey's book flows between descriptions of the deep and the history of ocean exploration. In the 19th century scientists believed the abyss was "azoic", or lifeless. Then the *HMS Challenger* dredged up all manner of exotic creatures on its trip around the world in the 1870s. Around 60 years later William Beebe, an American naturalist, explored the Atlantic ocean in a submersible and saw such strange beasts for himself.

For much of the 20th century oceanography flourished, popularised by explorers such as Jacques Cousteau, who wrote that the deep was a "silent world". In truth it is remarkably noisy. "Sing Like Fish", by Amorina Kingdon, a science writer, is not as engrossing as Ms Casey's book, but it compiles remarkable facts about ocean noise. Readers learn that sound travels four and a half times faster underwater than on land, and that fish have the greatest variety of sound-producing organs of any vertebrate group.

Sometimes fish are so noisy that they are heard above water. In the 1980s houseboat owners in Sausalito, California, thought a loud hum was being produced by a secret military experiment. In reality the sound was the mating call of a male toadfish. Marine animals can be heard droning, but humans also make plenty of noise in the ocean with industrial shipping and other pursuits.

Though these books are awash with facts, both authors agree that humans have barely skimmed the surface of sea exploration. To conjure the untold magnificence of the underworld, Ms Casey uses imaginative, even literary, language. She describes the ocean as a "haunted basement" filled with "pulsing lights and phantasmagoric shapes". This is similar to how Richard Powers, a celebrated American novelist, evokes the deep in "Playground", his new novel. The abyss brims with "primordial life", he writes; creatures look as if they were "left behind from evolution's oldest back alleys".

"Playground" tells the story of a seasteading mission off the coast of Makatea in French Polynesia. Mr Powers uses the atoll to anchor four separate narratives in a style reminiscent of "The Overstory", his Pulitzer-prizewinning epic about trees. Although the book gets lost in a whirlpool of big ideas, from immortality to artificial intelligence, it captures the majesty of the deep. The most interesting character, Evelyne Beaulieu, based on Sylvia Earle, one of the first female aquanauts, embarks on mesmerising dives. Waves of lyrical description spill over lines as she is "swarmed by the wildest assortment" of sea creatures. The novel transports readers to a world as fascinating as it is forbidding. ■



World in a dish

It's crunch time

Food lovers the world over are tickled by pickles

IN DAYS GONE by, the pickled cucumber—or gherkin, in British parlance—had a humble role in food. It showed up ornamentally or in tiny, grease-cutting portions on burgers and charcuterie boards. So limited were its uses that jars would languish at the back of refrigerators for years.

Today, however, pickles are having a moment, as a new generation of foodies has discovered their crunchy, tangy charms. On TikTok there are some 315,000 posts with the tag #pickles—more than with #cucumber and even #potatoes. Users film themselves trying dill, garlic, hot and sour varieties. (The flavour changes depending on what herbs and spices are used and whether the cucumber is soaked in vinegar or fermented in brine.) A video showing the assembly of an assorted "pickle platter" has more than 50m views.

Some pair pickles with confectionery for a sweet-savoury morsel. The chamoy pickle—a bright red, piquant iteration—has gone viral. Eaters unconcerned about heartburn or tooth decay eat it with sour candy, fruit strips, Cheetos and hot sauce. And recently Dua Lipa, a pop star, caused a stir by stirring pickle and jalapeño juice into her Diet Coke.

Van Holten's, an American firm, is Gen Z's preferred pickle purveyor. Its individually wrapped cucumbers are fun to tear open on camera. Last year the company sold some 85m units, up from 70m in 2022. "Laid end-to-end that would stretch from Miami to Seattle" four times over, says Eric Girard, the head of sales and marketing.

Enthusiasts are producing pickles at home, too. During the pandemic more people found time to experiment with pickling and fermenting. They found cucumber pickles an easy thing to make and a versatile ingredient to cook with. So strong is the interest that Grillo's, another American brand, recently released a recipe book dedicated to the pickle, spanning condiments, cocktails and cakes.

The obsession is new, but the pickle's history is long. Around 4,000 years ago ancient Mesopotamians pickled vegetables; over the centuries pickle fans have reportedly included Cleopatra, Christopher Columbus and Napoleon Bonaparte.

Health concerns may be partly behind the current boom. George Rice of Serious Pig, a British snack-maker, says people buy pickles because they are low in calories. There is also "a lot of chat about gut health", and evidence suggests that fermented foods can strengthen the gastrointestinal microbiome. Pickles made with a salt brine fit the wellness bill; those made with vinegar do not, as vinegar is too acidic for the necessary bacteria.

Alan Kaufman says his shop in New York, The Pickle Guys, uses more than 1,000kg of cucumbers a week. Yet runners come for the flavoured, salty liquid, as it replaces the electrolytes lost during exercise. Tempted to dust off that jar in your fridge, chomp the contents—and pour yourself a cold glass of pickle juice? ■

Sex and diplomacy

Sheets to the wind


Reminiscing about her finest hour

Kingmaker. By Sonia Purnell. *Viking; 528 pages; $35. Virago; £25*

PERHAPS IT WAS the red hair, alabaster skin and the figure-hugging couture, or her way of stroking an interlocutor's forearm, just so, as he talked. Or maybe it was her name. As the daughter-in-law of the prime minister, Pamela Churchill enjoyed the mystique that comes with being close to power. Flattered by her attention, powerful men became pliable.

That turned out to be a useful weapon during the second world war. The minds and hearts of Americans needed to be won if the country was to offer aid or join the fight. So while her oafish husband, Randolph, was posted far away, Pamela was deployed by Winston and Clementine Churchill to do a different kind of war work. She wined, dined and seduced in the name of Britain's battle against tyranny.

Sonia Purnell, a writer (who once contributed to *The Economist*), describes Churchill's unusual advocacy efforts in "Kingmaker", an alluring new biography. Churchill set to work in 1941, aged 20. Her first task was to persuade Harry Hopkins, a grumpy, isolationist envoy, that Britain was worth fighting for. His qualms were no match for Churchill's wiles: Hopkins soon convinced Franklin Roosevelt to help.

Next she romanced Averell Harriman, the man charged with overseeing the Lend-Lease military-aid programme, which was distributing $42bn of food and army supplies (around $900bn today). His friends were bemused by his "unduly pro-British" turn. Then she courted Ed Murrow, a journalist whose nightly dispatches about the "Nazi menace" were listened to by millions of Americans. (He toyed with leaving his wife for the British beauty.)

Churchill "developed an astonishing collection of bedfellows", Ms Purnell writes, and "each one was a man with clout in the war effort." She approached her sexual liaisons like diplomatic negotiation. She knew, for instance, how to identify a man's ambitions and tailor her advance accordingly. She intuited when to withhold information and when to give it, but fostered an atmosphere where lovers felt they could speak freely. She would relay the intelligence she collected to the prime minister over late-night card games.

As a result, Pamela's "pillow talk was reaching the ears of leaders and influencing high-level policy on both sides of the Atlantic," Ms Purnell writes, winkingly suggesting that the idea of the "special relationship" between America and Britain began "between the sheets of the Dorchester Hotel". After reading this book, few will disagree with her assessment that Churchill should be regarded as "the most powerful courtesan in history".

These sexual capers, taking place as bombs rained down on London, are a romp to read. Churchill was only 25 when the war—and her disastrous marriage to Randolph—ended. She made the most of her war stories when gallivanting around New York or the Mediterranean. Subsequent lovers included Gianni Agnelli (heir to the Fiat fortune), Élie de Rothschild (a financier) and, it is implied, John F. Kennedy. (The Agnelli and Rothschild families own stakes in *The Economist*.)

Yet the aim of "Kingmaker" is to portray Churchill as more than a honeypot. The book is of two halves: one dedicated to her magnetism and the other about how she used it to become a canny political operator. After reuniting with and marrying Harriman in 1971, she set her sights on Washington. She hosted donors and rising stars of the Democratic Party for sumptuous events at home in Georgetown and raised six figures on average each night.

At the same time, sensing that the Democrats needed new blood and ideas in the wake of Ronald Reagan's election in 1980, Churchill Harriman set up a political-action committee (ostensibly run by husband and wife, but soon christened "PamPAC"). She personally vetted candidates, assessed their prospects and ruled on which should receive financial support. Among her favourites were Joe Biden, Al Gore and John Kerry.

Perhaps the biggest beneficiary of her benevolence was Bill Clinton, who had lost his seat as governor of Arkansas in 1980. He credited his ability to win the presidency a little over a decade later "in no small measure" to her support. He repaid her by making her ambassador to France, offering her another act as a go-between with him and Jacques Chirac during the Bosnian war. By then she had perfected the deft touch of a diplomat. ■

Statistics and society

Known unknowns

The Art of Uncertainty. By David Spiegelhalter. *Pelican; 512 pages; £22. To be published in America by W.W. Norton in March; $32.99*

A HAZARD OF teaching mathematics rather than, say, history is that the homework is a lot harder to come up with. After all, "was Henry VIII a good king?" is a reasonable question to ask either a classroom of nine-year-olds or a lecture theatre of postgraduates. But "solve this quadratic equation" would leave the classroom nonplussed and the lecture theatre unimpressed. Maths is learned by doing, and devising a problem that is easy enough to be accessible, yet hard enough to be satisfying, is a devilish problem itself.

Partly for this reason, books that successfully communicate how mathematicians think, but are aimed at those not already in the tribe, are both valuable and rare. Over the decades many eager students have devoured Thomas Körner's "The Pleasures of Counting" (1996) and Sir Timothy Gowers's "Mathematics: A Very ▸▸

Short Introduction" (2002). Now Sir David Spiegelhalter, emeritus professor of statistics at the University of Cambridge, has added to the genre with "The Art of Uncertainty". His new book will appeal to many more than just aspiring mathematicians, for its topic is universal: how to analyse chance, ignorance and risk.

With the covid-19 pandemic so recently in the past, few will need reminding of how vital such analysis can be. If a new virus is running rampant and the majority of deaths are among those who have received an even newer vaccine, is that evidence that the vaccination scheme is harmful? (No. Those at highest risk were vaccinated first; with an imperfect vaccine this group was always likely to have the most deaths.)

Yet the book finds space for lighter fare, too. How did Giacomo Casanova, a notorious adventurer and lover in the 18th century, manage to design a lottery that was guaranteed to make the French government money? How much of top football teams' performance comes down to luck rather than skill? How certain are scientists about the value of physical constants like the speed of light?

Professor Spiegelhalter's exploration of such questions is delightful for three reasons. First, he uses them to illuminate broader ideas about how probability and statistics work. So a discussion of vaccine safety proceeds to Bayes's theorem, a procedure for refining one's judgment of probabilities as new evidence comes to light. Bayes's theorem is crucial for everything from the scientific method to evaluating legal evidence and progress in artificial intelligence. The joy of Professor Spiegelhalter's approach is that he reaches this deep truth via nothing more than some intuitive assumptions and (very) simple algebra. It is this sort of elegance that makes mathematicians enjoy maths.

The second reason to read this book is the author's fascinating philosophical questioning. What, after all, does "probability" actually mean? Is it a basic property of the world, or a mere expression of our ignorance? When we talk about the probability of rolling a six on a dice, is that the same concept as the probability of there being life on Mars? The author's personal view—that uncertainty is a subjective relationship between observer and observed rather than a fundamental quantity—is a welcome corrective for those who think of maths as a black-and-white subject.

Most important, though, is Professor Spiegelhalter's skill at communicating these ideas. Much of probability and statistics can be highly counterintuitive, and the maths underlying it is often fearsome. But this is not a difficult book to read or understand. For that reason alone, it is a coup—and, no doubt, a beacon for the author's successors. ■

German fiction

Wall of worry

The Grand-daughter. By Bernhard Schlink. Translated by Charlotte Collins. *Weidenfeld & Nicolson; 336 pages; £20. To be published in America by HarperVia in January; $28.99*

BERNHARD SCHLINK is probably the world's most famous living German novelist. His book "The Reader" (1995), a harrowing tale of a teenage boy's affair with an older woman he later learns had been a concentration-camp guard, sold millions of copies and spawned a Hollywood adaptation with an Academy Award-winning performance from Kate Winslet. Now Mr Schlink has turned his attention to a different German catastrophe in the 20th century: its post-war cleavage and the shadow it continues to cast over the country, 34 years after its halves were reunified.

Like "The Reader", which many felt was a literary expression of the German process of *Vergangenheitsbewältigung* (coming to terms with the past), "The Grand-daughter" serves as a parable of sorts. Kaspar, a cultured, kindly bookseller, learns soon after Birgit, his alcoholic wife, dies, that he understood far less about her than he had thought. His investigation into her life in communist East Berlin reveals long-concealed secrets, including an abandoned baby daughter. Like so many of her East German compatriots, Birgit was never able to reconcile her past and present; she did not act on her longing to find her daughter. Kaspar, grief-stricken but less burdened by history, hopes for better luck.

The gulf of misunderstanding between this *Ossi* and *Wessi* couple will resonate with Germans worried about their country's enduring east-west divide, as demonstrated in recent state elections. Yet Mr Schlink's deft touch—a zippy plot, richly painted characters—keeps his tale from being overwhelmed by history.

He skilfully renders long-forgotten events like the Germany Youth Meeting in East Berlin in 1964, an optimistic attempt to help students from West and East Berlin find common ideological ground. (Much of this material is based on Mr Schlink's own experiences as a West German student.) As in "The Reader", few characters escape the burden of secrets and lies: theirs and others'.

Kaspar eventually finds Birgit's daughter, Svenja, living in a forgotten part of East Germany and married to a thuggish adherent of a far-right völkisch ideology. The couple is interested only in Kaspar's money, but he is able to form a bond with their adolescent daughter, Sigrun, who begins to spend time with him in Berlin. Kaspar's quiet attempts to wean Sigrun (who keeps a photo of Rudolf Hess, a Nazi politician, in her bedroom) from the toxic worldview of her parents form the crux of the book. The novel's description of the peculiar rural milieu in which Sigrun has been raised is convincing; Kaspar's half-successful attempts to soothe her soul with Mozart, poetry and chess perhaps less so.

If Kaspar's well-meaning hopes for his grand-daughter never quite work out, they do not leave her untouched. "It's nice here with you. Even if it always has to be your truth, and it's never allowed to be mine," Sigrun tells Kaspar. She voices the ambiguous sentiment of countless East Germans left disillusioned by a reunification they came to see as less a merger of equals than a friendly takeover of East by West. ■

The great divide

TENDERS

Support Stronger Hong Kong-Türkiye Connections

Invitation to provide Consultancy Services for Hong Kong Economic and Trade Office in Brussels (HKETO Brussels) to strengthen Hong Kong-Türkiye relationship

The Hong Kong Special Administrative Region (HKSAR) of the People's Republic of China maintains strong business, trade, economic and investment relations with major economies around the world. Türkiye is one of the key partners.

HKETO Brussels is the official representation of the HKSAR Government to the European Union and 15 countries in Europe including Türkiye to promote HKSAR's interests. It now invites companies with an extensive network of contacts and are capable of working closely with key and prominent individuals, companies and organizations in Türkiye in the political, business, media and academic arena to submit an Expression of Interest for provision of the following services:

- advise HKETO Brussels on the strategies and actions in promoting and developing the interests of Hong Kong in Türkiye;
- gather information and conduct research on Türkiye as requested by HKETO Brussels;
- monitor media reports in Türkiye relating to Hong Kong;
- establish and maintain a good network and close contacts with political and opinion leaders, business community and the media in Türkiye;
- identify and recommend business and promotional events in Türkiye for the participation by HKETO Brussels; and
- provide logistics support when requested by the HKETO Brussels for government visits to Türkiye.

Interested companies based in Türkiye are invited to email a company profile highlighting their capabilities in performing the aforementioned services to **general@hketobrussels.gov.hk** and **paul.leung@hketobrussels.gov.hk** in English by **1700 hours 28 October 2024 (Monday) Brussels time. Late submission will not be considered.**

Selected companies will be provided with a service brief with more detailed scope of services and invited to submit a formal proposal. Only shortlisted companies will be notified.

For further information of HKETO Brussels,
please visit https://www.hongkong-eu.org.

Economic & financial indicators

	Gross domestic product % change on year ago latest		quarter*	2024†	Consumer prices % change on year ago latest		2024†	Unemployment rate %		Current-account balance % of GDP, 2024†	Budget balance % of GDP, 2024†	Interest rates 10-yr gov't bonds latest, %	change on year ago, bp	Currency units per $ Oct 16th	% change on year ago
United States	3.0	Q2	3.0	2.4	2.4	Sep	3.0	4.1	Sep	-3.3	-6.9	4.0	-60.0	-	
China	4.7	Q2	2.8	4.7	0.4	Sep	0.5	5.3	Aug†§	1.3	-4.4	1.7 §§	-82.0	7.12	2.7
Japan	-1.0	Q2	2.9	0.6	3.0	Aug	2.5	2.5	Aug	3.8	-4.7	1.0	21.0	150	nil
Britain	0.7	Q2	1.8	1.1	1.7	Sep	2.9	4.0	Jul††	-3.0	-4.0	4.3	-16.0	0.77	6.5
Canada	0.9	Q2	2.1	1.3	1.6	Sep	2.4	6.5	Sep	-1.2	-1.3	3.1	-82.0	1.38	-1.4
Euro area	0.6	Q2	0.8	0.9	1.8	Sep	2.4	6.4	Aug	3.1	-3.2	2.2	-51.0	0.92	3.3
Austria	-0.6	Q2	-1.7‡	-0.3	1.8	Sep	2.9	5.3	Aug	2.4	-2.4	2.7	-66.0	0.92	3.3
Belgium	1.1	Q2	0.8	1.1	4.3	Sep	4.0	5.4	Aug	-0.3	-4.6	2.8	-71.0	0.92	3.3
France	1.0	Q2	0.7	1.2	1.4	Sep	2.5	7.5	Aug	-0.6	-6.1	3.3	45.0	0.92	3.3
Germany	nil	Q2	-0.3	0.1	1.8	Sep	2.4	3.5	Aug	6.2	-1.6	2.2	-51.0	0.92	3.3
Greece	2.7	Q2	4.4	2.2	3.1	Sep	3.0	9.5	Aug	-6.4	-1.2	3.1	-114	0.92	3.3
Italy	0.6	Q2	0.7	0.6	0.7	Sep	1.2	6.2	Aug	1.6	-4.4	3.5	-135	0.92	3.3
Netherlands	0.8	Q2	4.1	0.7	3.3	Sep	3.4	3.7	Aug	8.2	-1.9	2.5	-58.0	0.92	3.3
Spain	3.1	Q2	3.2	2.7	1.7	Sep	3.0	11.3	Aug	2.5	-3.2	3.0	-86.0	0.92	3.3
Czech Republic	0.9	Q2	1.5	1.1	2.6	Sep	2.2	2.7	Aug‡	0.3	-2.5	3.9	-66.0	23.3	0.5
Denmark	4.4	Q2	4.6	1.6	1.3	Sep	1.6	2.9	Aug	10.5	1.8	2.1	-87.0	6.86	3.1
Norway	4.2	Q2	5.7	1.0	3.0	Sep	2.2	4.0	Jul‡‡	17.0	12.3	3.5	-30.0	10.9	0.4
Poland	3.2	Q2	6.1	3.2	4.9	Sep	3.8	5.0	Sep§	1.0	-5.7	5.5	-29.0	3.95	7.1
Russia	4.1	Q2	na	3.6	8.6	Sep	7.5	2.4	Aug§	2.9	-1.2	16.2	416	97.0	0.2
Sweden	0.6	Q2	-1.0	0.7	1.6	Sep	2.0	7.9	Aug§	6.3	-0.8	2.0	-88.0	10.5	4.3
Switzerland	1.8	Q2	2.8	1.1	0.8	Sep	1.2	2.6	Sep	7.1	0.2	0.4	-66.0	0.86	4.7
Turkey	2.5	Q2	0.3	2.9	49.4	Sep	57.7	8.5	Aug§	-2.0	-4.8	27.3	189	34.2	-18.4
Australia	1.0	Q2	0.9	1.3	3.8	Q2	3.5	4.2	Aug	-0.6	-1.5	4.2	-33.0	1.50	5.3
Hong Kong	3.3	Q2	1.4	3.0	2.5	Aug	1.9	3.0	Aug††	12.0	-2.9	3.0	-125	7.77	0.6
India	6.7	Q2	4.5	6.9	5.5	Sep	4.7	7.8	Sep	-0.5	-4.9	6.8	-56.0	84.0	-0.9
Indonesia	5.0	Q2	na	5.1	1.8	Sep	2.6	4.8	Q1§	-0.1	-2.4	6.7	-10.0	15,510	1.4
Malaysia	5.9	Q2	na	5.1	1.9	Aug	2.0	3.2	Aug§	2.7	-4.5	3.8	-26.0	4.30	10.2
Pakistan	2.8	2024**	na	2.8	6.9	Sep	15.5	6.3	2021	-1.7	-7.4	12.0 †††	-402	278	-0.4
Philippines	6.3	Q2	2.0	5.4	1.9	Sep	3.3	4.7	Q3§	-2.8	-5.9	5.8	-88.0	57.7	-1.6
Singapore	4.1	Q3	8.7	2.7	2.2	Aug	2.6	2.0	Q2	19.9	0.2	2.7	-62.0	1.31	4.6
South Korea	2.3	Q2	-0.9	2.5	1.6	Sep	2.5	2.1	Sep§	3.4	-1.8	3.0	-116	1,363	-0.7
Taiwan	5.1	Q2	1.2	4.2	1.8	Sep	2.1	3.4	Aug	13.9	0.5	1.5	21.0	32.2	0.3
Thailand	2.3	Q2	3.1	2.5	0.6	Sep	0.7	1.1	Aug§	2.2	-3.7	2.4	-91.0	33.2	9.3
Argentina	-1.7	Q2	-6.8	-3.1	209	Sep	221.0	7.6	Q2§	0.3	-0.5	na	na	981	-64.3
Brazil	3.3	Q2	5.9	3.0	4.4	Sep	4.2	6.6	Aug§‡‡	-1.6	-7.5	12.4	61.0	5.66	-10.8
Chile	1.6	Q2	-2.5	2.3	4.0	Sep	3.9	8.9	Aug§‡‡	-2.8	-2.4	5.6	-75.0	941	0.1
Colombia	1.8	Q2	0.4	1.5	5.8	Sep	6.7	9.7	Aug§	-2.4	-5.7	10.1	-144	4,265	-0.6
Mexico	2.1	Q2	0.6	1.6	4.6	Sep	4.9	2.8	Aug	-0.3	-5.0	9.7	-9.0	19.9	-9.7
Peru	3.6	Q2	9.8	2.8	1.8	Sep	2.5	4.9	Sep§	0.2	-4.1	6.4	-101	3.77	2.1
Egypt	2.4	Q2	na	2.4	26.4	Sep	28.4	6.5	Q2§	-4.7	-5.2	na	na	48.6	-36.4
Israel	-2.2	Q2	0.3	0.3	3.5	Sep	3.3	2.6	Aug	5.3	-7.3	5.0	90.0	3.76	6.4
Saudi Arabia	-0.8	2023	na	1.5	1.7	Sep	1.7	3.3	Q2	-0.9	-2.4	na	na	3.76	-0.3
South Africa	0.3	Q2	1.8	1.1	4.4	Aug	4.6	33.5	Q2§	-1.8	-5.2	9.2	-151	17.6	6.5

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

Markets

In local currency	Index Oct 16th	% change on: one week	% change on: Dec 29th 2023
United States S&P 500	5,842.5	0.9	22.5
United States NAS Comp	18,367.1	0.4	22.4
China Shanghai Comp	3,203.0	-1.7	7.7
China Shenzhen Comp	1,842.2	-3.9	0.2
Japan Nikkei 225	39,180.3	-0.2	17.1
Japan Topix	2,690.7	-0.6	13.7
Britain FTSE 100	8,329.1	1.0	7.7
Canada S&P TSX	24,561.2	1.4	17.2
Euro area EURO STOXX 50	4,908.7	-1.5	8.6
France CAC 40	7,492.0	-0.9	-0.7
Germany DAX*	19,432.8	0.9	16.0
Italy FTSE/MIB	34,660.0	2.1	14.2
Netherlands AEX	892.7	-2.5	13.5
Spain IBEX 35	11,996.7	2.2	18.8
Poland WIG	83,759.2	1.1	6.8
Russia RTS, $ terms	1,137.5	nil	5.0
Switzerland SMI	12,193.1	0.6	9.5
Turkey BIST	8,956.0	-1.9	19.9
Australia All Ord.	8,556.6	1.2	9.3
Hong Kong Hang Seng	20,286.9	-1.7	19.0
India BSE	81,501.4	nil	12.8
Indonesia IDX	7,648.9	2.0	5.2
Malaysia KLSE	1,632.6	-0.1	12.2

	Index Oct 16th	% change on: one week	% change on: Dec 29th 2023
Pakistan KSE	86,205.7	0.6	38.0
Singapore STI	3,590.6	-0.1	10.8
South Korea KOSPI	2,610.4	0.6	-1.7
Taiwan TWI	23,011.0	1.6	28.3
Thailand SET	1,485.0	1.9	4.9
Argentina MERV	1,776,060.5	0.2	91.0
Brazil BVSP*	131,749.7	1.4	-1.8
Mexico IPC	52,483.6	1.2	-8.5
Egypt EGX 30	30,545.1	-2.0	22.7
Israel TA-125	2,132.3	1.2	13.0
Saudi Arabia Tadawul	12,038.7	0.9	0.6
South Africa JSE AS	86,393.0	1.2	12.4
World, dev'd MSCI	3,728.4	0.3	17.6
Emerging markets MSCI	1,149.7	0.1	12.3

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 29th 2023
Investment grade	99	154
High-yield	339	502

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

Commodities

The Economist commodity-price index 2020=100	Oct 8th	Oct 15th*	% change on month	% change on year
Dollar Index				
All Items	132.7	131.3	3.2	6.9
Food	139.4	138.9	0.1	7.6
Industrials				
All	127.2	125.1	6.2	6.4
Non-food agriculturals	135.1	133.0	2.4	10.5
Metals	125.2	123.0	7.4	5.3
Sterling Index				
All items	130.3	128.9	3.9	-0.5
Euro Index				
All items	138.3	137.6	5.3	3.7
Gold				
$ per oz	2,612.4	2,662.4	3.4	38.2
Brent				
$ per barrel	77.2	73.8	0.4	-18.3

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

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

OBITUARY

Sammy Basso

The Italian biologist and longest-lived progeria patient died on October 5th, aged 29

Like any 18-year-old, Sammy Basso had grand ideas for the summer he left high school. They involved friends, beer, beaches, good books, and definitely no work. Just one great big relax. His parents, however, seemed to have other plans. Maybe, knowing his horror of needles and puncturing, they had enrolled him in a sewing course? Or did they mean to put him on a strict vegetarian diet, a centrifuge of aubergines? The truth astonished him. They were all going to America, and on the ultimate road trip, east-west along Route 66 from Chicago to Los Angeles.

America had been his dream since childhood, when he drifted asleep to his father's reading of Jack London's "White Fang". His mind was filled with primal forests and frozen streams in the hard, sad landscape of the Klondike: wild, unexplored horizons, in contrast to the relatively tame Veneto where he lived. Now he was actually going there. His don't-forget list for the trip, as he retailed it afterwards in "Sammy's Journey", was underpants, a Yoda mask, an inflatable mattress for stone-hard motel beds, a Hawaiian shirt for Los Angeles. Oh, and *farmaci*—his medications. Sadly.

He never made much of those. His life, he insisted, was normal, and most of the time he went through it with the broadest smile and a high, sweet laugh. True, he had puzzled doctors since birth as to why, at six months, he had more or less stopped growing. The diagnosis of progeria, premature ageing, came when he was two. The cause was a mutation in a single gene, which led to a build-up of a toxic protein in the nucleii of cells. There was nothing to be done about it, no cure. He had an ordinary boy's football-mad brain, but the body of a wizened old man. He never grew taller than 1.4 metres or heavier than 20 kilograms (though that was an ideal mascot size). Twice a week from childhood he went to Mauro, his physiotherapist, to have his joints manipulated to stop them stiffening, and Mauro devised a sort of orthopedic heel so that he could walk, if still not far. Mauro called him his terracotta vase, because his bones were so fragile. He also once hid him in his gym bag to give Sammy's mother a shock.

The American trip was a wonder. Sammy sang in a gospel choir, floating afterwards on a cloud of beatitude. He threw out the first ball at a baseball game and dined in St Louis on the tastiest ribs in the entire solar system. The mayor of Pontiac, Michigan, laid on a show for him. He toured Monument Valley in a minivan and on his father's shoulders. The best moment came in Roswell, New Mexico, where a UFO was said to have crashed in 1947. There he bought a pair of slanty-eyed, green-rimmed alien sunglasses, went to the museum, and stood with the mannequin aliens in front of a smoke-wreathed mock-up of their craft. As a woman visitor passed he asked her, in broad Venetian, "Have you by any chance seen my spaceship? I swear I parked it round here somewhere..."

He made a perfect alien. That was fun at Halloween too, when he lurked by friends' houses to hand out sweets. Little children loved his huge cranial cap and his hooked nose, like a beak. But it was difficult to be so noticed and be normal, let alone happy. The unstinting love of family, friends and neighbours could not entirely suppress the battle inside himself. Sad Sammy said, "Why did God make me this way? Why am I suffering like this?" Glad Sammy said, "There must be a reason. Maybe it's a gift. Maybe I should thank both God and progeria." He wore the *tau* of St Francis round his neck to remind himself of the saint's simplicity, humility and fever to be useful.

The gift he could offer was his mind, which was unaffected by progeria. Indeed, it did him proud. At five, when he first noticed the passion of medical researchers, he decided that would be his career. In 2005, when he was nine, he and his parents founded the Italian Progeria Association Sammy Basso, to make the disease better known and to raise money for research. He followed his love of science as far as a degree in natural sciences (the crimson envelope almost as big as himself) and a second degree in molecular biology, with both his theses focused on progeria. A doctorate was looming too, but by then he was so busy campaigning about his disease that he did not have the time.

From the age of 12 he also volunteered as a guinea pig for new treatments. He did it gladly, though also stricken by the knowledge that he was useful only because he would soon die. On average, progeria patients died at 14. The first drug to be approved, which slowed the build-up of the toxic protein, probably doubled his lifespan. Unfortunately, it meant more needles. The research that most excited him was base-editing, replacing the faulty gene with the correct one, and here he led the debate, conferring each Monday at 4pm with scientists in America.

Around that central focus his life was a whirl of activity. Despite the laborious planning and preparation, he always preferred to hit the party scene with friends rather than stay at home. (Besides, a doctor once told him that red wine would strengthen his heart.) Whenever his Sammy Runners took to the road, raising funds for his association, he went with them, pushed in a little cart. He travelled as far as China to meet other victims of progeria. There were lectures, videos and interviews. One day Pope Francis called him, a huge moment. He liked to imagine the pontiff, *cornetta* in one hand and pen in the other, jotting a note to "call Sammy Basso before dinner." Fame was great; it helped keep progeria in the spotlight, in the quirky person of himself.

His dreams never stopped, either. His favourite science subject at school was physics, rather than biology, because it got to the very heart of matter. Perhaps one day, he thought, he would work at CERN in Geneva. In his 20s, too, he still hoped to be a particle physicist. Somewhere in that extraordinary quantum world a clue to a cure might be flickering, waiting. ■