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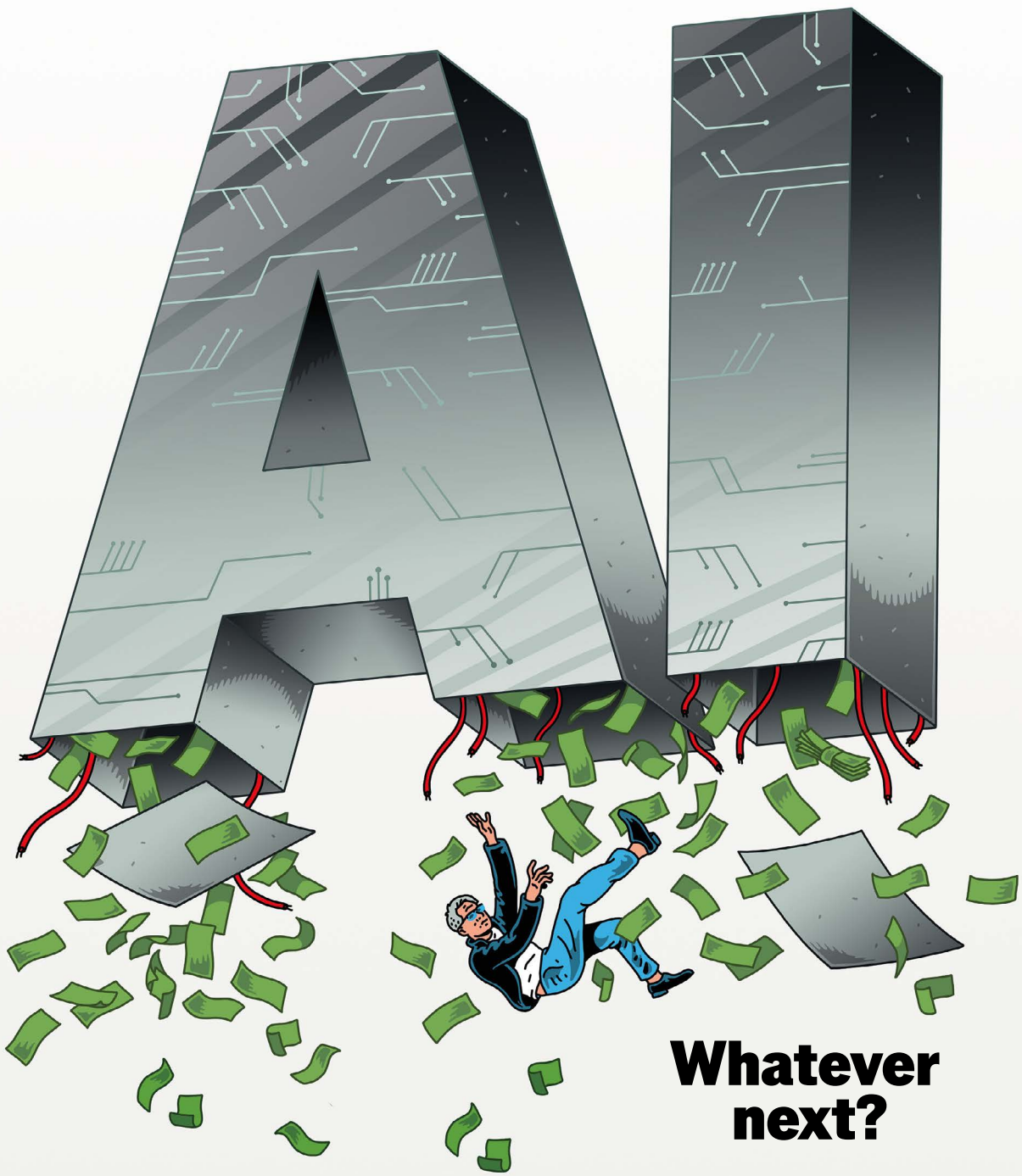
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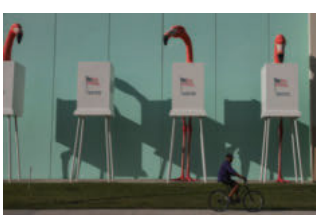
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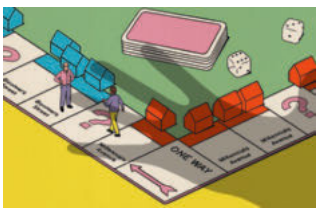
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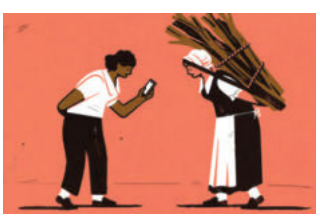
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The world this week Politics



Russia and **Ukraine** held their first peace negotiations in nine months. The talks, brokered by America and held in Abu Dhabi, ended with no big breakthrough, though both sides agreed to swap more prisoners of war. Jared Kushner and Steve Witkoff, Donald Trump's envoys, then flew to Moscow, to try to persuade Vladimir Putin to include other European countries in future negotiations. They also prepared to meet Volodymyr Zelensky. Ukraine is wary about a meeting between Mr Trump, Mr Putin and Xi Jinping, which Mr Putin is seeking to use to discuss an end to the conflict, but without Mr Zelensky.

The cold war

France accused **Iran's** revolutionary guards of being behind a spate of cyber-attacks on the food-refrigeration systems of big supermarkets. In mid-October the hackers tapped into the supermarkets' cooling systems, which can be controlled over the internet, damaging goods worth tens of millions of euros and raising concerns about an attack on food security. Jean-Noël Barrot, the French foreign minister, blamed Iran, describing it as an act of "unprecedented aggressiveness".

In **Spain** unions held their first national strike in 14 years to protest against the high cost of housing, a big issue in the general election that has been called for November 29th. The ruling Socialists are currently trailing in the polls.

A 24-year-old man shot dead six people in Krakow, **Poland's** second-biggest city. He is also suspected of killing his parents and sister. The incident shocked Poland, where gun crime is rare. The perpetrator, who was shot by police and eventually died from his wounds, was described as a loner. It is unclear what his motives were. Ministers suggested he was inspired by far-right ideology, a claim that was disputed by conservatives.

An attempt by a Republican congressman to impeach **Pete Hegseth**, America's secretary of war, failed after other Republicans moved to defeat it. Thomas Massie, who lost his primary election in May to a Trumpier candidate, brought several charges against Mr Hegseth relating to the Iran war. Holding a rare press conference, Mr Hegseth defended his record and described the impeachment attempt as a farce. Democrats looked on in glee and vowed to revive the proceedings next year.

Trying to regain the initiative after the Republicans' stinging defeat in the midterms, Donald Trump appointed **Stephen Miller** as his new chief of staff. The combative Mr Miller has advised the president on policy during his first and second terms, pushing for harsh immigration measures and deadly strikes against alleged drug-traffickers in the Caribbean, among other things.

Scott Colom was declared the winner in **Mississippi's** Senate election, becoming the first black person to represent the state in the Senate since the post-civil-war era. He is also the first Democrat from Mississippi to be elected to the Senate since 1982. Counting continued in Alaska's close Senate race, where the Democrat holds a narrow lead over the Republican.

An **American soldier** was arrested in Britain on suspicion of spying for Russia. He reportedly worked at a NATO base. Meanwhile, **American military aircraft** were withdrawn from a second air-force base in Britain, according to reports, amid heightened security over a possible attack from Iran. American planes flew out of RAF Mildenhall and relocated elsewhere. In September American bombers were redeployed from RAF Fairford because of a potential Iranian plot. America's Justice Department has laid charges against three alleged operatives for Iran, including in that case.

Gibran Rakabuming Raka submitted his resignation as vice-president of **Indonesia**, following court rulings that there was no evidence of his graduating from high school, and he was thus ineligible to stand in the 2024 election. Mr Gibran is the son of Joko Widodo, known as Jokowi, who was president until 2024. Relations between Jokowi and the current president, Prabowo Subianto, have soured amid claims that Jokowi's allies in the administration wiretapped Mr Prabowo's phone.

In **Bangladesh** supporters of Sheikh Hasina clashed with police. The former prime minister fled the country in 2024 amid widespread protests. She lives in exile in India but wants to return to Bangladesh in December, even though she has been sentenced to death in absentia for her brutal crackdown on the protesters. The Bangladeshi government refuses to issue her a passport.

There was no clear winner in **New Zealand's** election. The final results will not be announced until the end of the month, but Christopher Luxon, the centre-right prime minister and leader of the National Party, is talking to the centrist Opportunity Party about joining his coalition.

Isaac Herzog, **Israel's** president, asked Gadi Eisenkot, the leader of the centrist Yashar party, to form a new government. A majority of members in the newly elected Knesset endorsed Mr Eisenkot, but the opposition parties did not agree on the composition of the new coalition. Mr Eisenkot indicated that he wanted to form a minority "emergency" government, without either Arab or ultra-Orthodox parties. He will have up to six weeks to convince his partners.

Seasonal flooding swamped **Gaza**, drenching the tents of around 350,000 people. In unusual criticism, Donald Trump's Board of Peace warned Israeli politicians that aid provisions are "insufficient" and urged them to let more supplies into the strip.

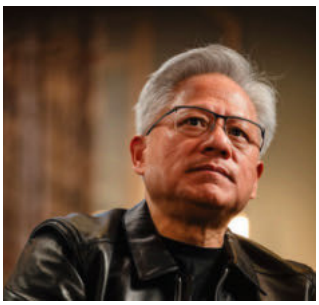
Paraguay's parliament removed Santiago Peña as president amid a scandal that led to the collapse of a popular bank and caused the head of the central bank to step down. Mr Peña, who had offered to resign, was placed under house arrest amid allegations that he used his influence to direct government work towards the bank; Mr Peña used to hold shares in a company tied to it. He denies any wrongdoing.

Missionary zeal



Pope Leo visited **Latin America**, just a month after cancer surgery. The pontiff started off in Uruguay and then headed to Argentina, where 2.5m people attended one mass. In a televised address attended by Javier Milei, the pope criticised the president's austerity programme because of its impact on the poor. He then went to Peru, where he worked for over 20 years as a missionary before taking the top job in the Vatican. At least 3m people turned out to greet him in what he describes as his homeland.

The world this week Business



Nvidia was engulfed in turmoil after **Jensen Huang**, the chipmaker's chief executive, admitted to having an extramarital affair with an executive at Megaspeed, a Singaporean cloud-computing company that buys Nvidia's hardware. American officials suspect the woman is a Chinese agent and that Megaspeed helps China bypass export controls on American chips. The affair has raised questions about whether Nvidia intervened to thwart a government investigation into Megaspeed last year. Donald Trump said the FBI had started an inquiry. As reports surfaced that Mr Huang also had an affair with an executive at Nvidia, the board deliberated over removing him.

Nvidia's share price plunged in reaction to the news about Mr Huang, unsettling already jittery investors. **Chip stocks** recently recorded one of their worst days ever, which saw the NASDAQ 100 drop by around 6%. The sell-off came on the heels of the Democrats' victory in the midterms; the party has pledged to curb the construction of data centres and so slow investment in AI. Stock markets had clawed back some of their losses over subsequent days, though investors remain cautious. Markets in Japan and South Korea also sank.

Investors took some comfort from **CoreWeave's** latest earnings, which suggested that its sales remain strong. CoreWeave is one of the neoclouds, a group of fast-growing companies that buy specialist AI chips and rent them out, but are also laden with debt. In October stock markets swooned when CoreWeave raised the prospect of taking on even more debt.

A former employee at OpenAI's headquarters pleaded not guilty to **spying**. Prosecutors allege that the man, a Saudi national, had frequent contact with an unnamed member of Saudi Arabia's royal family.

An updated filing with regulators indicated that **Anthropic** could be worth $1.4trn at its forthcoming IPO, making it one of the biggest ever. Reports suggest that the huge demand for shares in the firm may actually see its value head towards $1.5trn. The stock is expected to start trading on November 19th.

Boom and bust

SoftBank booked a $3.7bn charge against its data-centre investments in America, driving it to its first quarterly net loss in two years. The charge was reportedly related to energy equipment, including gas turbines SoftBank had reserved to power the data centres. Unable to use all the energy SoftBank apparently decided to write off the contracts.

Alibaba confirmed that its subsidiary chips business, T-Head, has filed for an IPO in Hong Kong. T-Head lies at the centre of Alibaba's thrust into AI and computing; in September it released its next-generation processor. The details of the stock-market listing haven't been decided yet, but it should enable T-Head to raise its own capital in the markets.

America's monthly **inflation** rate was 0.4% in October, more than markets were expecting (the Bureau of Labour Statistics did not calculate an annual rate because the government was shut down in the corresponding month last year). Investors are now all but certain that the Federal Reserve will raise interest rates again in December. Speaking ahead of the latest inflation data Christopher Waller, a Fed governor, suggested the central bank may need to lift its benchmark rate by half a percentage point.

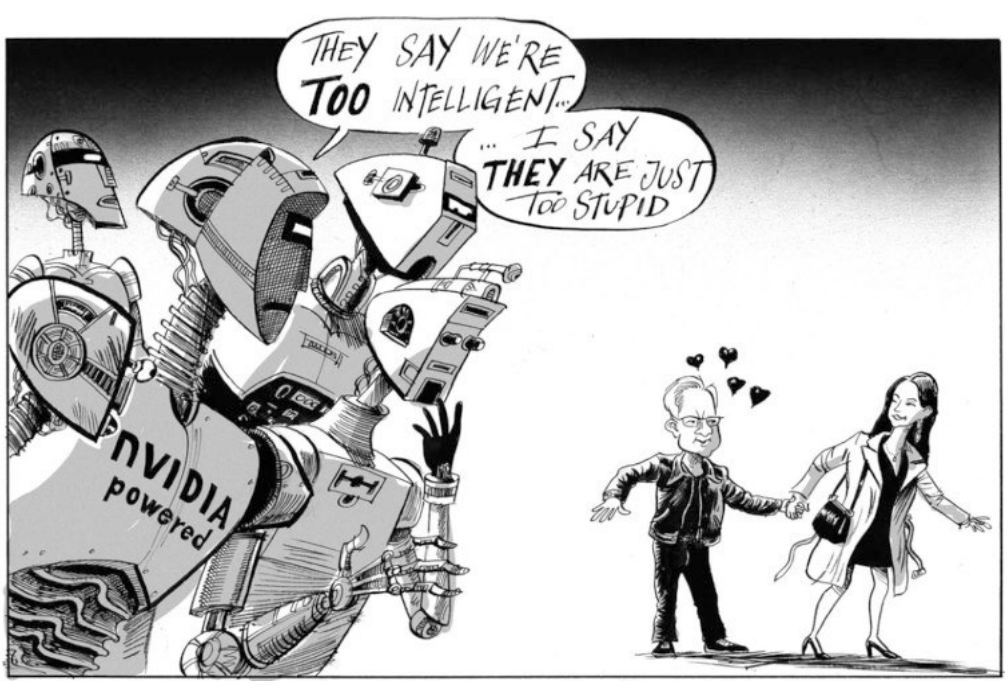
Clare Lombardelli, a member of the **Bank of England's** Monetary Policy Committee, said that unless inflationary pressures weaken, interest rates may rise again "in the near term". The bank recently increased its base rate for the first time in more than three years, lifting it to 4%.

The value of China's goods exports surged by 35% year on year in October, as the country continued to pump out chips and AI-related products. China's cumulative **trade surplus** for 2026 surpassed $1trn in October, reaching the milestone a month earlier than it did last year.

Skydance outlined the cost savings it expects to achieve from its takeover of Warner Bros. The film-and-TV company expects to save at least $6bn net over the next three years by reducing management layers, scaling AI workflows and streamlining marketing, among other things. The company is already offering voluntary buy-outs to employees ahead of official lay offs.

End of the road?

Elon Musk announced on X that Tesla would be "winding down production of the **Cybertruck**" from the middle of next year in order to increase output of its robotaxi, the Cybercab. It was unclear if that meant the Cybertruck is being phased out completely. Sales of the futuristic-looking pickup truck, more Terminator than Dukes of Hazzard, have been poor and it has faced several recalls.



The Economist

The lessons of manias past

History suggests an AI crash is likely. But do not expect a financial cataclysm

COULD THE news be much more dramatic? Artificial-intelligence models keep growing more powerful, faster than almost anyone predicted. Next week Anthropic, a frontier model-maker, is expected to list its shares in what could be the biggest-ever IPO of an AI firm. Yet in some ways the AI boom is looking wobbly. A sex-and-spying scandal is rocking Nvidia, the top chipmaker (see Leader). America's Democratic Party, having won the midterms, is raring to go after data centres and Trump-adjacent tech titans. Some fear an almighty tech bust is coming. How worried should the world be?

History offers clues. Plenty of past technologies, from canals and railways to the internet, have brought market euphoria and then despair. Bets on them went wrong even though the underlying technologies proved revolutionary.

Even techno-optimists like *The Economist* should worry about a crunch today. The scale of expected investment in AI is vast, an annual average of 3.6% of America's GDP between 2025 and 2032, by one forecast. AI-related shares have had a dizzying run: the top ten heavily AI-exposed stocks are now nearly 40% of America's S&P 500 index. Corporate equities have reached 38% of American household net worth—nearly a quarter higher than at the peak of the dotcom boom. And over the 12 months to August net foreign inflows into American equities crossed $1trn for the first time, many times greater than for the entire 2010s.



Jitters over whether all this is sustainable have left stocks roughly flat over six months. After the midterms the NASDAQ index of tech firms fell by 5.5% in a day, as investors fretted that Democrats would block data centres. The share price of Nvidia, whose balance-sheet underpins much of the AI industry, is down by nearly 30% from its peak. When Anthropic floats, bears argue, its prospects will be visible to all in its stock price, a fall in which could trigger a market-wide rout. Anthropic and its main rival, OpenAI, are the customer-facing companies feeding the entire AI supply chain, including data centres, chip designers and chipmakers. If they have too few sales or cannot charge high enough prices, disaster looms.

For investors to have overestimated revenues from AI would be a mistake consistent with financial history. The good news is that the consequences this time would probably be manageable. A dotcom-style equity-market crash could happen; a deep financial crisis is much less likely.

Kitty Hawk down

In the past, investors who spotted hot new technologies have often been poor forecasters of who will profit from them. "If a farsighted capitalist had been present at Kitty Hawk, he would have done his successors a huge favour by shooting Orville down," wrote Warren Buffett in 2008, noting the low profitability of airlines. Many who financed the buildout of fibre-optic cable in the 1990s lost their shirts; it was the tech firms that built businesses on that infrastructure that printed money.

It is easy to see how a bust could happen now. Much of Anthropic's revenue comes from venture-capital-backed AI start-ups and could dry up in a crunch. America's model-makers are only about six months ahead of Chinese rivals who, in effect, give away models for nothing. As we report (see Briefing) high valuations for Anthropic and OpenAI assume they will draw further ahead of the competition, or develop new business models which exploit their small lead better.

The gloomiest prognosticators, inspired by a prominent book, say that their failure would lead to a crash like the railway bust of 1873—the last time such a huge investment binge, relative to GDP, took place. Then, disappointing returns caused a financial calamity that brought about deflation and the longest American recession on record.

Fortunately the comparison is ill-judged. Most of America's capital expenditure on AI goes on imported equipment such as chips. The direct exposure of its economy to the boom is therefore much lower—perhaps 0.3% of GDP. An AI crunch would be far worse for Taiwan's economy (annual growth rate: 14%) than for America's. Financial conditions are also utterly different now. In the 1870s there was no central bank and the crash was met with contractionary monetary policy rather than the interest-rate cuts that it would trigger today.

The way the AI boom has been financed is also reassuring. The worst crashes—including 1873's—follow booms that are mostly funded by debt (and it is excessive household credit, not corporate borrowing, that is the reddest flag). True, the AI industry is borrowing to invest far more than it was two or three years ago, when investments were financed overwhelmingly by the vast cashflows of tech behemoths. Yet the accumulated AI capital stock is still mostly equity-financed. The five "hyperscalers" (big owners of AI data centres) have debts and lease commitments worth around 30% of their book value or just 6% of their market value; their legacy businesses are still hugely profitable. Nvidia's leverage is negligible. AI debt has not pushed lending to America's nonfinancial sector above its long-run trend, relative to GDP.

What, then, might happen in an AI-caused crash? Households, nursing losses from the stock market, would spend less. Companies that are highly leveraged, including many "neocloud" data-centre startups, could blow up. There might be a shallow American recession, comparable to that of 2001. For things to get much worse, an AI crash would have to coincide with another calamity, such as a bond-market panic or a war. That is possible: several rich countries' debts are dangerously high and some global leaders are unpredictably belligerent. But for now, it is not the most likely outcome.

What matters more is what happens to the technology itself. Silicon Valley's titans think they already have the infrastructure they need to build a superintelligence. Some predict that recursive self-improvement—AIs building more powerful AIs without human input—could occur as soon as next year. A furious political backlash could still interrupt the breakneck advance of AI. A financial crash probably won't. ■

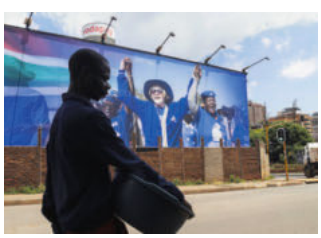
South Africa

Giving up on Nelson Mandela's party

Voters have soured on the party of liberation. Good: democracy is working

"THE IMPATIENCE and dissatisfaction among ordinary people are justified," Nelson Mandela warned his party in 1999. At the time, the African National Congress (ANC) utterly dominated South Africa. A generation on, after years of corruption, stagnation and collapsing public services, South Africans have run out of patience entirely. At local elections on November 4th they handed the ruling party its worst-ever result in a nationwide ballot. Though the ANC eked out 31% of all votes, more than any rival, that was less than half of what it recorded in 2004. In the country's most dynamic places, it did especially badly. It is no longer the largest party in any big city, including Johannesburg, the commercial capital.

This shows that a young, fragile democracy is working. For decades the ANC could count on the votes of black South Africans, who are 80% of the population, because of its role in ending apartheid in 1994. In the early years it also delivered the goods: water, electricity, housing and a safety-net. But over time its performance has flagged. Voters increasingly see the ANC as just another party. They punished it for water leaks, power cuts and sewage-ridden streets.



The Democratic Alliance (DA), the second-largest party, is now only six percentage points behind the ANC, from almost 50 two decades ago. Previously derided as the "white party", the DA is now the largest party in five of the eight big cities—because it has a record of running cities competently. Depending on coalition negotiations, Helen Zille, a DA veteran, could soon become Johannesburg's first white post-apartheid mayor. You could hardly ask for a more encouraging sign that voters are moving on from racial politics.

Yet there is much to worry about, too. Most South Africans are disillusioned with democracy. Only 35% of possible voters bothered to cast a ballot on November 4th. More than a fifth of black voters opted for black-nationalist parties with ideas that are more Mugabe than Mandela. These include uMkhonto we-Sizwe (MK), which will probably run Durban, the city with the busiest port in sub-Saharan Africa, and the Economic Freedom Fighters (EFF). Dangerous grassroots movements, from anti-migrant vigilantes to white nationalists, pose a threat, too.

To his credit Cyril Ramaphosa, South Africa's president since 2018, acknowledges that his party is losing support. Other leaders, in Africa and elsewhere, instead rig elections and violently cling to power. Since 2024 at the national level he has led a Government of National Unity, in effect an ANC-DA coalition, that has brought some political stability and sensible reforms. But his tenure is entering its twilight. He will be replaced as party leader in 2027 and must leave the presidency no later than in 2029. He still has much to do to secure his desired legacy: as the disciple of Mandela who shored up South Africa's graft-eroded institutions, reformed the economy and thwarted ruinous populism.

An urgent priority for the country is to run its cities better. That requires more local power-sharing among parties, just as they have learned to do nationally. The ANC will have to get used to being, at times, a junior coalition partner. Some in the party would prefer to unite the so-called "black parties", cutting deals with MK and the EFF. But that would lead to much worse and more corrupt governance, which voters would soon notice. Smaller parties, For Free Mags &Papers Check SoftArchive. is like Action SA, which won 16% of the vote in Johannesburg, also face a test of their seriousness.

A political realignment is under way that brings some risks for the continent's largest economy. But mostly the change is welcome: voters are rewarding those who govern better, and punishing those who don't, just as the architects of the constitution hoped they would. When the ANC failed to deliver a better life for all, voters looked for an alternative. Mandela would have understood. ■

The chip war

Nvidious

The Jensen Huang scandal is a sorry tale of hubris. His should not be the only head to roll

JENSEN HUANG is a brilliant man—and a fool. The boss of Nvidia, the world's leading chip designer and until recently its most valuable company, had an extramarital affair. His lover was an executive at Megaspeed, a little-known cloud-computing firm that has bought billions of dollars' worth of Nvidia hardware. American officials think she is a Chinese agent, and that her Singapore-based company is a front for smuggling the politically sensitive chips into China.

As we went to press, Nvidia's board was meeting amid reports that it was planning to oust Mr Huang. If it had yet to find the courage to sack him, fresh allegations of another affair—this time with a direct report—will surely help. His position is untenable, and he must go. The same is true for American officials implicated in the Megaspeed scandal.

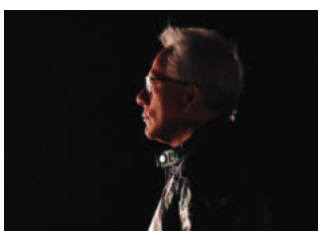
Mr Huang's admission of infidelity on November 8th followed months of rumours about his relationship with Alice Huang (no relation). It remains unclear at what point Nvidia's boss knew that his government thought her to be a Chinese agent, or when the affair ended (see Business section). Nonetheless, he showed a catastrophic failure of judgment. Romance with a customer creates an obvious conflict of interest. And given his position as the steward of an American technol-



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ogy that China desperately covets, Mr Huang should have been extra wary. Instead, he lied publicly about the nature of their relationship as recently as last month.

If it is true that he also had an affair with a subordinate, no self-respecting board could allow him to remain. And Mr Huang's transgressions may prove to have been graver still. Questions swirl as to whether Nvidia's chief counsel intervened last year in an investigation into Megaspeed by America's Commerce Department, which is responsible for enforcing export controls. Mr Huang's advocacy of looser chip controls, ostensibly to keep China hooked on American technology, now arouses suspicion, as does his championing of Chinese open-source models.



Those who have argued that Mr Huang should stay reason that he is essential to Nvidia, and that Nvidia is essential to America's lead over China in AI. Yet it is precisely because Nvidia is so important that he cannot continue as its chief executive. It is in America's long-term interests that there be penalties for egregious misconduct at the top of firms which are crucial to national security. And for all Mr Huang's undoubted brilliance, the interests of Nvidia's shareholders would hardly be served by a scandal-ridden chief executive facing a merry-go-round of investigations, including by the FBI.

That there is no obvious successor makes the board's job unenviable, but not impossible. Mr Huang has been deeply involved in every aspect of his business, with as many as 60 executives reporting to him directly—a situation the board should not have allowed. No one has been prepared for the top job. Even so, an experienced executive such as Colette Kress, Nvidia's finance chief, should be capable of stepping in to stabilise the business while a permanent successor, perhaps from outside, is appointed.

Mr Huang is not the only one to have shown dismal judgment in the Megaspeed debacle. The Commerce Department, under Howard Lutnick, has failed abjectly to stem the flow of America's best chips to China. It appears to have allowed Nvidia to keep selling to Megaspeed even after concerns over smuggling were raised, and to have resisted calls by the Pentagon, the Treasury and others in the administration to blacklist the Singaporean firm. Like Mr Huang, Mr Lutnick has advocated weaker chip-export controls.

Alas, the secretary of commerce is unlikely to resign. But as Democrats take control of Congress, they will interrogate not only Mr Lutnick but also President Donald Trump, who has bought Nvidia shares and tapped the company to fund his new ballroom. For two years incoherent policy and lax enforcement have allowed China to gain ground in the race for a technology that may prove more powerful than nuclear weapons. With luck, that will now change.

For years Mr Huang has been courted by governments and treated as a rock star. Like many powerful leaders, including others in Silicon Valley, he came to believe that he was too important for the normal rules to apply to him. The same attitude can be found, in even larger doses, within the Trump administration. This culture of impunity must end. It has damaged one of America's great corporate successes and undermined its national security. After Mr Huang's, other heads should roll, too. ■

Climate change

Results, not intentions, matter most

Chinese—and world—carbon-dioxide emissions seem at last to be falling

THE CLIMATE does not care where the carbon dioxide accumulating in the atmosphere comes from. It simply takes note of how much there is and dispenses weather accordingly.

The humans who have to live with that changing weather need to take a slightly more nuanced view. Less carbon dioxide being emitted is good. Less carbon dioxide being emitted because of structural change—change that should decrease emissions further in years to come—is better.

According to the Global Carbon Budget, a consortium that monitors the carbon cycle, carbon-dioxide emissions from fossil fuels will fall by 0.4% in 2026. That compares with an average rise of 0.8% a year over the past seven years. The fall is driven in large part by decreases in Chinese emissions. These, as we report in the China section, have been dropping all year. In the third quarter they fell by 3.1% year-on-year, the largest such fall since the covid lockdowns.

Those assembled in Antalya, Turkey for the UN's annual climate summit, COP31, would doubtless love to see this happy circumstance as an outcome of their unceasing efforts. Dream on. The principal reason is that the foolhardy war with Iran launched by America and Israel has pumped up the price of oil and natural gas. When fuel becomes more expensive, people burn less of it, and carbon emissions fall.

Normally such changes get reset when prices subside and consumption rebounds. This time that should happen less. If your response to expensive petrol is buying an electric vehicle, rather than driving fewer miles in your existing car, then your need to buy petrol has been cut whether or not it becomes cheap again. And a lot of people are buying EVs, both in China and elsewhere; petrol-powered cars now account for less than half of all new-car sales worldwide.

Another reason for the drop in Chinese emissions is that the generosity with which the state has treated makers of solar panels and wind turbines is paying off. China is getting more and more terawatt-hours from wind and solar, both because more kit has been installed and because grids are better at getting what is generated to where it is wanted. Growth in renewable-electricity generation has outstripped growth in total electricity demand; emissions from coal-fired power are down.

The industrial policy that has made renewables cheap in China has done the same for the world at large—as long as it buys Chinese. Throughout South-East Asia and in much of Africa, Chinese solar panels and batteries are replacing diesel generators and eating into the revenues of national grids (see

Middle East & Africa section). They are also providing the huge advantages of electrified life to people previously denied them—all without adding to emissions.

None of this was done specifically for the benefit of those exposed to the hazards of climate change. The main reasons have been industrial policy, economic policy and a quest for energy independence. Since these motives remain strong, emissions may continue to fall.

Sun, sand and subsidy

To speed up the process, policymakers should amplify the changes already happening and keep up pressure on non-carbon-dioxide emissions. There are some reasons to be careful about importing cheap Chinese clean tech, which include worries about back doors in the software that they rely on. In general, though, if past Chinese subsidies are offering the world technologies to generate cheap power and help with the climate, do not let protectionism spoil a good thing.

Also, governments should do what they can to encourage the switch to electricity. Enabling power prices to vary as much as possible by location and time of day would keep overall costs down. Encouraging the replacement of things which burn fossil fuels—cars, boilers and the like—with technologies that achieve the same goals electrically, such as electric vehicles and heat pumps, is also wise.

Electrification is not the be-all and end-all of climate policy. Making a stable climate possible requires more. Not everything can be plugged in; not all systems can be made entirely fossil-free. A deeply damaging degree of climate change remains plausible. But the clearest path to avoiding it is a world in which the trends driving electrification are given free rein and a following wind. ■

Film and TV

Hollywood's twin peaks

To triumph in show business, take a lo-fi or hi-fi approach

TWO TYPES of movie stand out in America's box-office revival this year. The first is indie fare such as "Obsession" and "Backrooms", made by two YouTubers who spent peanuts on films that grossed over $920m between them. The second is extravaganzas like "Spider-Man: Brand New Day" and "The Odyssey", which cost hundreds of millions of dollars and grossed a combined $4.3bn. Such extremes reflect a new topography of Hollywood: the twin peaks of lo-fi creator content and hi-fi premium stuff. As with the rest of show business, anything stuck in the middle is in trouble.

On one extreme sits YouTube, Hollywood's most potent disruptive force. As we report (see Business section) it has become America's dominant TV platform, with a share of streaming almost as big as those of Netflix, Skydance and Walt Disney combined. Its business model makes it easy to spend on content, since it pays according to performance rather than buying shows up front, as legacy studios do. Its creators, the best of whom are superstars in their own right, upload an average of 20m videos a day. In an indirect form of flattery, streamers such as Netflix are poaching them.



On the other extreme is content so lavishly produced that watching it is an event in its own right. Take America's top two blockbusters. They generated about a fifth of all box-office revenues this year; some IMAX tickets for "The Odyssey" sold out a year in advance. Sport and live entertainment also fit the bill. Last year 96 of America's top 100 telecasts were sports-related.

Lo-fi is a volume play. Hi-fi is a value one. But they have something in common: human connection. YouTube's creators establish an intimacy with their audiences, born of years of fandom. Driving people to glitzier fare is the thrill of sharing something special, such as the spectacle of the IMAX or the tension of the Super Bowl. Such experiences need not cost megabucks. A24, an independent studio, has mastered the art of making people not only watch its films but talk about them. Even one of its documentaries—Nathan Fielder's "You Can See Everything"—is close to blockbuster status.

Each peak is relatively AI-proof. Owned by Google, YouTube offers AI tools to creators. It is the biggest distribution platform for AI-made video content. At the other end, people watch World Cup football matches, and perhaps also films like "The Odyssey", precisely because they are triumphs of human endeavour. This makes them hard for bots to copy.

Unfortunately most show business lies between Hollywood's two peaks. For years studio executives have made a virtue of offering all things to all people—with mixed financial results. Skydance, newly created by the merger of Paramount and Warner Bros, two Hollywood studios, is a case in point. Its two streaming platforms, HBO Max and Paramount Plus, cater respectively to film buffs and middle America. Its 50 cable channels range from CNN to the Food Network. Its sports rights straddle American football and tennis. From next year onwards, to satisfy one of the antitrust conditions of the merger, it aims to churn out a new film every fortnight or so. A similar spray-and-pray approach is common across mainstream music, gaming and publishing.

Combine all Skydance's broadcast, cable and streaming services, and they still draw less attention than YouTube. Bundle together HBO and Paramount Plus, as planned early next year, and they will still be less than half the size of Netflix. As for producing upscale movies, it would be easier if Skydance's acquisition spree had not saddled it with $87bn of debt.

Netflix may be big enough to survive as a stand-alone streamer. Disney is buoyed by its theme parks. Skydance looks stuck in the mid-size trap. It could join forces with the American arm of TikTok, part-owned by Oracle, to counter YouTube (the chairmen of Oracle and Skydance are father and son). It could use AI to cut operating costs and invest more in premium films and TV. What it cannot do is muddle through. The valley between the peaks is a dangerous place to be. ■

Letters *banning certain types of pornography, Rastafari, describing the OECD, tongue-scraping, amoebae*

Some porn has to be banned

Britain's ban on some pornography is based on flimsy evidence, you said, and you questioned the basis of the new offences that have just come into force ("Gagging order", November 7th). As the author of the government's independent review of pornography, I approached the task with an open mind. Academic literature was reviewed and I heard extensive evidence from researchers, regulators, abuse charities, safeguarding professionals, police officers, teachers, parents and young people. The weight of that evidence demonstrated that some categories of pornography are causing harm, particularly to women and children, and that legislative action was justified.

It is alarming that much online pornography is dominated by depictions of violence against women. Were comparable levels of violence directed at almost any other group there would be little debate about society's legitimate interest in restricting its commercial distribution.

Policymakers must always pay attention to what is being observed on the front line. Around a third of women report having been choked during sex. Child-on-child sexual abuse has risen sharply, often involving acts of strangulation. Of course, young people learn about sex from many sources, including peers. But why are behaviours that were once relatively rare and confined to niche pornography increasingly being reported as routine? The suggestion that this transformation occurred independently of an online pornography industry that normalises and monetises such content is implausible.

Nor is this primarily a free-speech debate. Britain has regulated the commercial distribution of harmful sexual material for decades. Much of the content now prohibited online could not legally have been sold on video, DVD or through other regulated channels. Parliament long ago accepted that some material is sufficiently harmful to justify restriction. The internet did not suddenly make those harms disappear; it merely placed them beyond the reach of existing regulation.

Nor am I persuaded by the argument that the law is too difficult to enforce. Regulators and courts have decades of experience distinguishing lawful from unlawful sexual content. There will inevitably be borderline cases, as there are in many areas of law, but that is hardly grounds for abandoning regulation and the rule of law altogether. Regulating the internet is challenging. Yet if the test for legislation is perfect enforcement, few laws would survive.

These reforms do not mark the end of pornography, nor do they regulate the private lives of consenting adults. They tackle the rise of violence, choking, incest and depictions of children in unregulated internet porn. Or is it the view of *The Economist* that we just shrug our shoulders and say "that's life"?

BARONESS BERTIN
House of Lords
London

Jamaica's red, gold and green

Rastafarians in Jamaica want more rights, you report ("Herbal remedies", October 24th). One right deserves more attention: a fair share in the economic value our culture creates. This is not simply a question of ownership but a wider failure to build the infrastructure needed to support Jamaica's creative economy. Rastafari colours, language and music help sell holidays, clothing and cannabis around the world, yet those who nurtured Brand Jamaica and govern the culture across parishes and communities see little of that money. On a national scale Jamaica ranks 38th of 139 economies for intangible assets but 129th for creative goods and services, and it earned little from the world's use of its intellectual property last year.

Recognition matters. But rights become real when they pay. Jamaica could register collective marks for Rastafari symbols, let community organisations license their use, and give Rastafari a fair route into the legal cannabis industry, as Antigua and Barbuda is exploring. That would turn a culture that the world draws from into an asset its people own.

NATASHA FERGUSON
Founder
N.F. Orange Economy Advisory
Kingston, Jamaica

Before you head to work...

"Should you be using a tongue scraper?", you ask (Well Informed, October 10th). Although it sounds mundane, tongue-scraping forms part of the *dinacharya*, an ancient daily-health routine. The morning usually starts with swishing edible oil in your mouth, followed by tongue-scraping, tooth-brushing, inserting nasal oil drops, a self-massage with oil, and drinking a glass of warm water sprinkled with fresh lemon juice or apple vinegar to help bowel movement and discharge toxins. Physical and breathing exercises, shower, prayer and meditation are next.

SLAVA DODONU
Geneva

A cell-ebration

Bartleby lampooned the lessons for leadership provided by amoebae (October 31st), and yet, the spectacular problem-solving skills of these microbes have inspired the design of micromachines made from liquid metal and analogue computers that "think" like amoebae. Friedrich Nietzsche recognised their will to power and Sigmund Freud likened their movements to expressions of the human ego. Amoebae are the paradigms of self-determination and deserve an apology from Bartleby.

NICHOLAS MONEY
Professor of biology
Miami University
Oxford, Ohio

Please leave the club

I implore you to stop describing the OECD as a "club" of mostly rich countries, the latest example being in your Charlemagne column of October 17th. You correctly distinguish other global bodies by their structure, for instance, referring to the G7 more accurately as a "group" of rich countries. But while the G7 operates primarily as an informal, high-level political forum (a "group" or "club" format), the OECD is a formal, treaty-based international organisation with a permanent secretariat, structured directorates, and legally binding frameworks on international taxation, anti-bribery and economic policy.

Continuing to apply a casual, reductive shorthand like "club" to the OECD conflates an institutional, data-driven regulatory body with informal political coalitions. It inadvertently diminishes the rigorous, global standard-setting work that the organisation performs.

ERIC PARK
Washington, Missouri



→ *Letters should be addressed to the Editor at: The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N; Email: letters@economist.com. More letters available at:* ***economist.com/letters***

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August

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Why choose one holiday home, when you could *own five*?

August creates private collections of beautiful holiday homes across Europe's finest regions. Instead of buying one house in one place, owners join a collection, and with it, every home within it, fully looked after and ready for each arrival.


Prime Collection, French Alps.


Signature Collection, Cotswolds, UK

Almost everyone has imagined a holiday home of their own. A villa in the hills above the Mediterranean, the shutters open to the morning. A farmhouse among the vineyards of Tuscany. A chalet for the first snow in the Alps. The difficulty has always been choosing. One house means one region, the same village every summer, and a home that waits, empty and in need of care, for most of the year.

August was founded on a simple question: why choose? Each August collection brings together four or five homes in different parts of Europe, held by a small group of owners. Every owner holds a place in the whole collection, not a single house, and spends time across all of its homes, approximately eight to twelve weeks a year. August takes care of everything else. Think of it as a holiday home, multiplied: one decision, and a year that moves between several of Europe's most loved regions.

"What drew me in was the idea of belonging to several homes across Europe, alongside a small group of other families, rather than tying ourselves to a single address," says one owner.

Several homes, one way of life

Easter in the French Alps, close to the slopes and the village. Early summer on the Côte d'Azur, long lunches on a shaded terrace and the sea below. High summer in Mallorca, when the evenings are warm and the island slows down. A slow autumn in Tuscany, when the grapes come in and the light turns gold.


Prime Collection, South of France

What matters most is the return. Most holidays favour novelty: a new resort, a new hotel, a fresh list of recommendations each time. A collection offers something rarer, the second visit and the tenth, in several places at once. Over time the walk to the market becomes familiar, the baker knows your order and each home becomes part of the family's year. You learn which café opens early and which path leads down to the sea.

Children, grandparents and friends gather around the same table, in a different landscape each time. Some owners plan around school holidays; others favour quieter seasons and longer



stays, working from a home for a month at a time.

"We've come to love Mallorca far more than we expected, and last winter we skied for the first time in thirteen years," the same owner says. "We travel more now, and to more places. That's the joy of it."

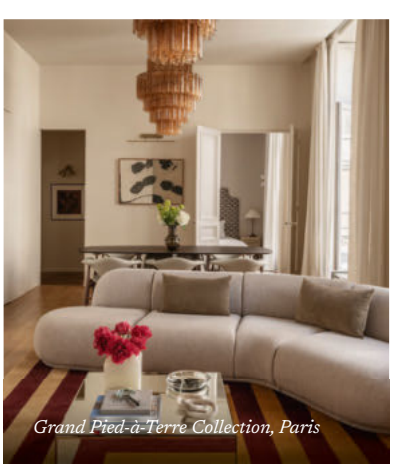
Homes that belong to their place

Every home is designed by August's interior design studio, Studio RL, with the region as its starting point: local stone, handmade ceramics, antiques and the work of nearby craftspeople. Original features are kept wherever they can be, so that a Tuscan farmhouse feels unmistakably Tuscan and an Alpine chalet belongs to its mountain.

The homes themselves are chosen for their setting, their character and the life around them: a village to walk into, a market nearby, a view worth waking up to.

A collection for every way of life

August's collections are shaped around different ways of spending time in Europe. The Pied-à-Terre and Grand Pied-à-Terre collections offer apartments in the heart of London, Paris, Rome, Barcelona and Cannes. The Signature collections bring together characterful family homes across the countryside, coast and mountains of the South of France, Tuscany, Mallorca and the French Alps, while Premium offers larger homes with more space for family and friends. Prime gathers rare homes, in the most exclusive locations, and with fewer owners in each collection.



Grand Pied-à-Terre Collection, Paris

Photography Prime Collection French Alps by Nico Wills

> *"These are homes a family returns to for generations*
>
> Mélie Dunod, co-founder and CEO

"These are homes a family returns to for generations," says Mélie Dunod, co-founder and CEO of August. "Beautifully designed, rooted in their surroundings, and made to become part of a family's story."

Simply arrive

August's regional teams look after every home throughout the year, so there is no house to open up and no list of jobs waiting. The garden is tended, the pool ready, the beds made. "With a house of your own, there's always something on your mind," the same owner says. "Here, we simply arrive."

Because each home belongs to several families, it is lived in rather than shuttered for months at a time. "Ours is used almost all year round," his wife says. "That feels right."

Owners plan their stays through Valeria, August's own platform, using points that reflect the season: a week in high summer calls for more than one in spring or autumn. This is real ownership: a registered stake in the company that owns the homes, with a Board elected by the owners and Annual Dues covering the care of every home. Should life change, an owner can move on through August's private sales, with August handling every step.

All the pleasures of a holiday home in Europe, in more than one place.

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BY INVITATION

Anne Neuberger

***AI** sceptics overlook how vulnerable the status quo is and how much the technology can help defend it*



MUCH OF THE debate about artificial intelligence, including a recent leader in *The Economist*, asks how to prevent a powerful new technology from making the world more dangerous. There is an equally important, more urgent question: how quickly can we use it to make an already dangerous world safer?

The world that large language models entered was very vulnerable. In 2017 NotPetya, a Russian cyber-attack aimed at Ukraine, spread worldwide within hours, deleting data and paralysing systems, including those of Maersk, which carries about a fifth of global shipping. In 2023 Iranian-linked hackers broke into American water utilities, forcing operators to switch to manual control. More worrying still are the attacks not yet triggered: Chinese state hackers have planted footholds in American power, water and transport systems, ready to strike silently during a conflict.

Few of these attacks relied on brilliant new exploits—code that weaponises systems' flaws to cause harm. They succeeded because the defenders could not find, fix or fence off known weaknesses fast enough across sprawling, ageing systems. The cost of that status quo belongs in any honest accounting of AI risk.

I have worked on both sides of cyber-conflict: conducting intelligence operations at America's National Security Agency, then running its Cybersecurity Directorate to turn those lessons into defences. Later, at the White House, I pushed through the first mandatory cyber-security rules for America's pipelines, railways and airports. The experience taught me something important: AI can help defenders even more than it can help attackers.

True, AI makes the challenge harder in some ways. It lowers the skill needed by attackers, and lets them jiggle every digital doorknob, continuously and at scale. It is already speeding up the discovery of new flaws, including in software foundational to the internet. But the old rule of cyber-conflict, that defenders must be strong everywhere while attackers need to find only one weakness, rested on defenders lacking the time, people and money to cover everything. AI alleviates that problem.

AI is already making defenders' response to these threats stronger. They own their code and can task AI to pre-emptively analyse it line by line from all possible angles of attack, rather than probing it only from the outside as attackers must do. They see their own network traffic, so AI can spot the subtle signs of an intruder using stolen credentials and legitimate tools, as China's hackers do, which older tools miss.

Using AI available today, utilities can turn operational data into virtual replicas of power grids and water systems. These "digital twins" let operators test defences without putting essential services at risk. Attackers, working from outside, can build only crude approximations.

Crucially, AI can fix flaws after finding them. In DARPA's AI Cyber Challenge last year, AI systems scanning open-source software of the kind that underpins critical infrastructure patched 43 planted vulnerabilities, and uncovered 18 previously unknown flaws, fixing 11 of them. For ageing equipment that cannot safely be patched, AI can give each flaw a specific workaround, such as a firewall rule or a settings change, tested on a digital twin before it goes live. And AI is cheap enough that small, under-staffed utilities can use it too.

None of this happens by default. AI favours defenders only if they move with urgency. Governments should start with the infrastructure operators and shared suppliers whose failure would cause the greatest disruption, enlisting AI labs to find flaws in their code or firmware and produce fixes by set deadlines. Governments should share the cost for smaller operators. Success should be measured by how quickly threats are contained and whether essential services survive an attack. Critical-infrastructure operators could address the highest-priority systems within a year, judging by how quickly they met the cyber-security standards issued by the Biden administration.

Findings should be shared with trusted partners using the co-ordinated-disclosure practices that keep fixes from tipping off attackers before systems are patched. The aim should be for a discovery in one country to strengthen every country running the same technology.

Such practical partnerships are more urgent than AI treaties, and the foundations exist. NATO's annual Locked Shields exercise brings together thousands of participants from dozens of countries to defend power grids, water systems and other networks against live attacks. The exercises could be expanded to include using AI to generate patches and controls, sharing the results across the alliance.

Here, too, there is precedent. In 2021 America formed the International Counter Ransomware Initiative, now made up of nearly 70 countries. Members share threat warnings and forensic techniques, including how to trace ransoms laundered through the crypto ecosystem. They co-ordinate policy; for example, by pledging not to pay ransoms. Alongside law-enforcement takedowns of gangs and their money-laundering networks, the effort has squeezed the business: after peaking at over $1bn in 2023, ransom payments have fallen each year since.

The time has come to use AI as aggressively on defence as adversaries will use it in attack. A serious international agenda for AI safety should explain not only how it will contain the risks of a new technology, but how it will keep the lights on for the world's citizens, and how soon. ■

Anne Neuberger is a general partner and the head of global affairs at Andreessen Horowitz. She previously served as Deputy National Security Adviser of the United States.



Anticipating roaring revenue

Can the AI boom make enough money to sustain itself?

BOTH ARTIFICIAL intelligence and the tricky business of valuing stocks boil down to questions of timelines. Establishing what a company is worth is a hazy exercise at the best of times, full of courageous assumptions about which cashflows will arrive when. Consider, too, timelines for AI—the years, few or many, until the technology's capabilities surpass humans'—and the exercise veers into incoherence.

Markets do not enjoy the luxury of coherence, though. Take the imminent listing of Anthropic, the first big pure-play AI developer to go public. Anthropic's prospectus touts the many remarkable (and profitable) ways in which advanced AI could transform the economy, but also warns would-be buyers off. "Our decision-making may run counter to investors' expectations," it says, for instance with "forward investments...that may seem irresponsibly large at first glance".

Still, somewhere between Utopia and Armageddon, investors need to find a way to pick a number. Anthropic is aiming to float at a valuation of around $1.5trn, which would make it one of the 15 biggest public companies in the world.

The listing comes at a precarious time for AI. Jitters about data-centre debt collided with midterm elections in America, where AI-sceptical candidates prevailed, and, bizarrely, with the revelation that Jensen Huang, the boss of the chipmaker Nvidia, was having an affair with an alleged Chinese agent (see Business section).

Before all that, Anthropic looked set for a valuation of $2trn or more (see chart 1 on next page). OpenAI, its main rival, has punted its own listing into next year. Nvidia's share price was about 30% below its recent peak as *The Economist* went to press. The "neoclouds", which borrow, often prodigiously, to run data centres, have done worse. But a comeback may be on. Shares in CoreWeave, one of the largest, rose by 25% on November 11th, following strong earnings. The stock had previously been down two-thirds from its high point this year in May. And Anthropic's IPO is, reportedly, heavily oversubscribed.

So the IPO will be a weighty moment. However many trillions Anthropic lists at, from then on it—and, increasingly, AI more widely—will be judged not with the gauzy optimism of venture capitalists but with the beady eyes of Wall Street. Investors will wonder whether the technology can possibly generate enough cash to justify these valuations or underwrite the colossal scale of data-centre construction planned over the next few years.

The numbers are vast. *The Economist* calculates that AI needs around $3trn in revenue by 2030 for the planned data-centre buildout to offer a conventional rate of return. Other analysts, including Stijn Van Nieuwerburgh of Columbia Business School and a duo at the Stanford Institute for Economic Policy Research, have reached similar figures. To put that number into perspective, all compensation for all

workers—wages, plus perks like health insurance—adds up to around $16.5trn in America, or $35trn across the OECD, a club mostly of rich countries. So AI would need to lay claim to almost a tenth of today's rich-world wages for the data-centre boom to pencil out. Of course, that could happen in a more benign fashion if the entire economy grows swiftly—and AI evangelists do also expect dramatic growth from here.

Safe to say, AI isn't quite there yet. Anthropic has reported that its annualised run-rate revenue at the end of October was $81bn. OpenAI's was $50bn as of the end of September. Toss in smaller developers, as well as Google's, Meta's and Microsoft's revenues from their own models, and the AI model-makers might be generating around $200bn in total.

All that cash sits at the top of a funnel, cascading downward into the rest of the ecosystem—keeping other AI businesses afloat and persuading investors to hand them more money. The models that Anthropic, OpenAI and the others sell must be run on chips, most often designed by Nvidia and manufactured by Taiwan Semiconductor Manufacturing Company. Those chips in turn rely on a bevy of components. A shortage of one, RAM, a type of memory, sent the stocks of the main South Korean memory-makers, Samsung and SK Hynix, soaring in the spring. Those chips must then be housed in a data centre, festooned with further complicated electronics. All that needs electricity to power it, too: a windfall for the makers of gas turbines, which generate much of the electricity behind the AI boom. Everything in AI-world, in other words, relies on revenue at the top of that funnel continuing to flow in, ideally at an ever-increasing rate.

Getting from $200bn to $3trn means a leap of an order of magnitude (or an OOM, in Silicon Valley-speak). Could that happen? Because so many of the largest players in AI have been privately held, tracing the exact path of their revenues is tricky. But the previous OOM did not take long. The combined revenues of Anthropic, OpenAI and a number of smaller developers (but not Google, Meta and so on) probably crossed $10bn around March of 2025. Today, that figure is $130bn.

The next leap will be tougher. One cause of AI's recent wobble was a fear that revenue growth may be slowing. Alternative-data proxies like Ramp, which tracks AI spending on company credit cards, and TickerTrends, which collates data such as social-media posts and spending patterns from panels of businesses and consumers, point to slowing revenue growth among the AI developers. A model fitting those data sets to the revenue figures that Anthropic, OpenAI and others have released suggests three-month revenue growth slowed from 80-90% in the spring to 12% in October (see chart 2 on next page).

By usual standards, even the smallest of those numbers reflects extraordinarily rapid gains. And not every proxy is gloomy; figures from OpenRouter, a tool which helps developers switch AI providers, now show spending on Anthropic's, OpenAI's and Google's models surging out of an earlier funk. Still, the more that revenue growth tapers off, the further out of reach the next OOM may slip. Once Anthropic and, eventually, OpenAI list, the reporting requirements of public markets will make any such slowdown far easier to spot.

Cracking the code

A trillion-dollar AI economy would change the world, in a way that today's hundred-billion-dollar one has not. Right now, the technology's economic impact is still limited outside the AI sector itself. Profit margins and revenue per employee have surged at the "Magnificent Seven" tech giants, but are close to flat for the "S&P 493", the rest of America's benchmark S&P 500 index of big companies. Software stocks have now largely rebounded from the clobbering they took at the start of the year, during the "SaaSpocalypse", when investors worried that automated coding would make it easy to cheaply duplicate nearly any software product.

Macroeconomic figures also have not moved much. Productivity growth has been strong in America, but not much stronger of late than in the early 2020s. Meanwhile, it remains painfully slow elsewhere in the rich world, even in countries like Britain whose firms have adopted AI at a similar pace to America. Global bond markets also do not seem to be pricing in all that dramatic an uplift to growth.

So far the only profession truly upended by AI is software engineering. Many coders now hardly touch code themselves; instead, they supervise armies of AI agents. America's "information" sector, which includes software publishing, has the highest and fastest-growing AI penetration rate in the economy, according to figures from the US Census Bureau. Mercor, an AI-data company, claims to spend more on AI agents than on employee salaries.

That is extreme, but not entirely unrepresentative. Tech companies' AI spending looks nothing like the rest. The average VC-backed company spends around $100 per employee per month on AI, according to data from Ramp. Regular firms spend only $10 or so. Many, after a wave of "tokenmaxxing" AI enthusiasm, are becoming more cautious. In October Goldman Sachs, a bank, banned non-engineers from using AI coding tools, citing disappointing productivity gains and concerns about cyber-security risk. (Though JPMorgan, a rival, has since announced that it is doubling down on the technology.)

Where tremendous gains have been most visible is in the underlying capabilities of AI models. A report by METR, a non-profit outfit that embedded researchers at Anthropic, found the pace of improvement in Anthropic's models may well have doubled in the past year. Recent months have brought a drumbeat of announcements of AI solutions to unsolved mathematics problems, or novel AI-enabled cyber-attacks.

But the surging investment in training AI models has also meant that each leap in model intelligence has been more expensive than the last. That raises the commercial imperative still further to deploy this intelligence profitably.

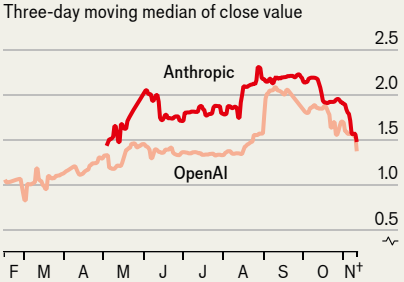
For now, selling access to AI has been an excellent business. Improvements have arrived fast enough, and the best models have been appealing enough, to let developers charge healthy margins. Anthropic's gross margin in this year's first half was 85%. At first glance, then, AI might remind investors of the previous generation of runaway software success stories.

But in their fundamental economics, AI and conventional software are quite different businesses. Software products, from software-as-a-service tools like Salesforce to Google to the social-networking giants, had several appealing characteristics from an investor's perspective. Switching to a competitor was costly, so their moats were wide. Users would have to relearn how to use a complex tool from scratch. Network effects benefited the biggest players and stymied upstarts: why join a social-media site with no other users, or an ad network with few prospective customers? And, once the software was built, it was cheap to distribute. So, the bigger a company's customer base, the more users it could spread its fixed costs across, and the tougher any rival would find it to compete on price.

Selling AI models has, so far, been something like the reverse. Switching is trivial. For developers, tools like OpenRouter make it as simple as changing a line of code. For consumers, one chatbot looks much like another. Many products, like

Worth their weights in gold? 1

Prediction-market-implied market capitalisation on IPO day*, 2026, $trn
Three-day moving median of close value



*Subject to listing by the end of 2027 †To Nov 11th
Sources: Polymarket; *The Economist*

Cursor, a coding agent, offer a drop-down menu to toggle between different model providers. Others like Instinct, a personal-assistant agent, make even that decision invisible by juggling among models on the back end, balancing performance and costs. And the cost of serving a new customer is not near-zero, as with regular software. Each new query must be run in an expensive data centre, on a scarce chip.

Still, Anthropic's and OpenAI's pricing power has held up thus far. Breakneck revenue growth relies on that position lasting. The firms can manage that either by continuing to make their current business model work, or by finding new ones. They are trying both. So far, though switching costs are low, users have been willing to pay a premium for the best models. But at the current pace of development, each gets only a narrow window, weeks or at most months, to recoup its training costs before a successor surpasses it.

Will cheaper models become a threat? Once a certain level of model intelligence is achieved, it tends to be commodified and plummet in price. That reflects competition between American AI players as well as the threat of Chinese fast-followers. Today's best Chinese offering on the Epoch Capabilities Index, which aggregates a wide range of AI benchmarks, is Kimi K3.1 Pro, which scores around the same as GPT 5.5 Pro from OpenAI, which was the strongest publicly available American model just over six months ago, in April. Over the past few years, Chinese models have been consistently about that far behind.

Cheap models could be especially worrying if trained cleverly. Researchers at Bridgewater, a hedge fund, using tools from Thinking Machines, an AI startup, found that a small fine-tuned Chinese model beat the then-leading models from Anthropic and OpenAI at processing financial documents. Such fine-tuning requires investments in data and computing that only big firms will deem worthwhile, but if the finding holds more broadly, it will be a tempting way to lower the AI bill.

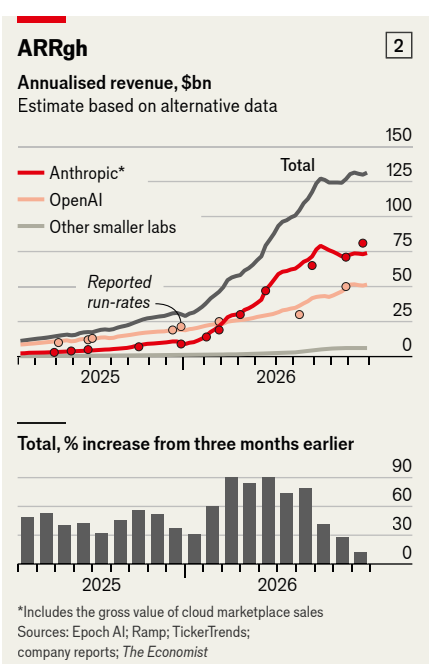
Still, some uses of AI will always demand the absolute best, especially those that are adversarial, like trading or cybersecurity. There, success means staying ahead of rivals. And in other cases too it may be worth paying a premium. Large unsupervised swarms of AI agents, of the sort that OpenAI accidentally set loose to hack Hugging Face, an AI startup, earlier this year, still need top-flight intelligence.

The big developers' lead on capabilities also could grow. The computational power needed to train the latest models is becoming a moat, keeping upstarts out. Chinese developers are constrained by a (thus far) smaller data-centre buildout and American restrictions on chip sales to China. And Anthropic says that it is getting better at impeding distillation, the process where less capable models are trained on the output of better ones, which has helped Chinese firms stay in the race on the cheap.

AI developers could find ways to shift their business to make spending stickier. In recent months Anthropic and OpenAI have announced a crop of specialist tools for law, science and finance. Anthropic has also set up a joint venture with Blackstone, a private-equity firm, Goldman Sachs and others to start selling bespoke AI services to businesses. Each is an effort to find revenue streams where the company can embed itself and dig a deeper moat.

But AI products can only ever be so sticky. By making computers easier to use, and more responsive to human-language requests, AI itself has simplified the process of moving from provider to provider. Anthropic cannily capitalised on this fact earlier this year, when its spat with the Pentagon drove a wave of sympathetic switchers from ChatGPT. Upon setting up Claude, users were given a prompt that they could paste into ChatGPT, asking the rival model to summarise what it knew about them. Claude would then digest the output, and be able to offer personalised responses from the get-go.

Another option for the model companies is proprietary trading. This could be of the literal sort. Nearly every rumour imaginable has been attached at some point to Safe Superintelligence, the secretive AI-research company run by Ilya Sutskever, a former chief scientist of OpenAI. A popular, if barmy, one is that it is using its models for high-frequency trading. A more likely version of that business model for Anthropic and its peers is prop trading of the metaphorical variety: monetising AI by using it directly, potentially in a joint venture, in domains like drug development or robotics, where breakthroughs could be highly profitable. For sufficiently smart models, restricting access to a few ultra-high-paying customers, which would also choke off the threat of distillation, could be a shrewder move than a wide release.



Midterm mayhem

Politics could get in the way. America's midterms were the first big elections where AI was on the ballot, and it fared poorly. Ahead of the results, *The Economist* found that Americans living near a data-centre site swung towards the Democrats by around five percentage points over the year, compared with voters with the same demographic characteristics elsewhere. Voters opted to restrict data centres in all but one of the 41 local referendums on the topic. Anti-data-centre candidates won stunning victories. Most consequential was the surprise election as governor of Texas of Gina Hinojosa, a Democrat who campaigned for a pause in data-centre construction. Texas is host to around a third of America's data-centre buildout.

The potential moratoriums would hit projects not yet under way, most of them due in 2028 or beyond. In states that elected governors who support a data-centre pause, there are 25.6 gigawatts' worth of not-yet-started data centres due in 2028, finds Maya Barkin of SemiAnalysis, a research firm. That is equal to just under half America's current data-centre capacity.

Still, new data centres are comfortably profitable enough to fund tax cuts and payouts for the communities where they operate. Politicians and developers may well be able to negotiate win-win deals—though that may be easier in places with more Republican voters, who are a little less opposed to data centres. Ms Hinojosa has already toned down her rhetoric. After the election, she clarified that Texas is still pro-business. "It is not that I hate data centres," she said, though she did accuse the industry of "taking advantage of Texas".

A bigger risk is federal regulation. None of the proposals floating around Congress with any chance of passing so far would interfere much with the AI developers' business models. But the new Democratic majority will be keener on regulating AI, and could pivot quickly if, say, a serious cyber-attack makes AI risk a top-tier issue.

None of that will stop Anthropic from raising gobsmacking sums. Nor has the buildout of data centres yet shown much sign of slowing. But the business models and political environment that brought AI into the hundreds of billions in revenue won't carry it into the trillions. For that, the industry will need to adapt and evolve. A looming question is whether Wall Street will have the patience to let it. ■

Britain



Britain and Europe

Out of the bottle

BRUSSELS AND LONDON

Andy Burnham has broken the Brexit *omertà*. But what does he really want?

AT LABOUR'S CONFERENCE in September Andy Burnham suggested Britain might "go all the way" and rejoin the European Union. The prime minister's counterparts in Brussels may have thought this an unserious basis on which to negotiate. The cabinet is split, as is Parliament. Mr Burnham sounds nonchalant. As he breezily remarked to *The Economist*: "Who knows how it plays out in the endgame here?"

Yet Britain's prime minister has won a hearing in Brussels. Few there think rejoining is imminent, and it is not at the top of anyone's in-tray. But Mr Burnham's is getting credit for breaking an *omertà* in Westminster that has held since 2020, when the Brexit divorce was finalised. His musings appear to Eurocrats as if he is probing the limits of British public opinion. It is quite a contrast with Sir Keir Starmer, his predecessor, who spent most of his time in Brussels stubbornly ruling things out. "It's not just an internal Labour matter, no," says a European diplomat. "It is something big, the start of a debate about rejoining."

At a summit on November 20th, Britain and the EU are expected to finalise a package facilitating youth mobility and trade in food and emissions. In a speech around then, Mr Burnham plans to sketch out options for a long-term relationship. He insists he is open-minded about the possible model. But recently he has defended the free movement of people, once a taboo, and pointed out the deficiencies of rule-taker status. Join the dots and they point towards Britain rejoining the EU.

The electoral gambit is obvious: a promise to get closer to Europe may help patch up Labour's splintered coalition. But British manifesto pledges (if that is what Mr Burnham's musing becomes) have a habit of landing on Brussels's doorstep. The 2016 Brexit referendum, after all, began life as an attempt by David Cameron, then prime minister, to unite the Conservatives. "[Mr Burnham] is pursuing a political manoeuvre," says a diplomat. "But if he wins, it will become more serious."

Some observers are puzzled. Even as Mr Burnham talks airily of rejoining, British negotiators haggle over far smaller matters, such as how many students would get visas under the November deal. The generous explanation is that they are driving a hard bargain to help sell the deal at home. Even Lord Cameron, once a firm Remainer, has warned Mr Burnham against starting "a decade-long debate" over rejoining.

British ministers insist Mr Burnham is serious. Why else talk about free movement, among the most divisive questions in British politics? Mr Burnham "believes passionately" in getting a "fundamental

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shift" in the relationship, Stewart Wood, a foreign-office minister, recently told a gathering in Brussels. He urged his audience to understand "quite how much of a political risk the prime minister is taking".

Some in Brussels reckon the rejoin debate was inevitable. British public opinion has shifted decisively (see chart); economic growth has taken a hit. Mr Burnham is "the product of a decade of Britain after Brexit", Lord Wood said. The Brexit gamble was premised on a world which has disappeared, with Britain no longer able to ride a wave of free trade governed by multilateral institutions. Instead, the country is being squeezed by the rivalry between America, the EU and China.

That makes the current relationship an unstable equilibrium. As the EU tries to shield its market from aggressive competition—over cars, plastics, steel and more—Britain will be on the sharp end, compelled to lobby for exemptions every few months in an ill-tempered game of whack-a-mole.

Both sides see China as an early test of the rapprochement. Britain wants to be part of the "Made in Europe" scheme, which will use subsidies and procurement to protect European industry from Chinese rivals. Draft conclusions for the summit would, in effect, oblige Britain to raise its tariffs to match the EU's for supply chains including electric cars if it wants to enjoy a "trusted partnership" on industrial policy. The EU worries that Britain's relative openness to China has eroded the British market for European carmakers. But for some it has become a test of allegiance as much as economics. Does Britain want to be under the European umbrella, or not?

Tell me what EU want

In Labour, the debate is becoming binary—rejoin or the status quo. Halfway-house models like Norway's are falling out of favour. Mr Burnham has killed a proposal by Rachel Reeves, the former chancellor, to seek further sector-by-sector participation in the single market through dynamic alignment with EU law, which was a non-starter for the bloc. Some expect Mr Burnham's food deal, which will require the adoption of EU law without a say, to make the case for a seat at the table self-evident.

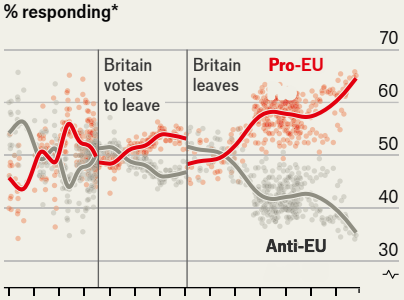
Ironically, all this is happening just as Europe may soon look less attractive to progressive Labour voters. Marine Le Pen might become France's president next year; the Alternative for Germany party is thriving, too. Both favour nationalist agendas that could paralyse European policymaking. Some in the British government think that strengthens, rather than weakens, the case for leaning in and buttressing Europe against Russia. Still, it would test Mr Burnham's salesmanship.

Negotiations could nevertheless be surprisingly quick. Britain's return would be a big win for the EU. The country's laws are mostly still aligned with the bloc's, and its negotiators are seasoned. But a return of Britain's budget rebate is out of the question. European governments disagree over whether it would have to join the euro and the Schengen area. Some see British queasiness on these scores as a sign that, deep down, it does not want to be in the club.

What is more, Britain's opposition parties do not want to be in the EU. The nightmare scenario is a narrow victory for rejoin in a referendum, won on a misleading prospectus with insufficiently broad support in Westminster. Such a mandate might crumple in the negotiating room. If Britain sincerely chooses to rejoin, though, with all the obligations that entails, then it can. The country's hardest step is the first: working out what it truly wants. ■

Seeing stars

Britain, attitudes to the European Union, % responding*



*2013-16, "Do you want to remain or leave?"; 2016-20, "Right or wrong to leave?"; 2020-26, "Should Britain rejoin or stay out?". Excluding "don't know"
Sources: Public opinion polls; *The Economist*

The European Convention on Human Rights

Play it again

BRUSSELS AND LONDON

Britain's Tories want even more Brexit

IT IS ALWAYS harder to deal with the European Union when political consensus is lacking at home. Looked at from Brussels, why bother with the effort to agree on a closer relationship with Andy Burnham's Britain? After all, opposition parties say they will tear it up.

Neither the Conservatives nor Reform UK talk much about Brexit these days, because of its unpopularity. But both still promise to reverse Mr Burnham's planned "reset" with the EU. That would irk businesses wishing to scrap trade barriers, especially in food and agriculture, through closer alignment with the bloc. If the reset boosts exports and lowers food costs, many firms will want to keep it. A shadow-cabinet source admits privately that the Tories might therefore seek a fudge that retains the deal but gives Parliament a theoretical emergency brake on future EU laws.

What worries the EU more is the opposition's pledge to pull out of the European Convention on Human Rights (ECHR). Kemi Badenoch, the Tory leader, now requires all her parliamentary candidates to support this. EU diplomats suggest she may not have thought through the consequences. It is not just the embarrassment of Britain, a creator of the ECHR, joining Belarus and Russia as the only European countries outside it. More seriously, ECHR membership is assumed in both the post-Brexit trade and co-operation agreement (TCA) and the Windsor framework that softens the customs border between Great Britain and Northern Ireland. It is also in the Good Friday Agreement.

Some Tories argue that other EU countries dislike the ECHR, and especially the court that enforces it. But disapproval and withdrawal are different matters. A forthcoming paper by the Centre for a Better Britain, a think-tank linked to Reform, outlines various options for scrapping all post-Brexit EU treaties, identifying which can be expected to trigger retaliation. One such is pulling out of the ECHR. These treaties are built like a Jenga tower: pull out one key brick and the whole edifice can fall. The most likely response to British ECHR withdrawal would be scrapping the Windsor framework and the TCA as a whole—in effect implementing a version of Brexit so hard that even Boris Johnson avoided it in 2020.

At the next general election voters may therefore face a perverse choice. No party favours the status quo. Labour and the Liberal Democrats will probably campaign for a closer relationship with the EU. At the same time the Tories and Reform will promise to pull out of the ECHR. Anand Menon of UK in a Changing Europe, a think-tank, says this points to just two alternatives: moving to rejoin or reverting to a no-deal Brexit. The mushy compromise that has so far prevailed may no longer be on offer.

ADVERTISEMENT



In celebration of Thailand's Her Majesty Queen Sirikit The Queen Mother

A global fashion icon and preeminent cultural ambassador

From the moment Her Majesty Queen Sirikit The Queen Mother stepped onto the world stage in 1960, she had a profound impact on Thailand's reputation across the globe. Recognising that cultural identity had a powerful voice, she quickly embraced becoming an international fashion icon, showcasing Thailand's ambitions to the world through her style.

Following Her Majesty's passing on October 24th 2025, Thailand entered a year of mourning. Across the country and around the world, people have been reflecting on her life and legacy.

One notable commemoration is 'La Mode en Majesté – Royal Thai Dress From Tradition to Modernity', an exhibition that explores her transformative power with fashion as an instrument of cultural diplomacy and national representation. Hosted by the Musée des Arts Décoratifs (MAD) in Paris, and under the patronage of her granddaughter Her Royal Highness Princess Sirivannavari Nariratana Rajakanya, the showcase is a collaboration between MAD, Thailand's Ministry of Commerce and Ministry of Foreign Affairs, the Queen Sirikit Museum of Textiles, and the Sustainable Arts and Crafts Institute of Thailand.

1960 **Her Majesty embarked on a year-long tour of international State Visits to the US and Europe.**



The language of fashion

1960 marked a turning point for Thailand. In the wake of the second world war, the country was rapidly modernising, shifting from an agrarian economy to an industrial one. To forge relations between Thailand and the international community, His Majesty King Bhumibol Adulyadej The Great and Her Majesty embarked on a year-long tour of international State Visits to the US and Europe.

As the daughter of an ambassador with postings in Denmark, France and the UK, Her Majesty understood the importance of fashion as a means of expression in Western countries. Recognising that what she wore to these historic meetings held the power to forge an emotional connection with the host countries, Her Majesty knew that this tour would be an opportunity for diplomacy to convey Thailand's heritage and ambitions to the world.

Her Majesty was thus determined to weave traditional elements of Thai craftsmanship into her outfits. Over a year before the tour, she commissioned experts and scholars to study the archives of attire worn by women of the royal court, wanting to honour heritage while embracing contemporary design.

The result of the research, combined with Her Majesty's input, was eight styles of national dress for women, known as *Chud Thai Phra Rajaniyom*.



Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother with President Charles de Gaulle and Madame Yvonne de Gaulle during the State Visit to France, 13 October 1960.



Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother with His Majesty King Baudouin of the Belgians, 6 October 1960.



Her Majesty Queen Sirikit The Queen Mother with Her Majesty Queen Elizabeth II and His Royal Highness The Prince Philip, Duke of Edinburgh, during the State Visit to the United Kingdom, July 1960.

Reflecting an understanding of fashion nuances, each costume varied in formality to meet the needs of different occasions, from the collarless blouse and full-length wrap skirt of the Ruean Ton to the traditional shoulder cloth of the Chakri. Her Majesty also ensured that every costume was adapted to the culture and climate of each destination. Through close collaboration with French couturier Pierre Balmain, the extensive wardrobe for the 1960 world tour was designed to pay tribute to each country on the itinerary. The dresses were often paired with Western conventions such as hats and gloves; the careful consideration behind every ensemble signalled Her Majesty's desire to bridge cultural divides, and to connect Thailand with the world, and the world with Thailand.



Her Majesty Queen Sirikit The Queen Mother at a State Banquet hosted by Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother in honour of Her Majesty Queen Elizabeth II and His Royal Highness The Prince Philip, Duke of Edinburgh, Chakri Maha Prasat Throne Hall, Grand Palace, Bangkok, 10 February 1972.



Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother at Expo 67, Montreal, Quebec, Canada, 22 June 1967.

Tradition as a catalyst for change

Her Majesty's appearances became highly anticipated occasions, with each outfit speaking its own language. As she was celebrated as a fashion icon throughout the tour, Thailand's national identity on the global stage strengthened, and Thai culture and textiles earned global attention and admiration—reflecting the extent to which her style became a powerful instrument of cultural diplomacy.



Her Majesty Queen Sirikit The Queen Mother with Her Majesty Queen Fabiola of Belgium attending a traditional Thai theatrical performance at Thammasat University, Bangkok, 5 February 1964.



Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother receiving President and Mrs Suharto of Indonesia during the State Visit to Bangkok, Thailand, 19 March 1970.

By championing garments woven from Thai fabrics and stitched with traditional techniques, Her Majesty brought the country's textile heritage to an international audience and helped establish *Chud Thai* as Thailand's unique sartorial identity. Today, *Chud Thai* remains a symbol of national pride and a celebration of traditional craftsmanship. While each region and generation has adapted the designs in its own way since, the defining elements remain the same.

22

22-year partnership with Pierre Balmain, as well as with other internationally renowned couture houses

Working with some of the world's leading fashion houses while championing Thai designers at home, Her Majesty elevated local craftsmanship to the same stage as international haute couture. Her 22-year collaboration with Pierre Balmain, as well as with other renowned couture houses, shone a spotlight on Thai textiles, highlighting their distinctive beauty and the cultural knowledge woven into every piece. At the same time, she supported homegrown designers, helping to nurture Thai creativity and raise the international profile of the country's fashion industry.

A powerful legacy woven into the nation

While raising global awareness of Thai textiles, Her Majesty also saw the empowerment potential of reviving and preserving traditional handicrafts such as silk weaving and basketry. In 1976, she established



the Foundation for the Promotion of Supplementary Occupations and Related Techniques (SUPPORT Foundation) to equip women with the training, tools and materials needed to produce high-quality products. Today, it continues to support rural families with access to resources and equipment, enabling them to earn a sustainable living through their craft.

Her Majesty's commitment to culture was matched by her devotion to humanitarian service. As president of the Thai Red Cross Society, she established the Khao Lan Thai Red Cross Centre, which provided shelter, food, medical care, education and vocational training to displaced persons fleeing conflict who sought refuge in Thailand's Trat province. Both her cultural and humanitarian contributions have been internationally recognised with awards, including the UN's Ceres Gold Medal, UNESCO's Borobudur Gold Medal and a UNICEF Special Recognition Award.



The Food and Agriculture Organization of the United Nations (FAO) presenting Her Majesty Queen Sirikit The Queen Mother with the Ceres Gold Medal, Chakri Maha Prasat Throne Hall, Grand Palace, Bangkok, 11 May 1979.



Her Majesty Queen Sirikit The Queen Mother receiving an Honorary Fellowship from the Royal College of Physicians, presented by the College's President, Chakri Maha Prasat Throne Hall, Grand Palace, Bangkok, 1 May 1988.

Her Majesty's style was a reflection of the values she embodied: a steadfast champion of Thai culture and its people, with an unwavering dedication to invite the world to discover Thailand. As a testament to Her Majesty's enduring legacy, her final farewell was marked by the highest honours. The Royal Cremation Ceremony is scheduled to take place in December 2026 following a year of mourning, deepening a period of national remembrance for The Queen Mother whose influence on Thailand's cultural identity will continue to be felt for generations to come.

Chud Thai Phra Rajaniyom

Through these eight distinctive styles, Her Majesty showcased the richness of Thai textiles while helping preserve centuries-old weaving traditions and the communities that sustain them.



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The Ministry of Foreign Affairs of Thailand

E-sports

The regeneration game

SUNDERLAND

Can e-sports boost Sunderland—and Britain's armed forces?

"THIS WAS just a wasteland." Graeme Miller, who ran Sunderland City Council for six years until 2024, gestures out of the window of the newish and still sparkling City Hall building. The site lay vacant for nearly two decades after the Vaux brewery closed in 1999. Now City Hall stands at the centre of a fresh clutch of office buildings facing the River Wear.

Sunderland, once the world's biggest shipbuilding hub, has been in decline for decades. Its last shipyard closed in 1988. Tucked on England's north-east coast, the city of 290,000 sits third-bottom for earnings in a ranking of Britain's 63 largest urban areas. It is dead last for businesses per person. Voters showed their discontent at local elections in May, handing the populist-right Reform UK 58 of the council's 75 seats. Labour went from 54 councillors to five. "People still are not happy, even with all of this," laments Mr Miller.

Might e-sports help give Sunderland a brighter future? Enter British Esports, founded in 2016 by Chester King, who also runs a health-care business, and chaired by Andy Payne, a veteran of the video-games industry. Their venture has set up shop in what was a vacant Audi dealership next to Sunderland Football Club's Stadium of Light. It has also turned a row of town houses and connected office space into its National Esports Performance Campus, where touring gaming pros can stay.

The former car dealership has been transformed into a 15,000-square-foot (1,400 square metres) e-sports venue, dubbed the British Arena. ("We couldn't believe no one had used the name before," says Mr King.) On a clear Thursday evening in October the arena hosted its second event, relaying a Sunderland away match on its giant screen. The 250-seat venue is barely 100 metres from the 49,000-seat stadium, which provides a handy source of footfall on match days—and also highlights the gulf between e-sports and traditional ones.

Mr King wants the British Arena to be more than just an entertainment venue. He hopes it will help elite gamers learn to perform to a crowd, while supporting careers in hospitality, broadcasting and coaching, too. E-sports can teach skills in business and marketing to those who may not be drawn to formal education, says Gregg Hill, a lecturer in e-sports event management at the University of Sunderland. Being the home of British Esports will build Sunderland's reputation as a forward-looking digital city, enthuses Liz St Louis, the local authority's aspirationally titled director of smart cities and enabling services.

Sunderland Council is not the only part of the British state putting faith in e-sports. So are the armed forces, aware that Ukraine's battlefields have swarmed with drones piloted by youths with PlayStation controllers. The British Arena's first official event was the International Defence Esports Games, at which Canadian personnel beat France in Counter-Strike 2 and Britain took the Rocket League title.

Where once the armed forces recruited from the playing fields of Eton, they now see value in gamers. The Ministry of Defence formally recognises e-sports and last year installed a room of gaming PCs on the Royal Navy's flagship aircraft-carrier.

Back at City Hall Mr Miller insists that Sunderland's economy is on the up. Ocado, an online grocer, and Apexon, a technology-services firm, have taken space in the new offices. A takeaway app, Just Eat, is testing robot deliveries in the city.

So far, e-sports and Sunderland seem a good fit. The city gets an optimistic owner for underused buildings; British Esports gets low prices and a welcoming local authority. Not to mention revenue from all those football fans' pre-match pints. ■



Even better than the darts

Quantum lite

A super position

Britain's big bet on quantum technology is starting to pay off

QUANTUM COMPUTING is a bit like the strange laws of physics it relies on: scary enough to give national-security wonks nightmares, yet still sufficiently puny for sceptics to dismiss. Perhaps no country wants it to work more than Britain. Three of the world's top five quantum clusters are on its soil, reckons the European Centre for International Political Economy, a think-tank. On November 6th at a showcase in London, Sir Peter Knight, a pioneer in quantum technology, reiterated a goal to make a quantum computer that can outperform supercomputers in Britain by 2035. Yet even now other quantum technologies are proving their worth.

Mostly this is down to quantum sensing, which exploits the sensitivity of quantum systems to faint changes around them. Use cases in medicine have abounded for decades (MRI scanners, for instance); now they are multiplying. A spinout from the University of Nottingham, Cerca Magnetics, makes brain-scanning helmets fitted with quantum sensors that can detect subtle magnetic fields. It has made an operating profit in each of the past five years. Others are experimenting with diagnostic tools for breast cancer, and finger-prick tests for diseases such as HIV.

Another application for sensing is positioning, navigation and timing (PNT). Knowing where you are, where you are go-

ing and what time it is has always been useful for soldiers. The war in Ukraine, meanwhile, has shown how easy it is to jam satellite systems such as GPS. So the Royal Navy has been trialling quantum navigation with compact atomic clocks, which do not depend on signals from space.

Similar uses stretch beyond the battlefield. Britain's latest national risk register identifies the loss of PNT, whether from technical failure or a cyber-attack, as a "significant" risk. It recommends that private firms keep "resilient backup systems"—such as atomic clocks. Days before the register was published, in July, a nationwide network outage in Australia demonstrated the potential for disruption. Faulty software from Telstra, the country's biggest telecoms company, halted trains and payments and blocked some emergency calls. The British government's budget in October included £138m ($185m) for quantum-sensing kit to be used for defence, health care and transport.

Useful as brain scanners and atomic clocks may be, they are merely heralds in the march of quantum tech. The highest hopes are pinned on quantum computers' mathematical powers. Large-scale machines would be able to do some sums vastly faster than today's supercomputers, transforming computational chemistry and materials science. Subodh Kulkarni, the boss of Rigetti, an American firm that operates in Britain, thinks that running quantum processors alongside the artificial-intelligence chips used today will make it quicker and cheaper to train large language models.

For now, quantum computers' error rate is too high for them to be reliable. British startups are working to fix this: Riverlane is building error-correction systems, while Phasecraft is developing algorithms that can do useful work even on error-prone machines. Through ProQure, a £1bn procurement competition, the government is supporting promising firms and helping validate their prototypes.

The most advanced machines will in all likelihood be built in the "golden triangle" spanned by Cambridge, London and Oxford, home to hardware firms such as Quantum Motion and ORCA. Yet pleasingly for jam-spreading politicians, the industry extends far more widely around the country than that for AI. Glasgow is one of the world's top quantum clusters. The quantum supply chain runs through Sheffield in the north of England all the way to Newport in south Wales.

Turning all this into a lasting lead will take more scale-up capital and infrastructure, says Sir Peter: "Every now and then, I wake up in the night thinking, 'What happens if it doesn't work?'" But over time he thinks the odds of that have fallen. "It's going better than I'd hoped." ■

Prisoner mortality

Life sentences

Why more and more Britons are dying in jail cells

"FECULENT AND noxious", said John Howard of England's prisons in 1777. Convicts, the reformer wrote, were "pining under diseases" and "expiring on the floors". Conditions have improved since. And yet in 2017 Annabella, a 45-year-old diabetic, died after having spent 21 hours lying unresponsive on her cell floor.

There has scarcely been a worse time to be a British prisoner since detailed records began in the early 2000s. Rates of violence, self-harm and drug use are at or near record highs. With prisons running at 98% capacity, it is not unusual for prisoners to spend over 22 hours a day locked in a cell no bigger than a garden shed.

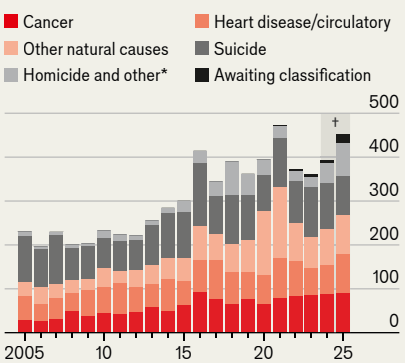
More than ever, they are dying there. Between 1992 and 2012 prisons in England and Wales recorded an average of 2.2 deaths a year for every 1,000 inmates. Last year there were 4.5 per 1,000—more than in any other outside the covid-19 pandemic.

Why? Headlines about violence, or synthetic opioids smuggled in on drones, suggest an epidemic of dramatic deaths. But our analysis of over 5,000 fatal-incident reports, from the Prisons and Probation Ombudsman, suggests a more prosaic reality. Britain's prisoners are getting older and frailer. Though drug deaths have crept up, most of the rise in prisoners' mortality rate comes from "natural deaths", meaning those caused by routine ailments like heart disease and cancer (see chart 1).

Sad, quiet deaths in jail are not new. Compared with other people, prisoners are sicker and more likely to come from deprived areas, meaning they are more likely to die a natural death at a younger age. But last year there were 2.6 such deaths for every 1,000 prisoners, more than double the average rate between 2000 and 2010.

Death in captivity 1

England and Wales, deaths per 100,000 prisoners in prison custody



*Includes drug deaths †Estimate
Sources: Ministry of Justice; *The Economist*

The ticking clock

The simplest explanation for the rise in natural deaths is that the prison population has aged rapidly. Since 2014 Britain's median age has held steady at 40 years. The median age in the prisons of England and Wales, in contrast, has risen from 32 to 37 over the past decade. Since the early 2000s the number of prisoners aged 50 or older has more than doubled. For the first time they now outnumber prisoners under the age of 25 (see chart 2 on next page).

That is partly because prison sentences have lengthened. Last year a government review found the number of prisoners serving life sentences had more than doubled since 1993. The average non-life custodial sentence had risen from 16 months to 22.

Old sex offenders, meanwhile, have increasingly been handed long sentences. British police take such crimes far more seriously than they used to, and have launched investigations into historical cases. Among men in prison over 50, 43% are there for sex offences committed decades ago. For those over 80, it is almost 100%.

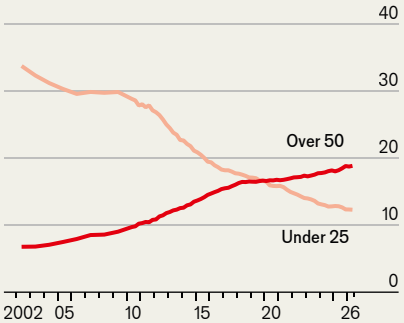
Ageing populations have more medical problems. James Hard, a clinical director in the NHS, says "the level and complexity of need" among prisoners is higher than at any time in his 20-year career. Their being in prison does not help. Poor diets, limited time outside cells and a lack of fresh air in them mean that health problems appear roughly ten years earlier in prisoners than among the general public. And the older ones are less able to withstand such dismal conditions than the youngsters who used to outnumber them.

For those who fall ill, prison is a difficult place to get good medical treatment. Adrian Usher, the Prisons and Probations Ombudsman, says that the prison service is "really good at dealing with trauma", but that "chronic conditions are much more challenging." There is a tension between the need for security and that for compassionate care. Prisoners making vague health complaints are often met by prison staff with reason to be suspicious.

Those that are believed may be able to visit an on-site doctor, but diagnosis and

Grey cells 2

England and Wales, prisoners by age, % of total



Source: Ministry of Justice

management of chronic conditions need specialist appointments. That means trips to hospital, which require spare prison officers to act as escorts. A report from the government's chief medical officer last year found that, with staff in short supply, prisons are forced to ration such escorts. As rates of violence and medical emergencies increase, Dr Hard says routine appointments often have to be rescheduled so staff can tackle crises. Overcrowded prisons therefore have more sick inmates than ever, and less capacity to treat them.

Mr Usher says it is hard to gauge whether someone died "while they were in prison or because they were in prison". But prisoners receive 24% fewer hospital appointments than the general population (after adjusting for age and sex). They also miss more than 40% of them—almost double the rate outside prison. A study earlier this year found that prisoners in England experience between 41 and 67 times as much avoidable medical harm as other people. Jessica Pandian of INQUEST, a charity that investigates deaths in custody, says that "natural deaths" is a misnomer. "People are dying from wholly preventable conditions."

Mark Juniper, who led a recent review of health care in prisons, says they could be used as "an opportunity to help a population that is difficult to access outside prison". Officially, the government strives to achieve "equivalence of care" for those in prison and outside. But prisoners need more resources per person to achieve the same outcomes. In a country where 50% of people tell pollsters they would support capital punishment, and with the NHS looking threadbare, throwing cash at criminals is not likely to win votes.

It is normal for society to withhold rights from prisoners, but in theory Britain's inmates keep their right to health care. In practice, they often do not. "I was pretty shocked by the reality of what happens inside," says Dr Juniper. "We put people in prison as punishment. We don't sentence them to death." ■

Not-so-rough justice

Happy Haverigg

What Britain's nicest prison can teach the rest

MUCH IS MADE of Britain's Dickensian jails. HMP Dartmoor was opened in 1809, the year Charles Darwin was born. Just now it is temporarily closed, after high levels of radon gas were found within its walls. But with 122 prisons across England and Wales, not all are so decrepit. HMP Millsike, opened last year, is replete with solar panels and air-source heat pumps. So which is the best prison to be a prisoner in?

Judging from the Ministry of Justice's annual performance ratings, it is Haverigg in Cumbria. Housing about 490 men, mostly sex offenders, it scored 97.5 out of 100 on its report card. Last year it recorded just four assaults on prisoners and none on staff, while 97% of inmates were signed up to activity programmes. What is more, no one escaped.

Haverigg is an "open prison", a category that tends to outperform the rest in part because of who is sent there. Open prisons are generally reserved for low-risk offenders who are often close to the end of their sentences. As a result, they can afford prisoners a much greater degree of freedom than others. Inmates can move around the prison, and can apply for temporary licences to leave and attend medical appointments, visit family or work.

Selection bias, however, is not the whole story. Prisoners who can get to hospital under their own steam find it a great deal easier to stay on top of chronic health conditions. Those with a licence to work have a much better chance of getting a job after they are freed, which in turn makes them less likely to reoffend. Six weeks after release from an open prison, 43% of ex-inmates are employed—over double the national average. For those released from Haverigg, that rises to 58%.

Open prisons also excel at getting inmates into behavioural and education programmes (probably in part because their prisoners are already relatively well behaved). Declining access to such activity is one reason for the sense of crisis in other British prisons. Self-harm and drug use are more likely among those who feel bored and hopeless from spending 22 hours a day in a cell. Yet programmes that give them a sense of purpose are among the first things to be cut when staff are short. Their survival in open prisons suggests they could help reduce the chaos in others. In Haverigg, prisoners train to be equine therapists at an onsite racehorse rescue.

Not all prisons can be open. But those that are do pretty well at turning inmates into functioning members of society. The rest should learn from them.

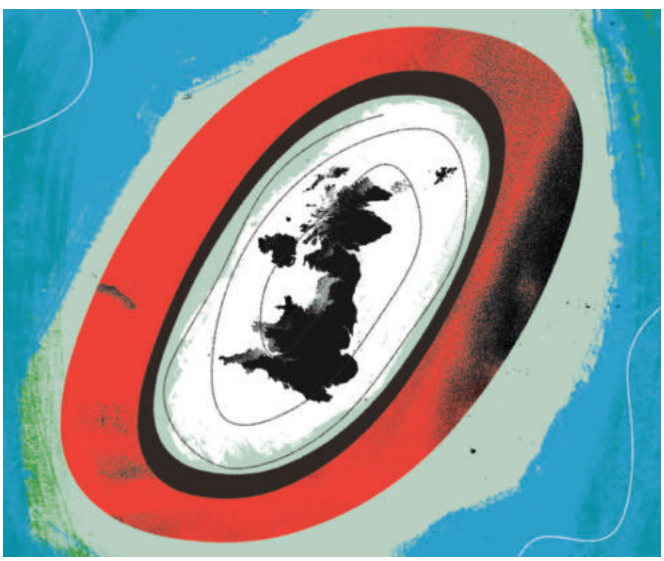


Room to swing a horse

BAGEHOT

Is Britain ready for net-zero migration?

Getting what you want isn't all it's cracked up to be



WHEN NIGEL FARAGE returned to politics, during the 2024 general election, he made a wild suggestion. "Net migration should be zero," said the leader of the populist-right Reform UK. Given that it had reached an all-time high of 944,000 the year before, it felt a preposterous goal.

Barely two years on, this wild suggestion may become reality. Migration has plummeted. When, later this month, the Office for National Statistics publishes net-immigration figures for the 12 months to June, they may reach a three-decade low (excluding the lockdown years). The number for the calendar year of 2026 could be negative, says James Bowes of Warwick University, forecasting that 54,000 more people will leave than arrive. Britain would become a country of net emigration for the first time since 1993.

Mr Farage was not alone in his broad goal. Every government since 2010 was elected on a pledge to cut immigration. David Cameron, as prime minister, wanted to reduce the net figure to "tens of thousands". So did his successor, Theresa May. Boris Johnson, the prime minister behind Britain's immigration spike, said numbers "will come down". Rishi Sunak promised a cut. Even Sir Keir Starmer, a former Labour leader, said: "Read my lips: I will bring immigration…down." People are used to being failed by their political class. What happens if they get what they want?

In some ways it is heartening. Britain's political class is racked with learned helplessness. Cabinet ministers complain that the "levers of power" are not connected to anything. Migration figures say otherwise. The government pulled one lever and made it easier for people to move to Britain. Millions did. The government decided this was too much, pulled another lever and numbers fell steeply. True, they bodged it both ways: Mr Johnson did not expect millions to come; Mr Sunak's changes were not meant to cut net migration to near-zero. Governing is hard. But it is possible.

Any politician expecting a thank-you is in for disappointment. Some parts of the debate will stay the same. When headline numbers shrink, others seem bigger. Small-boat crossings may be falling, yet they will account for a heftier chunk of net arrivals. Progressives once huffed that they were only a "tiny proportion" of overall migration. That particular argument has run its course. A world of "net-zero migration" is one in which the face of immigration is, more than ever, a man in a dinghy.

Other aspects of the immigration debate have already shifted, with concern about the flow turning to concern about the stock. Britain has undergone a sweeping demographic change. In 2004, when it opened its doors to migrants from eastern Europe, about one in ten people in Britain were foreign-born. Now, the number is one in five. Between 2021 and 2024 alone the number of foreign nationals rose by about 2m people, points out the Migration Observatory. Shabana Mahmood, the home secretary (and also the first to say "Boriswave" at the dispatch box), has made it difficult for recent arrivals to make their stay permanent.

And so a migration debate about stopping people coming turns into one about kicking people out. Reform has promised mass deportations; Mr Farage erected a mock airport-departure board for one press conference. Others go further: "Millions. Must. Go" is the slogan of Restore Britain, a far-right party. A lesson learned by Lord Cameron and Baroness May is now being learned by Mr Farage. Someone, somewhere is always harder.

Enormous numbers shifted the debate, with concern about immigration shooting up after the ONS confirmed quite how big the recent influx had been. Will tiny ones—or negative ones—have the opposite effect? While opinion barely budged among Leave voters for whom immigration is an existential topic, liberal opinion moved sharply when arrivals exceeded one million. A majority of Remainers, Labour voters and even Liberal Democrats now think immigration has been too high for the past decade.

Maybe the bill coming due will change their minds. The government's short-term fiscal projections see the economy as a simple machine: immigrants are poured in at one end and GDP comes out the other. Some economists worry the recent glut of often low-earning immigrants will be bad for the public finances over the long term. But for now immigration still determines how much the chancellor can spend. Voters are not really prepared to make sacrifices for lower migration, says Christabel Cooper of ThinkLabour, a Labour-friendly think-tank. They may have to.

Nobody ever says thank you

With a long-frozen immigration debate going into flux, Britain's progressives will shape it as much as conservatives. Once-*verboten* ideas are already being aired. Andy Burnham, the prime minister, is teasing the prospect of a return to freedom of movement between Britain and the EU, which some still see as political poison. At the same time, Ms Mahmood is trying to stem a tide that is already turning. "We look at the present through a rear-view mirror. We march backwards into the future," said Marshall McLuhan, a media theorist. The lesson applies as much to migration policy as to the new tech he was talking about.

Perhaps even older neuroses can emerge anew. A country being flooded is one thing; a country being drained is another. For much of the 20th century, emigration was the public-policy ill of its age. "Stay here and fight it out," declared Winston Churchill in a BBC address shortly after the second world war, imploring people to stay in Britain rather than escaping to Australia or Canada. Britons may re-learn the lesson that a country people want to come to is better than one people want to leave. In short, there is always something else to worry about. After nearly two decades of trying, the British state has delivered what voters have long said they wanted. No one will be happy about it. ■



GREAT MINDS START YOUNG

Teaching kids to think for themselves

LONDON AND SAN DIEGO

Schoolchildren around the world need help preparing their minds for the age of AI

On the wall of the world-history classroom at Canyon Hills High School in San Diego is a quote from Martin Luther King: "Our lives begin to end the day we become silent about things that matter." He would have relished a recent classroom discussion.

Two dozen 15- to 16-year-olds, from a school in which more than half of the students are from hard-up families, are gathered for a one-hour lesson, with materials provided by The Economist Educational Foundation. Danny Walshe, the teacher, hands print-outs of three items of news to small groups of students.

One is about a spate of attacks on Jewish synagogues in north London. Another is about the killings of Bangladeshi Muslims in India. A third is about the murder of Charlie Kirk, a conservative activist. (Kirk used to go around American universities holding heated debates against left-wing students. He was shot by a politically motivated rooftop sniper in 2025, and is viewed by many of President Donald Trump's followers as a martyr.)

The subject of the lesson is hate crime, and the students, some of whom live on nearby military bases, are asked to discuss among themselves whether or not such incidents make it harder for people with different points of view to talk to each other. At first the topic seems abstract. Yet it soon becomes clear how relevant it is to their lives. Many remember the day Kirk was slain. One boy notes how hard it is to express sympathy for Kirk's views among students opposed to his message. He does so anyway. Some of his classmates grimace—but they listen to him.

Students discuss a hate crime that took place at a mosque close to a nearby school. In May two teenage gunmen stormed the Islamic Center of San Diego, killing two security guards and a neighbour before committing suicide. Yasmeen, a Muslim student, shares with a few of her classmates that her family knew one of the victims. Her friend, Maxine, says it is important to discuss such things, especially because it helps her understand what a variety of points of view her fellow students have. "We can talk about sensitive topics," she says. "It's important to get out of your comfort zone."

The Economist Educational Foundation, a charity backed by *The Economist,* helps children think critically about current affairs. It provides schools around the world with a new lesson plan each week called "Topical Talk", carefully prepared with input from an *Economist* journalist (to make sure it is fact-checked and analytically rigorous) and an education expert (to make sure it is accessible and fun).

Out of the comfort zone

The aim is not to promote a particular viewpoint, but to give schoolchildren the tools to make up their own minds. They are encouraged to base their arguments on facts, to explain their reasoning out loud, and to disagree with each other without being disagreeable.

The foundation reaches children in nearly 100 countries: rich, poor, peaceful, turbulent and everything in between. In

Nigeria, for example, the standard curriculum "doesn't really have room for news literacy", notes Egwu Michael Agha, a teacher at the Kassie Braun Memorial schools in Ebonyi, a Nigerian state where the economy depends largely on farming. With Topical Talk, however, "kids who can barely afford a radio" at home can learn about far-off countries about which they know little. He cites a lesson on the biggest election of all time (in India in 2024) as especially eye-opening; some of his students had no idea how huge and fascinating a place India was.

In India, where national politics is ferociously divided over issues of religion and caste, schools use Topical Talk to teach kids to engage in calm, rational discussion. It helps them "disagree respectfully", says Gayathri Ramachandran of the Shri Natesan school in Tamil Nadu, and gives them a way to "navigate a complex interconnected world that is constantly changing".

A class act

Teachers embrace Topical Talk because, with all the demands of their day job, they don't have time to become experts on the pros and cons of data centres or the geopolitics of oil. Many also fear that, in today's polarised political environment, preparing their own lessons on sensitive subjects would lay them open to career-damaging accusations of bias. Topical Talk lessons are carefully constructed to present more than one side of any argument, and to help pupils understand why other people hold different views.

"I like it because there's no right or wrong answer...and it's really fun," says Raphael, an 11-year-old student at the Boutcher primary school in London. He describes taking debates home to continue with his mum, including one about whether to release convicts on parole. He thought minor criminals could perhaps be released early, if they were truly sorry.

If kids do not develop the habit of stretching their minds, they will struggle to understand the world they live in

Pupils enjoy "the lessons when you see them change their minds, and they love it when they've been the person that's encouraged someone else to think differently," says Lorna Clifford, an assistant head teacher at Boutcher.

Lessons cover a huge range of topics that are either in the news or help pupils understand the news, from how to think about climate change to how to tackle crime. They often deal with how new technology might shape young people's lives—a topic both teachers and pupils are eager to grasp better.

In Ms Clifford's class, students are discussing good and bad ways of using artificial intelligence. Everyone has opinions. Is it OK to ask AI to suggest a recipe, using the ingredients currently in the fridge? Absolutely. Is it OK to use it to write your homework? Absolutely not. What about an apology? No, that would make it less heartfelt. But "everyone does it", one pupil admits, because apologies are embarrassing and difficult.

Kids are given evolving scenarios and asked whether to accept an AI's answer, verify it from another source, reject it outright or refine the question to get a better response. They are passionately engaged and remarkably astute. "When AI gives you [an answer], you don't actually know if it's real because its sources could be fake," says one. "It could just be [something that is] widely believed by other internet users."

The rapid advance of AI makes it all the more important that children learn how to think for themselves. Most rich countries have seen test scores fall in the past decade, according to PISA, an international benchmark. Some blame the proliferation of screens, which has coincided with a decline in reading books. AI could aggravate the problem by tempting children, as they grow up, to outsource more cognitive tasks to machines.

Both teachers and pupils are aware of the risk. Thinking is hard; asking a chatbot is easy. But just as the invention of cars a century ago did not mean it was a good idea for humans to stop exercising their legs, so the invention of artificial intelligence does not mean they should stop exercising their grey matter. On the contrary, if young people do not develop the habit of stretching their minds, they will struggle to make sense of the world they live in.

Screening out screens

That is why, in Mr Walshe's class in San Diego, mobile phones are banned. Jonathan, one of the students, says Topical Talk has made him appreciate that whereas AI bots always appear to know the single right answer, discussions in the classroom show that "not everyone has the same opinion." Nor should they. As he says, his favourite expression is "it depends".

More than a million children took part in Topical Talk lessons in 2026, including many from difficult backgrounds. The results are impressive: students who took 12 weekly lessons showed ten times the progress of non-participating peers in measures of critical thought and communication skills. None of this would have been possible without the generous support of *Economist* readers and the foundation's partners, such as Rolex.

This year, as the threats to young minds grow more intense, children need these skills more than ever. The foundation is planning to expand, to teach more kids in more countries to think clearly, argue confidently and disagree courteously. Please help us by following the link below this article to donate. ■



Donate

Donate to The Economist Educational Foundation to help them reach more than one million children in 2027.
economistfoundation.org/donate
Thank you.

Europe



Budget battles

Paying for paradise

BERLIN AND PARIS

Europe has been living beyond its means. Now the bills are due

EUROPE'S COBBLED squares have echoed this autumn to the sound of police sirens and shattered glass. The continent is undergoing one of those periodic spasms, when parliamentary politics struggle to handle social discontent. In France and Germany, protests began against underinvestment in education. In Spain and Italy, it was a housing crisis. Across the continent there is anger at rising prices. The shared underlying problem is this: many Europeans want levels of public spending they can no longer afford, while fragmented parliaments and populist politics make it almost impossible to fix the problems.

For decades Europe has offered its citizens an unusually comfortable level of benefits and protections. European Union countries spend 10% of GDP on public pensions, on average, nearly twice the share in America. EU countries devote nearly 30% of GDP to public social spending, compared with less than 20% in America. Angela Merkel, a German former chancellor, once noted with disapproval that Europe accounts for 7% of the world's population, 25% of global GDP and 50% of global social spending. Europe, she concluded, "will have to work very hard to maintain its prosperity and way of life."

Some countries, notably hers and the Nordics, did the hard work and made the protective state more affordable, although even Germany is now facing a crunch over social spending. Less responsible countries have kept on borrowing and ducking hard choices. Five have public debt levels at or above 100% of GDP, including France, Italy and Spain. Ten, including Belgium, France and Italy, are now subject to the EU's "excessive-deficit procedure". This is a sort of naughty step, designed to put those who break the union's rules (which cap debt at 60% of GDP and budget deficits at 3% of GDP) under scrutiny and correct their wayward behaviour.

Governments in such countries are under fresh strain from higher interest rates on their debt. France, for example, will spend €91bn ($102bn) on interest on its borrowing in 2027, up from €79bn in 2026. Meanwhile, rising prices and higher energy costs make it politically difficult to cut pension and welfare payments.

The clamour from populists is drowning out those who try to talk sense about the budgetary arithmetic. Allianz, a European insurer, has devised a global "social resilience index", to measure the vulnerability of different countries to unrest. It calculates that between 2020 and 2025 70% of strikes, riots and civil unrest took place in "advanced economies...where prosperity coexists with political polarisation and weak reform capacity". Ludovic Subran, chief investment officer at the insurer, notes that this mix is particularly combustible because cost-of-living pressures are hurting so many people.

Take Belgium, which will have a budget ▸▸

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deficit in 2026 of 5% of GDP, and debt of 112% of GDP. On November 6th its prime minister, Bart De Wever, offered to resign over his government's failure to agree on a budget for 2027. The populist-nationalist leader has failed to wrangle a five-party coalition into agreeing on deficit cuts, for example by modestly raising VAT. Or consider the Netherlands, whose young centrist prime minister, Rob Jetten, is running the country's first minority government since the second world war, and has struggled to secure support for his budget.

Even in fiscally responsible Germany Friedrich Merz, the chancellor, has said that the welfare state is "no longer affordable". Last year social spending rose by 6%; it now accounts for around 30% of GDP, two percentage points above pre-covid levels. Social-security charges, levied for pensions, health care and the like, are equivalent to around 42% of gross wages; without reform these are projected to reach nearly 50% by 2040 (employers cover half these costs). A sluggish economy and Germany's deficit-limiting debt brake mean the federal government is in a tight fiscal spot, with more than €100bn of (cumulative) consolidation needed by 2030. Some two-thirds of Germans agree that the welfare state is no longer affordable; yet a majority oppose most specific proposals for cuts.

Vive la révolution

By far the most worrying is France. It has battled each year to pass a budget ever since President Emmanuel Macron rashly called snap parliamentary elections in 2024, which shrank his centrist governing minority. The lower house of parliament, once dominated by big parties of the left and the right, is now split into three hostile blocs. The noisiest components are the populist-left of Jean-Luc Mélenchon and the populist-right of Marine Le Pen. This pair are also pollsters' favourites to face each other in the run-off in the presidential election next spring. The climate in parliament, says Michel Barnier, a centre-right former prime minister and now a member of the lower house, is "pre-insurrectional".

Against this backdrop Sébastien Lecornu, the fourth prime minister in three years, is trying to get a budget through parliament by the end of the year. His plan, which would curb the budget deficit from 5.4% of GDP in 2026 to a still-hefty 5% in 2027, involves €43bn of savings. Most controversially, these include the freezing in nominal terms of most pensions (the single-biggest budget item) and civil-service pay. The opposition has cried foul. Teachers and other public-sector workers have joined the marches. Protests have broadened into anger that pensioners are the casualties of a debt problem. "My placard is crappy, so is my pension" read one homemade sign at a recent demo in Paris.

As ever, voters want public finances fixed, but not at their expense. A poll suggests that 85% of the French think it is urgent to curb public debt, but 56% also think the pension age should be lower. Mr Mélenchon and Ms Le Pen each vow not merely to protect pensions but also to bring down the retirement age. Both their parties are against the proposed pension freeze. Roland Lescure, the finance minister, insists that the government will pass a budget, even if it has to use special constitutional measures to force it through parliament. "When I say we should freeze pensions, it's not to annoy pensioners," he says. "Rather it's to say: if we want to spend more on young people, others will have to pay."

A decent welfare state, with dignity in ill health, poverty and old age, is as central to the idea of what Europe is all about as are walkable cities and long holidays. The ageing continent cannot sidestep tough choices about what sort of support it can continue to afford. Yet Europe is losing its capacity to have a measured debate about how to do this. If governments cannot find a way to forge majorities for difficult decisions, those choices will end up being imposed by the bond markets in a crisis. ■

France's presidential election

Bear hugs

PARIS

A judoka enters the race

"I KNOW what it's like to fight," declared Teddy Riner, which by itself came as no surprise: France's multiple Olympic gold-medallist in judo knows exactly how to throw an opponent to the ground. But when Mr Riner spoke on November 9th he was referring to high-level sport of a different sort. Seated before a sober bookshelf and French *tricolore* flag, he stunned France by saying that he was running for president. Within 48 hours Mr Riner's declaration on X had been viewed 14m times—more than three times the viewership for Marine Le Pen's presidential-style address after the recent riots.

France has since then been talking about little other than the bear of a man they affectionately call *le grand Teddy*. Some asked if the declaration was an AI-generated hoax (it is not). A Socialist politician called it a "farce". Emmanuel Macron said that Mr Riner's candidacy "can only benefit the country", prompting some to suspect the president's hand, if only to stir the race up ahead of next year's presidential election.



Grappling for the centre

Teddymania partly reflects the flatness at the political centre. The race has been dominated by the extremes: Ms Le Pen on the populist right, who is poll favourite to win, and Jean-Luc Mélenchon on the populist-left. Mr Riner pitched himself, in Macronesque terms, as "neither right nor left". "France doesn't need a professional politician who recites talking points and spends all day squabbling," he said, "It needs common sense, firmness, justice and a government that sets things right."

Polling analysts do not take Mr Riner's bid too seriously. He has a small team, no party, little time, and needs 500 elected officials to endorse him. But the judoka is wildly popular among varied demographic groups. He could in particular damage Mr Mélenchon, who relies on the youth vote. A poll suggests that 22% of the French would consider voting for him. If so, he could possibly qualify for the run-off. Footballers (in Liberia) and cricketers (in Pakistan) have been elected leaders elsewhere. Mr Riner is a national treasure. And the rebellious French dislike a pre-written electoral script. If nothing else, his candidacy has injected some hope and energy into the race. France, said Mr Riner, had given him the "opportunity to dream big".

Spain's election

Track record

MADRID

High-speed trains, once a source of pride, cast a shadow on the campaign

When Spain's first high-speed train from Madrid to Seville was inaugurated in 1992, it was much more than just a railway line. It was a symbol of the country's emergence as a modern democracy. In the years since, high-speed lines have covered much of the country, becoming a source of national pride.

Yet now, ahead of a general election on November 29th, the rail network has become a source of anguish. Two crashes on the same line to Seville, first in January and then in October, killed a total of 115 people. "Psychologically, for a lot of people it's a symbol of what's gone wrong in Spain" in recent years, says Luis Garicano, a Spanish economist at the London School of Economics. That includes relentless political polarisation under Pedro Sánchez (pictured), the Socialist prime minister, the taint of corruption surrounding his party and an ever-worsening housing crisis.

The timing of the second accident could not have been worse for Mr Sánchez, whose Socialist Party is trailing in the polls behind the centre-right People's Party. It and the populist-right Vox party are projected to win about 200 seats between them in the 350-seat parliament, against around 105 for the Socialists. In what looked like an effort to help Mr Sánchez, the main labour unions led a general strike on November 11th, the first since 2012, to protest about evictions, rising rents and the high cost of living.

The centre-right opposition wants to build more houses, control immigration and cut taxes. But it also accuses Mr Sánchez of incompetence, not least in his running of the railways, whose recent crash exposed a string of failures. These start with the computerised train-control system, which dates from 1992. It failed during the October crash, for the 170th time this year. A new system is due to start on the Seville line in 2027, a year later than planned. European Union prosecutors are investigating the possible misuse of European funds that paid for this and other improvements. One problem is that successive governments prioritised expanding the system rather than maintenance spending, which is only around half the European average per kilometre.

The government's critics point to political interference in Adif, the state outfit that runs the railways. It has had seven presidents since 2012. José Luis Ábalos, who



Life of the party

was Mr Sánchez's transport minister from 2018 to 2021 while also running the Socialist Party, is serving a jail sentence for corruption. The Adif director in charge of rail safety was a former Socialist spin doctor.

On November 10th King Felipe and some political leaders attended a sombre state funeral for the victims in Toledo cathedral. The rail disaster will continue to cast a long shadow over the vote. ■

Ukraine peace talks

Pound, pound, talk

KYIV

The American-brokered negotiations left many questions unanswered

It was not the first time—or even the third—that Donald Trump had trailed a "big beautiful" peace for Ukraine. But his latest promise, made days before the first trilateral peace talks since February, set alarm bells ringing in Kyiv and European capitals. In the event, negotiations in Abu Dhabi over November 10th and 11th raised more questions than they answered.

The talks, which lasted just six hours, had set out to discuss the small matter of post-war European security. About the only firm outcome was a large prisoner swap, by now a ritual conclusion. The real test was due to come on November 12th when American negotiators Steve Witkoff and Jared Kushner took a set of ideas to Moscow for Vladimir Putin. These were understood to include "Article 5-style" security guarantees for Ukraine—from America, Britain, France and Germany, as well as NATO itself. For now, though, there is no expectation that Mr Putin will sign any sort of deal that strengthens Ukrainian's security.

The Americans have dangled several sweeteners to coax Mr Putin into a deal. One is to plug Russia back into European energy markets (in breach of a new EU law). "Not a chance of us agreeing to that while the war is still raging," added a senior Ukrainian official. Another is to discuss Russia's dubious claims that Europe threatens its own security, something Mr Putin has been demanding since before his full-scale invasion in February 2022. "Discussing Europe's security architecture with Putin is like asking a rat to approve the design of a rat trap," wrote Andrei Kozyrev, a former Russian foreign minister, on X.

Russia's wish-list is long enough to spin talks out indefinitely. *The Economist* understands Russian negotiators want guarantees that NATO will "stop expanding east" and a pledge that the alliance will cut forces and weapons near its borders. They also want Ukraine to declare neutrality and shrink its army. (Ukraine wants the reverse: Western support for a defensive army at least 800,000-strong.)

Ahead of the talks, American officials insisted any new arrangement would have NATO "remaining central to European collective defence" and would respect Ukraine's sovereignty. A source close to the White House claimed the proposals had the backing of European partners and NATO. "Nobody has been able to solve this conflict while everyone is telling us how [to do so]," the official said.

Insiders say President Trump's midterm defeat injected new urgency into the talks. The arrival of Democratic majorities in Congress in January offers a deadline to his main negotiators, who could face investigations over alleged conflicts of interest. For Russia, it may be the last chance to do a deal while Mr Trump controls Congress. Ukraine's negotiators are privately sceptical of a breakthrough this year, but have been instructed to keep an open mind, if only to avoid annoying Mr Trump.

Ukrainians still assume things will get worse before getting better. The country enters winter with its energy infrastructure in its worst shape since the war began. Reserves and spare parts are running low. It has all but run out of Patriot interceptors, needed to destroy ballistic missiles. Russia, meanwhile, still has a stockpile of 700 such missiles, is producing another 110 a month, and is midway through a campaign to make Ukrainian cities, chiefly Kyiv, uninhabitable. It is destroying bridges, water systems and power grids. It would be odd for Mr Putin to stop now.

"Our American friends want a breakthrough," the senior Ukrainian official says. "Seeing what the Russians are doing with our infrastructure, it's hard to believe one is coming." ■

CHARLEMAGNE
The small-print continent

How navigating red tape became the European way of life



EUROPE HAS spent centuries searching for ways to unite its quarrelsome peoples. Christianity had a go, as did various emperors, to little avail. Esperanto never quite caught on. Football and the Eurovision Song Contest bring the place together for a few nights each year. Perhaps Europe's common culture is found not in stadiums or concert halls, but oozing from its government offices: battling red tape is the thread that binds the continent together. While Europeans disagree on politics, cuisine and religion, all are united in living under the administrator's ink-stained thumb. From Dublin to Athens there is a reassuring familiarity to being informed that the correct form is unavailable, that another office must be consulted (preferably by fax), then that the deadline expired yesterday. The European Union in Brussels, the spiritual home of the paperwork-industrial complex, is a fitting culmination of attempts to forge ever-closer union. Where mere emperors failed, the rubber-stamping Eurocrat has triumphed.

All polities spawn paperwork. (Your columnist, a former correspondent in India, can attest to the subcontinent's own procedural prowess.) Yet Europeans have elevated petty officialdom from a necessity to a fine art. The creation of rules, then their punctilious enforcement, is the *je ne sais quoi* that helps give Europe its particular charm. Multiple tiers of government invent rules often grumpily enacted by another level. If there is such a thing as a European way of life, it involves filling out forms in triplicate.

Every European has a horror story to recount. Charlemagne is no exception. Tax authorities in Belgium wrote recently to inform him that he was not, in fact, the father of his three children. (Come and pick them up at your convenience, was the response.) Some years ago it was French tinpot functionaries who refused to believe that the Stanley Victor Gregory Pignal identified on your columnist's passport was the same person as the Stanley Victor Grégory (note the accent) Pignal named on his children's birth certificates. After months of haggling it turned out to be easier to redo an entire set of identity documents—expunging the stray accent—than to try to reason with the apostles of clerical pedantry.

Even when the bureaucracy runs smoothly, try running a business in this place. The EU's 27 countries between them regulate entry into more than 5,700 professions—over 200 per country—from the commonplace to the obscure. Woe betide an aspiring tiler, mushroom expert or well-sinker who would like to set up shop in Hungary without negotiating an obstacle course of certificates. (Nearly a quarter of EU workers toil under a regime that requires a recognised qualification.) Because the regulations vary from one country to the next, a Polish electrical engineer is unlikely to be allowed to fix a fault in neighbouring Lithuania, say—so much for the EU's vaunted single market. Each country has its own labour code. Luxembourg's alone runs to 2,160 pages.

Some places, like Estonia, have tried to tame the paper beast, making digital filings the norm. Still, Europe increasingly feels like a land in which something is forbidden unless it is expressly authorised. Want to offer shoppers across-the-board discounts? That is *verboten* in a slew of EU countries unless the promotion falls in a few specific weeks of the year. A German school that wants to order textbooks for its pupils may have to put out the contract to public tender under EU rules. Fair enough. But because the price of books is fixed under German diktats, all bids from suppliers come back at precisely the same price—and the contract is then allotted by drawing lots. (Perhaps unsurprisingly, German businesses spend 7% of their turnover on satisfying bureaucrats' lust for box-ticking.) Value-added tax, a European innovation that has since gone global, kicks up a rich harvest of administrative lunacy. In the Netherlands, rabbit food until last year got taxed at 9% while hamster owners needed to spring 21% (official reason: the hamster is definitely a pet, while the rabbit might one day become a meal). Different yoga classes still attract different VAT rates, too, depending on how much sweating is involved.

All the red tape has compounded the economic malaise that has befallen Europe. American venture capitalists guffaw at the continent's quaintly medieval ways. In Germany startups hoping to raise money can be required to get a notary to read all the investment documents aloud word for word. Since the small print can run to dozens of pages, this can take hours, if not days (the recital is interrupted for bathroom breaks). Every planning application from Poland to Portugal is a bureaucratic odyssey that must take into account the mating habits of each local newt and snail, no matter the pressing need for new homes. A bid to increase the capacity of Dublin airport in 2023 ran to 7,000 pages. The whole thing had to be printed out for submission to the authorities—before being scanned again by the very same authorities.

The good, the bad and the notary

The EU machinery in Brussels, the final boss of the continent's norm-setting apparatus, was once painted as a prodigious purveyor of rules: tabloid tales of how it regulated the curvature of bananas still haunt the place. Recently it has tried to paint itself as a force for deregulation. In theory every cost imposed by a new edict must be matched by one that is being repealed. Confusingly, the very same measure is sometimes enacted and repealed at the same time, a novel case of Schrödinger's regulation. This summer a green packaging law took effect, which requires any firm selling goods across borders—even tiny ones—to appoint up to 27 local representatives to oversee their packaging waste. EU-wallahs, having belatedly realised the madness of the scheme, have since tried to junk it. But the law has taken effect before its scrapping has been agreed; officials hope nobody enforces it instead. Even when Europe decides to cut red tape, it finds itself tied up in knots. ■

United States



Foreign policy

Conflict resolution

WASHINGTON, DC

Democrats' bumpy path to ending the war in Iran

THE LAWMAKERS who attended an event hosted by Elect Democratic Women, a pro-choice group, on November 10th are unlikely to have much sympathy for Pete Hegseth, Donald Trump's secretary of war, who has sacked female generals and questioned the role of women in the armed forces. But Mr Hegseth might thank them for his narrow escape in an impeachment vote in the House of Representatives that afternoon. Eleven Democrats missed the vote—more than the seven-vote margin—with some delayed in traffic on their way back from the event.

That failure points to a bigger problem for Democrats. More than seven in ten voters who crushed Mr Trump's party in the midterms on November 3rd said in exit polls that the war in Iran had been a crucial or major factor in their vote. Democrats are keen to respond to that fury, yet measures to remove Mr Hegseth, let alone end the war, will take time.

The articles of impeachment introduced by Thomas Massie, a maverick (and outgoing) Republican congressman, accused Mr Hegseth of starting the war illegally, ignoring congressional resolutions to withdraw and showing disregard for civilian harm, as well as transgressions relating to Venezuela, Yemen and strikes on drug-smuggling boats. Democrats and Republicans alike had expected that several Republicans would break with their party and vote against Mr Hegseth. In the end, Mr Massie was the only dissident. The department of war posted an AI-generated image of the congressman weeping.

An impeachment vote will almost certainly succeed in January, when Democrats have a majority and better-whipped members. Even then, Mr Hegseth would be tried in the Senate, where at least 11 Republicans would need to break ranks with their party and join Democrats seeking to remove him.

Many Republicans are privately advising the White House to replace Mr Hegseth now, while a Republican-controlled Senate could confirm a successor. Mr Trump seems untroubled. "He's guilty of two things," said the president on November 8th. "Basically winning two wars."

As impeachment efforts rumble forward, Democrats will seek other ways to bring the war itself to a halt. In theory, the War Powers Resolution of 1973, passed amid broad discontent over the war in Vietnam, obliges presidents to obtain congressional authorisation to continue fighting after 60 days of conflict, with a 30-day extension allowed due to "unavoidable

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military necessity". Presidents of both parties have ignored that injunction, however, dismissing it as unconstitutional. In June, in a sign of bipartisan frustration, Congress passed a resolution directing the president to remove armed forces from the conflict in Iran. It had the impact of a scolding letter. An attempt at another resolution failed in the Senate in September.

Chances of enforcing the War Powers Resolution in court will improve slightly in January, when Democrats can sue as the House. However, courts typically defer to presidents on matters of war. Congress could introduce new legislation but, like the impeachment of Mr Hegseth, any bill would need 67 Senate votes to overcome Mr Trump's veto.

The more effective tool, in theory, would be to use Congress's power of the purse. To avoid a government shutdown on December 11th, Congress must pass either a full funding bill or, more likely, a continuing resolution, a stopgap measure that extends current spending levels for a few months. A National Defence Authorisation Act, which spells out Pentagon policies and pay and which has passed each year since 1961, is also under negotiation. Charles Kieffer, a former staff director of the Senate appropriations committee, says that Rosa DeLauro and Patty Murray, the senior Democratic members of the House and Senate appropriations committees, respectively, might demand that Mr Trump end the war in exchange for passing a continuing resolution, though he suspects that neither would shut down the government in December over the issue.

Indeed, using defence spending as leverage is fraught with both material and political risks. The Iran war and other military operations has meant that the Pentagon has a gaping financial hole. Even if a continuing resolution were to be passed, it would leave the Pentagon with $400m less cash per day compared with last year, and $1.7bn per day short of the astonishing sums planned this year under Mr Trump's proposed $1.5trn budget, notes Elaine McCusker, a senior fellow at the American Enterprise Institute, a think-tank, who served as the Pentagon's top budget official during Mr Trump's first term. "People may not understand the kind of situation the military is in right now," she says. "The people who get hurt by budget delays, shortfalls and uncertainty are not the people in a position of power to do anything about it."

Democrats therefore acknowledge that they have little chance of choking off funds for the war until next year, when they control Congress. Even then, it will not be easy. Mr Kieffer recalls Democrats' efforts to force George W. Bush to withdraw troops from Iraq in 2007, when the party controlled both chambers, by including that demand in a supplemental budget request, a top-up to the regular defence budget. Mr Bush vetoed that measure. Though it seemed ineffective in substance, "it gave the Democrats the political cover that they needed to go ahead and provide funding for the troops", says Mr Kieffer.

Some Democrats hope that Republicans are so weary of the war that enough might support measures to hasten its end. Their near-lockstep vote to shield Mr Hegseth from impeachment is not encouraging. Meanwhile, the war drags on. America attacked Iran's Qeshm island just before the elections. Iran continues to strike one oil tanker a day, on average. ■

Health care

Reality cheque

The price of health insurance is surging for American workers

HEALTH CARE ranks high on Democrats' agenda in Congress, as they seek to restore subsidies to buy individual insurance and reverse cuts to Medicaid, the health programme for the poor. However, a different problem looms, too. In the coming weeks, the 157m Americans who receive insurance through employers will have to choose a plan for next year. The cost of their insurance is due to rise by an average of 8% in 2027, according to Marsh, a consultancy, the biggest price hike in more than 20 years.

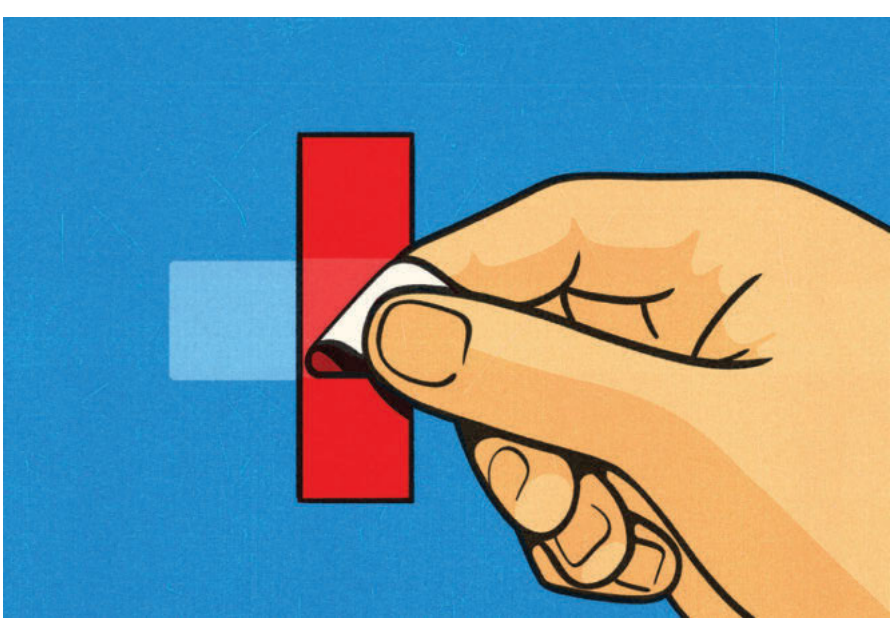
Employer-sponsored health care has long been the backbone of American coverage. About half of Americans get their health insurance through their job, that of their spouse or their parents. But as health insurance gets ever more expensive, bosses are looking for ways to trim their spending, whether through making workers pay for more of their care in cash, cutting coverage or even scrapping health benefits entirely. Already, six in ten Americans worry about affording health care, according to KFF, a health-research outfit, a higher share than worry about petrol. As employers strip back coverage, that anxiety is sure to rise.

Because health premiums paid by employers are excluded from income and payroll taxes, the government incentivises bosses to compensate workers by offering them health insurance. However, employers are problematic middle men. An employer generally covers about 80% of an insurance plan's cost, with staff paying the remaining 20% themselves, or an average of $7,500 for a family plan. Fast-growing insurance costs borne by employers limit workers' salaries, usually in a way that is not transparent to staff.

Health costs spiked in 2021 as Americans resumed the surgeries and treatments that they had put off during the covid pandemic. But in recent years, premiums have risen faster than inflation and nominal wages (see chart on next page).

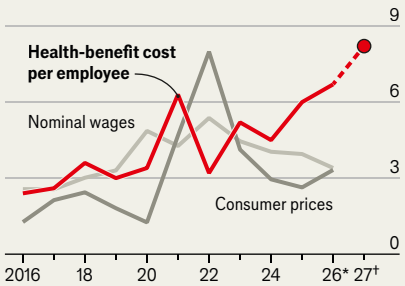
There are many reasons for this. Years of consolidation have given hospitals greater pricing power. Workers are seeking more treatment for behavioural health and innovative cancer medicines are helping to drive up premiums, too. GLP-1s, popular anti-obesity medicines, have probably pushed up premium costs by about a percentage point, according to Marsh. A similar share comes from new artificial-intelligence tools that help hospitals to spot extra charges that a human might miss.

Some employers will shop around for



For their benefit

United States, % increase on a year earlier



*Estimate for health-benefit cost; Jan-Sep for wages and inflation †Forecast
Sources: Federal Reserve; Marsh Consultancy

different coverage, but all insurers face higher costs. So firms are changing their offer to staff. In 2026 roughly two in five large employers made workers pay a bigger share of their premiums, according to a survey by KFF. Next year, with costs rising even more quickly, monthly payment increases of around 10% are not out of the question, says Beth Umland of Marsh.

Another option for employers is to restrict who qualifies for insurance. Next year Disney, a big entertainment firm, will rescind coverage from employees' spouses if they can get insurance through their own employer, a step that is hardly draconian. Other firms may impose more potent restrictions, for instance by limiting patients' choice of doctors and services. Starbucks has stopped covering GLP-1s for weight loss, with more firms due to follow suit: 10% of the companies now offering GLP-1s to treat obesity don't plan to do so next year, according to the Business Group on Health, an advocacy group.

Some employers may go further, eliminating health insurance completely. Small companies have been dropping coverage for decades, explains Paul Fronstin of the Employee Benefit Research Institute, a think-tank. In 2000 more than 80% of firms with 10-49 employees offered health insurance to their staff—now, just 59% do, a share that looks set to decline. The exchanges created by the Affordable Care Act, better known as Obamacare, offered individuals a new way to shop for insurance. However, premiums there are rising even more quickly.

A thousand cuts

With unemployment still low, companies have tried to avoid severe cuts, lest they drive away needed workers. Should the job market loosen, they might trim health benefits further. Democrats such as Abdul El-Sayed, a senator-elect from Michigan, have revived calls for universal health coverage. More cuts to employer-sponsored insurance give them new ammunition for their argument. ■

Red states

Walking on sunshine

How Florida withstood a blue wave

"TO CALL IT a wave I don't think would be fully accurate," Ron DeSantis, the governor of Florida, said the morning after Democrats won control of Congress. "It's the political equivalent of a meteor strike that went all around the United States—blue states, red states, everything in between. And the one state that was able to hold the line and withstand that is right here in the free state of Florida."

Indeed, even as Democrats popped champagne in states that had once been deep crimson, Republicans in Florida were elected to all open statewide offices. They held their congressional seats and retained control of both legislative chambers. They were not immune to Mr Trump's unpopularity—they lost their supermajority in the legislature and, compared with 2024, Florida swung 10.2 percentage points to the left. But that was less than the national average of 15 points, and far below swings of 20 points or more in Texas, Georgia, South Carolina and Mississippi, where Democrats flipped crucial seats. Florida, long since evolved from being a swing state, is Republicans' most defiant stronghold.

There are three main reasons Florida was spared the uprising against Republicans. The first is demographics, an advantage that Republicans elsewhere will struggle to mimic. For six years Florida politicians have advanced policies, from rejecting covid lockdowns to enacting universal school vouchers, to make the state a sanctuary for MAGA refugees. Although Democrats turned out a higher share of their voters this year, they could not overpower Republicans, who came into the election with 1.5m more registered voters. It helped Republicans that Hispanics, who propelled swings in other red states, were less keen on Democrats in Florida. Cubans make up half the state's Hispanic voters and, unlike Mexicans or Puerto Ricans, have been fused to the Republican Party since the days of Ronald Reagan. Exit polls show they moved left but didn't flip.

The second reason for Republicans' success is that—unlike in Texas, Kansas or Iowa— Democrats in Florida ran mediocre candidates who struggled to raise money. In the race to succeed Mr DeSantis, who was term-limited, Byron Donalds, the Republican nominee, outraised David Jolly, his Democratic opponent, $173m to $27m; Mr Jolly managed his own campaign, refused to debate and, insiders say, was allergic to asking for cash. In Florida's Senate race, Angie Nixon, a member of the Democratic Socialists of America, surprised Democrats by winning the nomination in August, and continued to surpass naysayers' expectations. But whereas James Talarico in Texas and Annie Andrews in South Carolina campaigned on messages of unity, Ms Nixon was known for yelling at her Republican colleagues in the legislature with a pink bullhorn. In the general election she succeeded in driving turnout, including of voters who opposed her.

National Democrats refused to cough up much cash themselves, both because they doubted some candidates and because running ads in Florida is so expensive—supporting a statewide candidate means placing ads across ten media markets and appealing to an electorate so di-



Enjoying an alternate reality

verse it can feel like Manhattan and rural Alabama stitched together. Where the party did spend, in four Democratic congressional districts gerrymandered to favour Republicans, candidates held on. "Going forward Democrats can either invest or continue dying in Florida," says Fernand Amandi, a Democratic strategist in Miami.

The third reason that Florida Republicans thrived is that their message reflected the politics of 2026, not 2024. David Johnson, a Republican operative in Tallahassee, had warned candidates against fighting culture wars, largely because Republicans in Florida had already won them—the state had banned firms with state contracts from promoting diversity, and transgender women from competing in women's sports in public schools. On the campaign trail Mr Donalds duly emphasised affordability, promising to cut insurance and health-care costs to preserve the "Florida dream". Mr DeSantis contends that Republicans elsewhere had lost the plot.

Which Republican politician might offer a model of how to do better? Mr DeSantis, of course, at least according to him. "The most dangerous place in Florida last week was between Ron and a Fox News camera," says a Republican strategist. A massive property-tax cut that Republicans put on the ballot, Mr DeSantis says, gave their base a reason to turn out. Even as Washington failed to deliver what Mr DeSantis calls "bold conservative change", the governor managed to halve the state's debt and shrink its government to make the economy boom. "Florida shows how you can build a coalition not only to convert on all your promises in good times but also to withstand the bad times," he declared on Fox News on November 4th.

That same day, Mr DeSantis's odds of becoming the Republican presidential nominee in 2028 jumped from 5% to 18% on Kalshi, a betting website. The last time Mr DeSantis ran for president, in 2024, his campaign flopped, his robotic delivery no match for Mr Trump's enduring appeal. Now Mr DeSantis's narrative is sufficiently compelling that Republican voters will give him another chance, argues Steve Vancore, a Florida pollster.

The trouble with narratives is that they can change. Mr DeSantis has much to boast about now, but some of his policies may not age well. The measure to slash the state's property taxes on primary residences may look less like a victory by 2028, when towns in Florida are slashing budgets for police and fire departments. Mr DeSantis admits that the state, which has no income tax, may need a trust fund to help local governments. In 2026, Florida has become America's most important red state. If these midterms have taught America anything, though, it is that no politics are permanent. ■



Trans politics

Over the line

A bitter culture war enters a new phase

THE MOST effective Republican ad of 2024, many strategists agreed, was one that declared that "Kamala is for they/them" and Donald Trump was "for you". This year, conservative groups tried to repeat the trick, devoting at least $183m to attack ads on transgender issues, according to AdImpact, a research firm. The strategy failed to protect Republican seats. Yet where trans-related issues were put to voters directly, the response was different.

Four states considered ballot measures to restrict girls' and women's sports to biological females. All passed, including in solidly Democratic states. That points to a new phase in the fight over trans rights. A growing share of voters don't want trans kids playing girls' sports. Nor do they want politicians to focus on the issue.

Two-thirds of Americans favour laws requiring athletes to play on teams that match their sex at birth, up from 58% in 2022, according to the Pew Research Centre. Around 30 states already have rules on trans athletes. In June the Supreme Court upheld such policies. Some 59% of adults approved of that ruling, almost twice the share who disapproved.

Though all the ballot measures this year concerned gender and sports, the specifics of the initiatives in Arizona, Colorado, Nebraska and Washington varied. Arizona's includes requirements that trans people use bathrooms at schools and sports facilities that match their sex at birth. Washington's measure, passed by a 12-point margin, requires medical documentation to verify sex for each child seeking to play girls' sports.

Even as a majority opinion emerges on trans sports, it is a deciding issue for vanishingly few Americans. In Washington state, the trans measure passed despite Democratic congressional candidates winning nearly two-thirds of the statewide vote. A poll by AP-NORC in October found that just 11% of voters considered trans issues a top priority.

"After 2024 voters really thought that Democrats were overly preoccupied with these 'social issues'," says Tré Easton of Searchlight Institute, a Democrat-aligned think-tank. In this election, with voters concerned about affordability, it was Republicans who were caught in their own culture-war traps.

In a sign of shifting politics, James Talarico, the incoming Democratic senator from Texas, once called God "non-binary" but said during his campaign that he opposes "trans athletes playing in girls' sports if it endangers safety or fairness." Sherrod Brown, Ohio's Senator-elect, took out his own ads in response to Republicans' trans attacks during the campaign. "With everything going on," his ads asked, "that's what they are talking about?"

Party politics

Seeing red

WASHINGTON, DC

The fight over Republicans' future has begun

As the dire results came in on November 3rd, young Republicans at Butterworth's, a MAGA haunt a stone's throw from the Capitol in Washington, sipped glumly on cocktails such as the "Senate Majority Martini" and "The Red Wave". "This is historic", noted one, "in the same way the Hindenburg was historic."

Donald Trump has commandeered the Republican party for over a decade. It is now adrift, with developments since the election only adding to the confusion. On Capitol Hill, Republicans are moving in different directions. On November 10th House Republicans elected as their leader Jim Jordan of Ohio, a co-founder of the hard-right Freedom Caucus who sought to overturn Joe Biden's election in 2020. In contrast, John Thune of South Dakota, a veteran senator who has clashed with President Trump, was easily re-elected as the party's leader in the upper chamber, despite efforts by more right-wing lawmakers to delay that election.

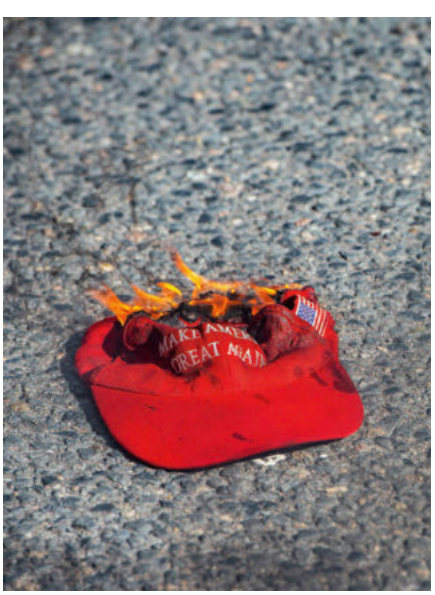
The Nvidia scandal adds further uncertainty; the party is only beginning to grapple with questions of how the administration handled intelligence that Jensen Huang, Nvidia's boss, was having an affair with an alleged spy (see Business section). The president's support of artificial intelligence had become a divisive issue among Republicans, even before this scandal erupted over the industry's most important executive. Mr Trump's dominance of the party has for years papered over its fissures. They are now being laid bare.

The president himself remains defiant. On November 6th Mr Trump told CBS that his deportation drive had been "too tough" and that he was open to a deal on immigration with Democrats. An hour later, as if to declare himself the most MAGA of all, he appointed Stephen Miller, a nationalist and immigration hardliner who spearheaded that drive, as his new chief of staff. Within MAGA, loyalists to the president remain. Sarah Huckabee Sanders, the governor of Arkansas, was among those to parrot Mr Trump's line that he was not on the ballot: "I don't think that this can be a line drawn against him." A few MAGA media figures, namely Mark Levin and Laura Loomer, continue to support the Iran war and America's relationship with Israel.

Yet all this compounds problems for the president, who is already vulnerable to critics blaming the midterm loss on his policies and hubris. Since the election a noisy group of MAGA purists have contended that Mr Trump let the movement down. On November 4th J.D. Vance, Mr Trump's vice-president, did not blame Mr Trump by name, but took the stunning step of blaming his boss's policies, including the war, a failure to lower costs and the relationship with Israel.

MAGA-purist vodcasters such as Tucker Carlson and Steve Bannon had already broken with Mr Trump over the war before the election; they were scathing after it. On November 5th Natalie Winters, the co-host of Mr Bannon's "War Room" show, alleged that White House officials such as Howard Lutnick, the commerce secretary, had made "shady deals" and that "the actual grifters in the administration" were tarnishing "the entire MAGA movement". She stopped short of implicating the president.

Mr Carlson called the results a "disaster", on his show on November 4th. "You could mark it on your calendar," he added: "Trumpism gone." He blames war, corruption (Mr Trump was "vain and venal") and the president's decision to endorse flawed candidates. The administration had been too focused on fighting anti-Semitism, he argued, a stance he dubbed "Jewish lives matter". Mr Levin, for his part, skewered Mr Carlson as a "loathsome creature" who had worked to "sabotage the president, the GOP and the midterm elections".



You're on fire! (Not in a good way.)

As brawls continue within MAGA, Republicans' old guard, severely diminished but still defiant, is hoping for a resurrection. "The American people have rejected our party's shift toward economic populism," asserted Mike Pence, Mr Trump's vice-president in his first term, in an op-ed in the *Wall Street Journal*, glossing over the populism espoused by many Democratic candidates. Mitt Romney, the last pre-Trump Republican to have run for president, in 2012, offered a more sweeping critique on X, pointing to the war and corruption, as well as Mr Trump's "weaponised justice, ICE brutality, mountainous deficits, hiding Epstein, abandoning allies and coddling enemies".

Between the MAGA purists and the old guard is a more fluid category of Republican, who could be charitably called pragmatists. Ron DeSantis, the term-limited governor of Florida, failed to win the Republican presidential nomination in 2024. He now hopes the MAGA movement might give him a second look.

Consider Ted Cruz, who after Tuesday's sweep is poised to be the last remaining Republican statewide office-holder standing in Texas. In his own election autopsy on his podcast, he paid lip service to the need to rebuild as a "true blue-collar party", but pointed to a pre-Trump solution: Republicans had to be "real free-market conservatives". Mr Cruz, a long-standing proponent of muscular foreign policy who once cheered on Mr Trump's war, felt compelled to change tack after the election, saying that the war should have been "brief, decisive and over".

More fights will break out. Even as Mr Vance appeals to the MAGA purists, many within the MAGAverse despise him, not least for his ties to Silicon Valley, where he worked before running for Senate. MAGA purists are vehemently opposed to the conflict in Iran, championed by Pete Hegseth, the secretary of war, who narrowly avoided impeachment on November 10th. Yet Mr Hegseth's purge of supposedly woke generals from the Pentagon has earned him ardent fans within the right-wing "manosphere".

The most explosive argument may be over Nvidia. Republican hawks had opposed Mr Trump's decision, after being lobbied by Mr Huang, to ease export restrictions of Nvidia chips to China. On November 9th Mr Bannon repeated his allegation that Mr Huang is himself a spy.

More battles will emerge over why the White House did not respond to a classified report from Marco Rubio, Mr Trump's secretary of state, warning that Mr Huang's mistress might be a Chinese spy, alongside concerns over why Mr Lutnick failed to keep America's advanced chips from China. The election is over. The Republican brawl is just beginning. ■

LEXINGTON
The legacy trap

Donald Trump has a chance to make real progress. He also has a gift for blowing such chances



NOT LONG ago, after a whopping defeat in midterm elections, the president made some conciliatory noises and some belligerent ones. He issued a warning to the opposition party that was taking control of the House. "You can't legislate and investigate simultaneously—it just doesn't work that way," he said. "You can't go down two tracks at the same time." Yet when they did go down both tracks, he did, too, battling congressional investigations while collaborating with his congressional adversaries to achieve legislation on trade and the environment. When crisis struck he worked with the House to deliver an historic economic rescue package—even though by then, in a party-line vote, the opposition had impeached him.

That president was, of course, Donald Trump, in his first term. This time around, after an even bigger midterm rebuke, he is sending more intensely mixed signals. He has floated the idea of working with Democrats to solve one of America's most vexing problems, its broken immigration system. Yet he has appointed as his chief of staff Stephen Miller, the enforcer of his brutal deportation agenda, whom Democrats despise and even some Republican legislators consider too hardline. Given the priorities of the Democrats, particularly those elected from what were Republican states and districts, Mr Trump has a bigger opportunity than in his first term to make progress, including for the working-class voters he has always claimed to represent. One can hope. But the historical pattern, and this president's particular pattern, suggest he won't.

Freed from facing voters again, intent on a legacy and looking to history for vindication, second-term presidents tend not to retreat from signature positions after midterm reversals, notes Frances Lee, a professor at Princeton. "They tend to take a hard line and persist," she says. President George W. Bush sent more troops to Iraq despite Americans' despair over that war; President Barack Obama outraged Republicans by using executive orders to protect some immigrants in the country illegally. Mr Trump has taken to brandishing a red hat emblazoned with the word "veto", a familiar threat in his circumstances. In the first five and a half years of his presidency, Mr Bush issued not a single veto, a record surpassed only by Thomas Jefferson. After the crushing Democratic victory in 2006, he vetoed 11 bills, edging out Mr Obama, who, after his midterm drubbing in 2014, vetoed ten.

Presidents Bush and Obama achieved some legislative compromises. Yet unlike those two predecessors—and unlike any president in memory—Mr Trump has made conflict core to his political appeal. Having been dismissed after the midterms as seeming "more like a bitchy old woman than an alpha male" by Tucker Carlson, a vodcaster, Mr Trump may see restoring his image as a fighter as his best path to consolidating Republican support. He knows there is nothing like an impeachment to accomplish this. "There are those that say that worked out to my advantage," he volunteered after the midterms, referring to his two impeachments in an interview on "60 Minutes" on CBS.

The desire to be seen by his base as a fighter may explain his refusal to eject his cartoonish secretary of war, Pete Hegseth, as, after the midterms of 2006, Mr Bush forced Donald Rumsfeld out. Mr Trump also faces an obstacle Mr Bush did not. The shambolic Trump administrations have so damaged the reputations of most who have joined that this president is unlikely to attract any appointee with the standing of Bob Gates, a former CIA chief who was confirmed with bipartisan support to replace Mr Rumsfeld.

Base politics and incompetence would probably also doom a foray into immigration reform. Mr Trump has never summoned the discipline to deliver on complex initiatives he promised, from rebuilding America's infrastructure to fixing its health-care system to streamlining its bureaucracy. He has also always prioritised the loyalty of his most hard-core followers, relying on their support, particularly during primaries, to intimidate other Republican officials. His suggestion he might work with Democrats on immigration brought immediate howls of protest from MAGA stalwarts, furious at the prospect of "amnesty".

On a cross of gilt

There is one further possibility for progress, which sets Mr Trump apart from his presidential predecessors: on issues that appeal to his base, but not to traditional members of his own party, his idiosyncratic politics gives him a chance to work with the opposition. He has, in the past, signalled openness to such Democratic proposals as raising the minimum wage or capping interest rates on credit cards. However, the nature of this opportunity brings its own obstacles. Such ideas divide leaders of his party, some of whom have clung to Republican economic orthodoxy throughout the populist Trump era. With some Republican politicians already questioning tenets of Trumpism after the midterms, the president may not want to put his control of the party at greater risk. "I think he would like to be a kingmaker," Ms Lee says. "And if he alienates the party sufficiently, he won't be."

That may be Mr Trump's fate regardless, given the policy to which he has shown the greatest ideological commitment. Although he has succeeded in persuading even Democrats to embrace some tariffs, such as on electric cars from China, his enthusiasm for a global trade war is unpopular. Yet he seems certain to battle any attempt by Congress to restrain his use of tariffs. Here he may find a precedent in the only other president to serve non-consecutive terms, Grover Cleveland, a Democrat whose doctrinaire commitment to the gold standard split his party when it nominated his successor, William Jennings Bryan, in 1896. Bryan was defeated, and the Democrats did not find their way back to the White House for 16 years. ■

The Americas



Colombia

A hundred days of attitude

BOGOTÁ

The new president is taking no prisoners

PISTOL ON BELT and walkie-talkie in hand, President Abelardo de la Espriella strides along with security forces on night-time raids. Alleged criminals, paraded in handcuffs, are struck dumb. Colombia's new sheriff taunts them, then packs them off to jail with one of his signature lines: *Bienvenido a la Patria Milagro*—"Welcome to the Miracle Nation."

The videos posted to the president's social-media channels provide a gratifying show for Colombians tired of crime. Mr de la Espriella, a flamboyant right-wing populist who calls himself *El Tigre*, promised an iron fist and rip-roaring growth. Approaching 100 days in power, the Tiger has got started on both.

But it will take more than TikTok videos to break the influence that armed groups which run drug-trafficking and illegal mining operations hold over swathes of the country—and certainly more to tackle Colombia's fiscal crisis. Meanwhile Mr de la Espriella's illiberal instincts have set him on a collision course with Congress and the courts. And the left-wing coalition that lost to him by less than one percentage point in the presidential run-off is encouraging his critics onto the streets.

Mr de la Espriella's government entered office at a time of calamity. Three days after his inauguration an earthquake struck Colombia, killing more than 300 people and causing over $13bn of damage. Mr de la Espriella and his ministers responded in a telegenic manner. They visited the affected areas and promised a "Miracle Fund" for reconstruction (which in fact has been slow to materialise).

Since then, security has been Mr de la Espriella's main concern. Under Gustavo Petro, his leftist predecessor, armed groups expanded, security deteriorated and cocaine production hit new highs. Mr de la Espriella has scrapped peace talks attempted under Mr Petro, which had failed to make progress. He has stepped up bombardments of armed groups, killed several high-ranking gangsters and signed off on extraditing some individuals to face prosecution in America. All of this is recounted in a daily stream of self-aggrandising online content, some of it grotesque. Mr de la Espriella crows over the body bags of those killed in operations.

Many Colombians welcome the change in narrative. But the increase in operations has been "modest", says Javier Flórez of the Ideas for Peace Foundation, a think-tank. "It's essentially the same: captures, kills, seizures." A different strategy will be needed to break the power of criminals who reign over parts of Colombia. After security forces killed one ringleader in September, the late kingpin's gang declared a lockdown of Santa Marta, a coastal city, as a show of force; it told businesses to close and residents to stay at home. Mr de la Espriella flew in with the armed forces and had fighter jets rip through the skies. Locals stayed inside, nonetheless.

The government wants new tools to swat enemies. A "submission law" rules out

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peace talks but offers reduced sentences to criminals who confess, hand over assets and turn informant. A proposed anti-terrorism statute would let the executive designate terrorist groups and freeze the assets of anyone collaborating with them. Elizabeth Dickinson of International Crisis Group, an NGO, sees these policies as "carrot and stick". Human-rights groups worry that Colombian leaders might also use the stick to intimidate civil society.

Stick 'em up, punk

Mr de la Espriella has a limited budget for security and other operations. Public debt is about 60% of GDP. Without action, the government projects a fiscal deficit of 9.4% of GDP in 2027. Debt service will swallow almost a quarter of the budget. So difficult is the situation that his government is talking to the IMF about a loan programme, which could perhaps be worth $20bn (4% of GDP). At the end of October the government unveiled a tough tax-and-spending reform. It would cut the number of goods eligible for special lower rates of VAT, broaden the income-tax base, cut the state payroll by one-fifth and also give the president powers to trim spending by decree. Corporate-tax rates would fall from 35% to 31%; big new investors would get a rate of 20% for 16 years. Fiscal conservatives were pleasantly surprised. "It's not what you expect from a populist," says Mauricio Cárdenas, a former finance minister.

But getting it passed will not be easy. Mr de la Espriella's party has only a handful of seats in Congress. There is a nominal pro-government majority, but Mr de la Espriella claims not to want to do the usual trading of jobs and resources for political support. Rafael Nieto, a senator from the right-wing Democratic Centre, says the government wants to impose bills, not debate them. His party, the largest, is wary of tax rises. José Manuel Restrepo, the vice-president, has said Colombia could default if the bill is not passed. "Now we'll really see the capacity of the president, beyond the spectacle," says Mr Cárdenas.

So far Mr de la Espriella has shown little desire to compromise. In October he appointed as interior minister (responsible for managing Congress) Alejandro Ordóñez, an ultra-Catholic former attorney-general who burned books in his youth. The choice fits the president's call—alongside his tubthumping on security—for a "cultural counter-revolution" to restore traditional values. Mr de la Espriella has arranged for dozens of works related to feminism, sexual diversity and Colombia's peace processes to be removed from the National Museum. He signs off messages with "Long live Christ the King!", despite court warnings about the state's religious neutrality. The hope seems to be that a culture war will galvanise Mr de la Espriella's base before regional elections in October next year. "It creates soldiers for the cause," says Luis Ernesto Gómez, a former deputy minister of interior.

In this and much else, Mr de la Espriella is following Donald Trump. Colombia has joined the "Shield of the Americas", the United States-led military coalition waging war on the region's drug-traffickers. America has sent drones to help hunt them down. Colombia has also signed on to Mr Trump's anti-globalist agenda. It withdrew a candidate for the International Criminal Court, and may leave the court altogether.

Mr de la Espriella shares Mr Trump's thin skin. He fired the head of the statistics agency, apparently for saying he found no evidence that Mr Petro's government had fiddled labour-market figures. Critical journalists have lost their jobs. "There's clearly a far-right authoritarian populist tendency," says Mr Nieto, the senator. "But there's still time to correct."

The streets are already heating up. The Historic Pact, the left-wing opposition, will join unions and students for a national strike against spending cuts on November 19th. About 60,000 demonstrators took part in anti-government protests last month. Mr de la Espriella dismissed them as a "small minority that wants to stop Colombia". As the numbers grow, that line will be harder to hold. ■

Paraguay's crisis

The wrong kind of boom

SAN BERNARDINO

How a digital bank became a massive bomb

DRONES PILOTED by TV crews whirr over Santiago Peña's mansion in the hills. Below, investigators debate how to open the former president of Paraguay's walk-in safe, hidden inside a secret passage. A policeman is asked if reports that they might blow the vault open are true. "No," he laughs. "People live nearby." Besides, an explosion could bring an infinity pool that sits above it pouring down.

Paraguay has been in tumult since November 3rd, when regulators seized an upstart bank called Ueno. Three million customers were frozen out of their accounts (Paraguay has about 7m people). Many couldn't pay for food, fuel or medicine. Some $850m of government money remains stranded. Within days, Mr Peña was impeached and arrested. Investigators say he abused his position to benefit the digital lender. They say Ueno sucked in state funds and disbursed extravagant loans to cronies. Mr Peña denies wrongdoing.

Like a stone

Paraguayan guaraní per $, inverted scale



1 Central bank's warnings about Ueno Bank revealed
2 Central bank shuts Ueno Bank
3 President Santiago Peña removed; Vice-President Pedro Alliana sworn in

Sources: Haver Analytics; press reports

When preparing to take office in 2023, Mr Peña tapped Ueno's chairman, Carlos Carvallo, to lead Paraguay's Central Bank (BCP). Mr Peña was friendly with Miguel Vázquez, Ueno's CEO, who sought to make the bank Paraguay's first billion-dollar startup. Mr Peña's asset declarations show Ueno lent him around $315,000; prosecutors say the borrowings were higher than that, and that they were used to build his summer residence (where the vault was found). He held shares in the bank's holding company until last year. The central bank, under Mr Carvallo's care, approved Ueno's speedy expansion.

In July a BCP regulator warned his superiors that Ueno's finances were dire. They ignored, threatened and removed him. But his memo reached Horacio Cartes, a powerful former president and a businessman whose companies manufacture cement and cigarettes. Mr Cartes is the leader of the ruling, conservative Colorado Party; he was once a mentor to Mr Peña, though the two recently became enemies. Mr Cartes hinted in October that he had dynamite. "Word to the wise," he smouldered to a camera, before triggering a detonation at his quarry. "Stand clear."

Both Ueno and Mr Peña's political career are in smoking ruins. Those arrested alongside Mr Peña include Mr Vázquez, other Ueno executives and Mr Carvallo, who as recently as October was named Central Bank Governor of the Year by LatinFinance, a financial news service. (Most of those arrested deny any wrongdoing or knowledge of Ueno's activities.) Pedro Alliana, Mr Peña's anodyne vice-president, was sworn in as Paraguay's new leader on November 6th. His cabinet is stacked with people loyal to Mr Cartes.

Thanks to a deposit-insurance scheme, over 1.8m people have begun getting their money back (up to a cap of $38,000). That covers the majority of Ueno depositors

and has helped calm demonstrations. But the impact on the economy will take time to become clear. Paraguay's GDP has more than doubled in real terms since the start of the century. But job losses linked to Ueno's collapse could dent things. And worried people have stopped spending.

Larger depositors are not guaranteed repayment. Ueno held some $520m in state pension funds. Some people aren't receiving pensions; many fear they won't get them in the future. "We feel disappointed, disillusioned, offended," said Karina Fernández, a doctor, at a demonstration outside Congress. "It's extremely painful." The collapse will also affect remittances, the country's third-largest source of foreign exchange (a record $1.35bn in 2025) after beef and soya. Ueno's banking app made it far easier for the million Paraguayans who work in Argentina, Brazil and Spain to send money home, says Belarmino Balbuena, a rural organiser who travelled 300km to Asunción, the capital, to protest. "This issue affects the whole population."

Past political scandals in Paraguay have not dulled growth for long. But the harm done to perceptions of the central bank's independence could weigh on foreign investment, says Fernando Masi of CADEP, a local think-tank. Brazilians have been founding factories and Argentines throwing up towers, driving record foreign direct investment of $1.2bn last year.

What goes up

In recent years vaccine refuseniks, blockchain enthusiasts and assorted tax-phobics have also flocked to Paraguay. An unprecedented 50,000 people applied for residency in the nine months to September. Political upheaval and blocked bank accounts could cause some liberty-lovers to consider alternative places, such as Bolivia. "Paraguay is seen as a safe haven," said Travis Miller, an American entrepreneur, on X (where he goes by Bitcoin Capitalist). "It's like a nuclear bomb going off."

The scandal is an opportunity for Paraguay's opposition parties ahead of elections that are due in 2028. Founded in 1887, the Colorado Party has lost only one democratic election, 18 years ago. But having now burned through Mr Peña and Mr Alliana—the heir and the spare—Mr Cartes's outfit is left with nonentities (Paraguay's presidents are limited to a single five-year term). Miguel Prieto, a 37-year-old former mayor from a centrist party, is the most popular challenger.

Mr Peña and his ilk are responsible for "eroding everything we built", says Dionisio Borda, a former finance minister. "It makes me a little sad, and also angry." He is advising Mr Prieto on how, if elected, he might soothe fizzing discontent with corruption, injustice and poor public services. Before all that goes boom, too. ■

Tourism in South America

Hacking history

LIMA

Machu Picchu's "mafias" are costing Peru real cash

MACHU PICCHU has a reputation for being tough to visit. Head to the Taj Mahal or famous spots on the Great Wall of China, and you can secure tickets a few days ahead. But until recently the ticketing platform for Peru's famed Inca ruins often showed the site fully booked for nearly six months. Although tourists can queue up for a shot at some of the 1,000 tickets sold daily at the foot of the mountain, many have simply gone elsewhere, says Juan Stoessel of Casa Andina, a hotel chain. "We constantly got calls from guests cancelling their reservations because they realised they couldn't secure tickets."

The monument's fame is not the sole cause of this logjam, according to an audit by the Peruvian comptroller's office. It concluded that between August 2024 and December 2025 tourism agencies exploited weaknesses in the official ticketing website to make more than 200,000 reservations. Most were for tickets that they never ultimately bought.

The government report did not speculate about the agencies' motives, but many Peruvians see the workings of a "mafia". Tourists who are blocked from buying tickets are more likely to fork out for access secured by third parties who are working in cahoots with corrupt officials, says Maycol Ugarte, who represents the national government in the district where the site lies. "They're tarnishing the image of Machu Picchu." Some tourists, he says, end up paying $300 for entry, more than five times what it should cost.

This is frustratingly familiar. In 2023 some 70,000 people were believed to have got into Machu Picchu in irregular ways. Back then, the government vowed to outsource the job of ticketing to a company that it thought would do better. But that sparked angry protests from people claiming to be outraged by the "systematic privatisation of Machu Picchu". Demonstrators blocked train services that haul tourists to the ruins. Eventually the government took back control.

Authorities have unveiled a new website that they insist is harder to hack. But there appears to be little appetite to bring the wider problem of corruption at Machu Picchu to heel. The only person known to have been charged recently with selling access to the monument is a security guard handed a five-year jail term for taking a bribe of 100 soles ($29) to sneak someone in. Mr Ugarte wants a criminal probe that would see ringleaders properly prosecuted. In the meantime, he thinks bureaucrats who oversee Machu Picchu's ticket sales should be rotated to different jobs every few months.

Machu Picchu has long been the crown jewel of Peruvian tourism. Once a getaway for Inca royalty, the site today attracts some 1.5m visitors a year. This pumps millions of dollars into an under-developed region that is home to a lot of indigenous Peruvians. But annual visits remain just short of their pre-pandemic peak. Some think the ticketing troubles are partly to blame. Protesters with various grievances who are more often choosing to block the site as a way of gaining attention have also taken a toll. "It's shameful," says Mr Stoessel. "The big loser is Peru." ■



Cómo se llama?

Middle East & Africa



Israeli politics

The man who would be prime minister

JERUSALEM

Gadi Eisenkot has a chance to form a new government. His foes and supposed allies may yet prevent him

HAVING CLEARED the first hurdle on his path to power when, on November 8th Israel's President Isaac Herzog gave him the mandate to form a new government, Gadi Eisenkot will face more formidable trials. For one thing, he must break several election promises if he is to replace Binyamin Netanyahu, who lost his coalition's majority on October 27th.

In a short ceremony at the president's residence, Mr Eisenkot conceded that "no one can stand for all the commitments they made. We will all have to make compromises." He hopes to swear in a minority "emergency" government, formed of four Jewish opposition parties. Neither Arab nor Jewish ultra-Orthodox parties would formally be part of his coalition, but they would offer support when needed.

Mr Eisenkot's rationale is that removing Mr Netanyahu is the most urgent priority. In recent weeks the prime minister has tried to drag Israel into another war with Iran and urged the head of the country's secret service to investigate the Arab votes and disqualify the election results. To form a coalition with a majority would mean lengthy negotiations, and he has only six weeks before the president asks someone else to try forming a government.

Persuading enough parties to secure a majority would mean a lot of promise-breaking. During the election campaign the four Jewish opposition parties committed themselves to universal national service. The ultra-Orthodox parties are demanding, as a condition for joining a coalition, exemption from military service for students of religious seminaries. Three of the four Jewish parties oppose including the Arab parties in a coalition. Mr Eisenkot himself has set a series of conditions, including condemning Hamas, the Islamist militant movement responsible for the massacres of October 7th three years ago, as a terrorist organisation. Those are difficult for the Arab parties to accept.

But they are already co-operating. On November 11th the new Knesset, Israel's parliament, was inaugurated. All the opposition parties, Jewish and Arab, joined to appoint a new speaker and committee chairs. Mr Netanyahu howled that Mr Eisenkot and his partners were "prepared to be dependent on those whose purpose is the destruction of the Jewish state".

The four main Jewish opposition parties hold only 48 of the 120 seats in the Knesset. A minority government would be a way of avoiding the tricky compromises while leaving open the possibility that Arab or ultra-Orthodox parties could formally join the coalition later.

Mr Eisenkot, a former chief of the Israel Defence Forces, is a relative newcomer to politics. He entered the Knesset in 2022 and has been a party leader for only a year. This was an advantage in the election. His party's fresh appeal helped it far outperform other opposition parties. But Mr Ei- ▸▸

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senkot has his work cut out to get an unruly camp in line. "We have various permutations for a coalition," says an adviser to one party leader. "But the four parties have to agree on one first." His rival opposition leaders are already trying to outplay him.

Chief among them is Avigdor Lieberman of the nationalist Yisrael Beiteinu party. Mr Lieberman began his political career nearly four decades ago as an assistant to Mr Netanyahu but has since sworn to end his rule. Yisrael Beiteinu won only seven seats in the election, but Mr Lieberman still fancies himself as both a coalition builder and future prime minister. He has begun his own freelance operation, negotiating with the ultra-Orthodox parties. He has ruled out being part of a minority government, especially if that would mean relying on support from Arab parties.

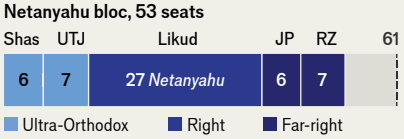
Meanwhile, Mr Netanyahu has not bowed out. Lawyers for his Likud party are trying to challenge the election result, claiming foreign interference and irregularities among the Arab vote. The Shin Bet security agency, headed by one of Mr Netanyahu's loyalists, is investigating these claims, but the resolutely independent attorney-general has ruled that there is insufficient evidence to question the vote-count or to haul Arab politicians in for questioning. The election results have been ratified.

The prime minister's fallback is to try to stymie the opposition's coalition-building. On November 7th he called for a unity government, which presumably he would lead, instead of "a government relying on Islamists that will dismantle Israel from within". He warned that "with a government such as this, Israel simply will not survive." Mr Eisenkot described the prime minister as "hysterical". But he will need his wits about him if he is to fulfil his election promise and replace Mr Netanyahu. ■

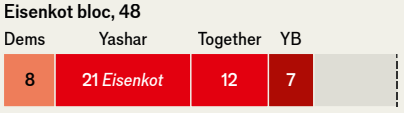
The numbers game

Israel, Knesset election result, 2026
61 seats needed for a majority

Netanyahu bloc, 53 seats



Eisenkot bloc, 48



Arab parties, 19



Source: Central Elections Committee



America and Israel

Drifting apart

JERUSALEM

The Democrats' victory could accelerate the decline of the Israeli-American alliance

THE EXTENT of the Republicans' drubbing in America's midterm elections is now clear and the reckoning has started coming. For Israel, it does not look good. On election day Donald Trump said that America would cut off military aid to Israel "at the end of the year". Israel no longer needs it, he explained; the country is "thriving". Also, the president added: "It's a bad talking point." J.D. Vance, the vice-president, was more direct. He blamed the war in Iran and America's relationship with Israel for the Republicans' defeat.

Israel has been falling steadily out of favour in America. Its brutal campaigns in Gaza and Lebanon angered voters and politicians on both ends of the political spectrum. "The fact Trump [mentioned the aid cut-off] in the day of the midterms was a political message that Israel is currently unpopular with both parties," says Avner Golov, a former senior director on Israel's national security council. The war with Iran has drawn further attention to the $3.8bn Israel receives annually from America, mainly as subsidies to buy American-made arms.

America's alliance with Israel featured in a number of high-profile election contests, including that of Abdul El-Sayed, the senator-elect from Michigan who fiercely criticised military aid. Other candidates took pride in not accepting donations from AIPAC, the pro-Israel lobby in America. AIPAC recently announced that it would stop endorsing candidates, a tacit admission of the toxicity of its brand.

Barack Obama signed the current ten-year $38bn package set to run out in 2028. The Israeli government knew that negotiating a new package would be tricky. Growing numbers of Democrats are increasingly hostile to Israel, and the Trump administration—and Republicans more widely—is loth to give money to foreigners. In light of this, Binyamin Netanyahu, Israel's prime minister, told *The Economist* in January that he favoured gradually phasing out American aid over the next ten years. Talks had started in recent months about the future of aid, but Mr Trump's election-day announcement took Israeli officials by surprise.

"It's been clear for years that the terms of the alliance with America were going to have to change," says Alon Pinkas, a former diplomat who served as Israel's consul-general in New York. "Now it looks like Netanyahu has agreed with Trump to end the current aid agreement, without anything ready to replace it."

Mr Trump has suggested that Israel will be able to continue buying American arms, on its own dime. But Israeli officials worry that, controlled by the Democrats, Congress will limit the kinds of weapons Israel may buy and restrict how it may use them, especially in the occupied Palestinian territories. For over half a century successive American administrations have been com-

mitted to maintaining Israel's "qualitative military edge" in the Middle East, supplying it with advanced weapons systems, years before America's Arab allies. That may be up for debate as well.

An end to American aid would blow a $7bn hole in Israel's finances over the next two years. After three years fighting multiple wars, it has been on a spending spree to refresh the Israel Defence Forces' arsenal, ordering planes, helicopters and more. Israel will owe another $10bn after 2028 for materiel it has already ordered, according to the *Wall Street Journal*.

Israel's economy could withstand that, though it would mean cuts to the national budget. "In financial terms it's regrettable, but not an earthquake," says Yigal Newman, a professor of finance at the Hebrew University in Jerusalem. "American aid is barely half a percent of Israel's GDP."

But it would also be a blow to Israel's standing as America's key ally. Israel's relationship with America not only boosts its military and economic power, it gives Israel diplomatic cover as well. America frequently deploys its veto in the United Nations Security Council to block anti-Israel resolutions. It puts pressure on other countries, such as Britain, which has announced sanctions on Israel over the violent Jewish settler attacks on Palestinians in the occupied West Bank. If the new Congress is considering similar sanctions, Israel will be more exposed internationally.

All is not lost for the alliance, which goes far beyond arms sales. America maintains radar and intelligence-gathering installations in Israel and recently expanded an airbase used by American aircraft in the Negev desert. The two countries co-operate intensively on missile defence and intelligence-sharing. Israel has access to America's surveillance satellites. America's arms companies make use of the IDF to test their weapons on the battlefield.

And Israel still has supporters in Congress. Chuck Schumer, the probable majority leader in the Senate, and Hakeem Jeffries, his counterpart in the House of Representatives, are on the more Israel-friendly wing of the Democrats. "The size of the Democratic victory suggests that the influence of the far-left on bills will be limited," says Dov Waxman, a political scientist at the University of California, Los Angeles.

But the relationship has fundamentally changed. Mr Netanyahu, who lost his majority in the Knesset on October 27th, has long presented himself to Israelis as the ultimate expert on America. Yet he has overseen the most drastic deterioration in his country's standing in America in Israel's history. Israeli diplomats privately accept that their prime minister, his hardline policies and hard-right coalition are "toxic in America". A new government in Jerusalem would help. But the alliance is fraying. ■

Violence in Jordan

A time to weep

AMMAN

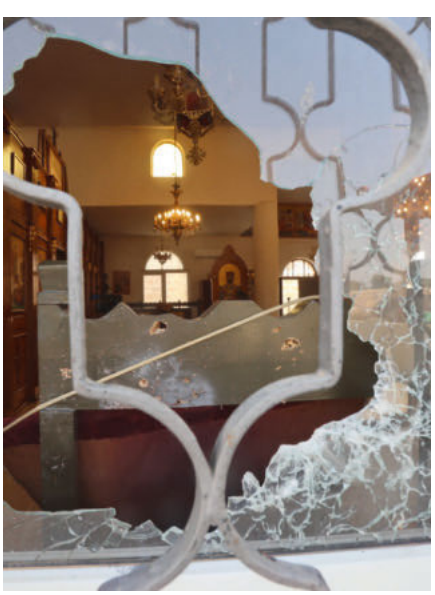
Jordan's peaceful reputation is coming under threat

JORDAN HAS largely escaped the violence that has ravaged the Middle East in recent years. But on October 23rd, that seemed under threat. After Friday prayers three men opened fire on a funeral procession emerging from a church in Hammoud, a village in the southern province of Karak. They pursued mourners inside, smashed windows and sprayed bullets at pews. They killed nine people and wounded dozens. The gunmen then drove home.

King Abdullah donned fatigues, visited the wounded and vowed revenge. His warplanes struck what officials said was an Islamic State hideout in southern Syria, allegedly linked to the gunmen. It was a botched attempt to deflect attention from Jordan's failures, say Western diplomats. Meanwhile at home, Muslims were banned from congregating after prayers.

The attack on the church, coupled with the killing nearly two weeks later of a Muslim policeman guarding the Sri Lankan embassy, has raised fears of a resurgence of violent fundamentalism. Its apparent retreat across much of the region had been a rare encouraging development of late.

Officials and experts are struggling to explain the shift. Its slide into authoritarianism kept Jordan calm for years. The most recent fatal terrorist attack before October was eight years ago. Since then authorities have in effect banned protests, dissolved the largest trade union and outlawed the Muslim Brothers, Islamists who are Jordan's biggest political movement. The once-lively press and cultural scene have withered. This summer the king revived the use of mass executions. Repression is easier than politics.



Peace, they say, when there is no peace

Nobody in Jordan publicly celebrated the attack on the church. Yet the gunmen appear to have counted on local sympathy. They returned to their own village, apparently in search of protection; it took the authorities three days to detain them.

Jihadism and *takfir*, declaring other Muslims apostates, have a local history. Anyone who supports a tyrant is deemed an infidel and thus a valid target, including the policeman at the embassy. In 2016 militants took refuge in a Crusader castle near Karak and battled security forces. At least 18 people were killed. Islamic State flags once flew farther south.

Neighbouring Syria—where a former al-Qaeda commander is president and has been feted by the White House—may provide inspiration for fundamentalism's revival. Despite reforms, eight-year-olds are still taught about martyrdom; 16-year-olds learn about jihad, albeit led by the king. The radio on a bus to the airport was playing a sermon denouncing Jews as apes.

The war with Iran may also be playing a part. Officials emphasise its economic benefits. American military aid has increased. Disruption at ports on the Red Sea and in the Gulf has routed trade Jordan's way. Saudi Arabia and Iraq are now more reliant on Aqaba, the kingdom's only port. Trans-shipment traffic is up by 150% so far this year. The region's other economies are stuttering; Jordan's GDP is growing by nearly 3%. Muhannad Shehadeh, the deputy prime minister for economic affairs, envisages a kingdom criss-crossed by railways, digital hubs and tourism projects, reconnecting a region riven by conflict.

Many Jordanians, however, are angry about the conflict. Fuel prices have risen. Projectiles that officials dismiss as "flying objects" are landing more often. Since a ceasefire in June, Jordan has intercepted scores of Iranian salvoes.

Many Jordanians resent America's military presence and their country's role, as they see it, as the forward defence for Israel. Anger could soar if Iran carries out threats to hit infrastructure as well as military bases. "The war with Iran isn't our war. We shouldn't be part of it," says a veteran of the Muslim Brothers.

Repression can work for a time. But forcing radicalisation underground makes it harder to detect and contain. Being the underdog, says one Islamist, makes his sort more popular. The Brothers once led vast protests against America's regional wars. Without such outlets, argues a lawyer who represents terrorist suspects, expect public anger to take less civic forms. ■

Autocracy in Africa

Welcome to the treason belt

LUSAKA AND NAIROBI

Governments increasingly use the courts to stymie their opponents

FROM THE moment Tundu Lissu was seized, after a public meeting in April 2025, it was clear that his would be no ordinary trial. The Tanzanian opposition leader had been cycling through jail cells with almost farcical regularity since his first arrest, on Christmas Eve in 2002. Between 2016 and 2017 he was arrested eight times and charged on six occasions, as well as shot with 16 bullets in 2017. Even so, this time felt different. Mr Lissu knew Samia Suluhu Hassan, Tanzania's brittle and autocratic president, feared him. In the months following his detention, says a source close to Mr Lissu, police subjected him to psychological tricks meant to force a confession. Cameras tracked his every move, even to the toilet. He was put in a cell with death-row inmates.

So the judges' verdict, announced to a courtroom surrounded by armed police on November 6th, came as little surprise. The chairman of Chadema, Tanzania's biggest opposition party, was found guilty of inciting unrest and sentenced to four years in prison. (He is appealing the verdict.) Since Mr Lissu had been on trial for treason, an offence carrying the death penalty, his family and supporters can breathe a sigh of relief. Still, it is a curious outcome for a case where the only physical evidence of wrongdoing prosecutors could muster was a video deemed inadmissible in court.

If Mr Lissu's case is egregious, it is hardly exceptional in the region. Scores of Chadema members face treason or terrorism charges in Tanzania. Over the border in Uganda, Kizza Besigye is on trial for treason; in Rwanda, Victoire Ingabire is in the dock charged with inciting unrest. Venâncio Mondlane goes on trial in Mozambique on November 17th, accused of instigating terrorism, among other things. Brian Mundubile, in Zambia, has been held on treason charges since an election in August. The clustering of such cases can be read as the stress response of political systems that are beginning to come apart under pressure of public dissatisfaction.

This corner of Africa has evolved its own authoritarian style, distinct from the coups of the Sahel or the wars of the Horn. Most of its countries are, like Tanzania, peaceful. Several have been ruled for decades by the same parties, which see themselves as guarantors of that stability and have become hard to distinguish from the state. Politics borrows a liberal lexicon of rights, elections and constitutionalism. Underneath, it is a dirty game where one player holds almost all the cards.

In several countries this kind of hybrid rule is now being pulled apart from opposite directions. On the one hand, the erosion of democratic norms has reduced the incentive for would-be autocrats to keep up their liberal façades. The latest Mo Ibrahim index, a biennial report on African governance, finds that measures of democracy, including participation in formal politics, have worsened in most of Africa over the past decade. On the other hand, urbanisation and social media are making it harder for ruling parties to engineer consent, as leaders in Kenya, Madagascar, Mozambique and other places that have recently faced Gen-Z protests know well.

Opposition leaders are increasingly disinclined to play along with elections they know they will not be allowed to win. "No reforms, no election" was Mr Lissu's allegedly incendiary slogan, refusing to participate unless the process was made fair. Mr Mundubile and Mr Mondlane went so far as to declare themselves winners of tainted ballots (without giving evidence to support their claims).

Instead they are seeking alternative tactics, particularly street protests. After four presidential campaigns Mr Besigye in Uganda said he would stop fighting elections and instead pursue "Plan B". His allies say he meant a non-violent uprising; the state alleges he was organising armed rebellion. Mr Mondlane brought Mozambique to a standstill by co-ordinating demonstrations from his Facebook page. Prosecutors will try to show that his calls for "Turbo V8" protests incited the ensuing violence, which included attacks on government offices and police stations.

The line between violence and non-violence is blurry. Protests turn riotous in response to, or anticipation of, police aggression (and sometimes egged on by agent provocateurs). Opposition leaders are courageous and often principled, but like those in government, they too know how to fight dirty. Some may have been planning to go beyond civil disobedience.

It is hard to know for certain, because courts are not really trying to uncover the truth. Entrenched regimes remember the Arab spring, and see even the mildest protest as potential insurrection. In Uganda, the army chief (and president's son) has threatened to hang Mr Besigye and had one of his lawyers abducted. Mr Besigye has not been in court to defend himself since collapsing in the dock in July. Prosecutors claim he was caught plotting assassination. But even their main witness, a former soldier in the British Army who was secretly recording his meetings with Mr Besigye for Uganda's government, testified that he thought the guns supposedly found on the defendant were planted there. "We are all in this pretend game, like there's a trial going on, but it's really not," says Olive Kobusingye, Mr Besigye's sister.

Since these trials are political processes more than legal ones, they are often surrounded by talk of negotiations or pardons. In Uganda, the president's brother says he is negotiating for the release of Mr Besigye (whose allies deny talks have be-



Tundu Lissu gets his latest day in court

gun). In Tanzania, the authorities offered Mr Lissu in private to pardon him if he agreed to leave the country. The final verdict is likely to have turned less on the merits of the case than on the internal politics of Tanzania's divided ruling party. Since the bloody crackdown that followed last year's sham election, some within it have urged reconciliation with the opposition. Hardliners around Mrs Samia are said to prefer making a scapegoat of Mr Lissu.

Treason cases in Africa rarely lead to convictions. But since such offences are often non-bailable, they remove pesky politicians from public life for months or even years. "It is a great way of getting rid of opposition leaders," says Nic Cheeseman of the University of Birmingham. Mr Lissu's sentence should keep him out of politics for most of the next election cycle.

Because these methods are useful, governments are likely to keep using them. Though diplomatic pressure may have deterred Mrs Samia's government from forcing the death penalty on Mr Lissu, the world is more tolerant of its repression than it once was. Whether lawfare can save regimes on the ropes is another matter. "They are storing up trouble," says a Western diplomat in Tanzania. Across the region lurks the spectre of unrest, even of coups. Treason trials are the mark of paranoid regimes, increasingly on edge. ■

Green energy in Africa

A sunny outlook

HARARE

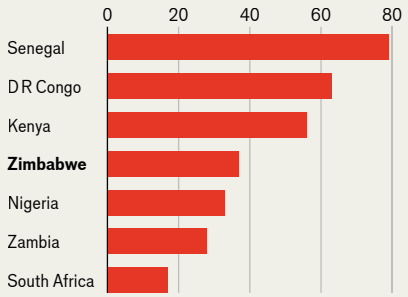
Zimbabwe shows the vast scale of the continent's solar boom

IF AT FIRST you cannot find the new power project in an industrial area of Harare, Zimbabwe's capital, try looking up. The Limpopo Way Power solar farm has no conventional site, just rows of panels across the rooftops of two tobacco warehouses, and an agreement to supply a factory. In Zimbabwe, as in much of Africa and Asia (see China section), the signs of an energy revolution are everywhere.

Assessing its true scale is still tricky, however. Few African governments publish timely data on solar installations. Those that do are probably underestimating their expansion. The best guess comes from two think-tanks, Ember and Africa Tech Futures Lab, using data on exports of Chinese solar panels to the continent. Assuming that three-quarters of those panels have been installed, and including imports from other countries, they reckon that Zimbabwe has added 948MW of solar power since the start of 2023, equivalent to a third of its previous grid capacity.

Panelling up

Solar capacity added between 2023-26, as % of total installed grid capacity in 2023



Source: Ember

Africa will install a record 17GW of solar capacity in 2026, the researchers think, or about 100,000 panels a day (see chart). In 19 countries, installations have more than doubled since last year; in the Democratic Republic of Congo, they have risen sixfold. A megawatt of solar produces less power than a megawatt of hydro or coal (even in sunny countries, it gets dark). Still, the amount of extra electricity generated would roughly match the entire annual growth in demand. Imports of Chinese batteries are growing even faster.

Where do all the panels end up? At Centragrid, a 25MW solar farm outside Harare, an engineer warns visitors not to be alarmed as panels clank backwards to track the sun. Such utility-scale plants are more efficient than a panel on a house, but they account for only a quarter of the capacity that Africa is adding this year. The rest appears to be what is known as distributed solar, panels installed by households or, especially, by businesses exasperated with the rickety grid. In South Africa and Namibia about 80% of such installations are found in firms, not homes.

Zimbabwe is a prime example of this revolution. Mines, farms and tourist lodges are harvesting photons. In villages, sunlight powers water pumps. The UN is backing mini-grids. Most of the country's power still comes from coal, which is also expanding, or from the Kariba dam, which cradles the world's largest artificial lake. But even there, plans are afoot to float 500MW of panels on its waters.

Isaiah Nyakusendwa, who leads an association of renewable-energy firms, talks of a solar "explosion" that nobody planned from above. A decade ago, solar panels cost about a dollar a watt; now, retailers are quoting 20 cents or less. At the lower end of the market firms' business practices are not always as clean as their energy. Some customers have had their fingers burnt as their systems have caught fire.

Finance is still hard to come by. In 2024 the UN and Old Mutual, a financial-services group, set up a renewable-energy fund, which has deployed just over $6m so far. A few retailers offer rent-to-buy schemes. But systems often draw on customers' savings. Salesmen describe a surge in interest at the end of the tobacco harvest or when the diaspora comes home for Christmas, and a drop when school fees are due.

The solar industry has been "built off the back of power cuts", says Joshua Smyth of Solar Energy Projects, which installed the rooftop farm at Limpopo Way. Last year a faulty generator forced the president, Emmerson Mnangagwa, to finish his state of the nation address in the dark. This year the utility has done better at keeping the lights on. But the tariff rises that are paying for a stronger grid give consumers another reason to abandon it.

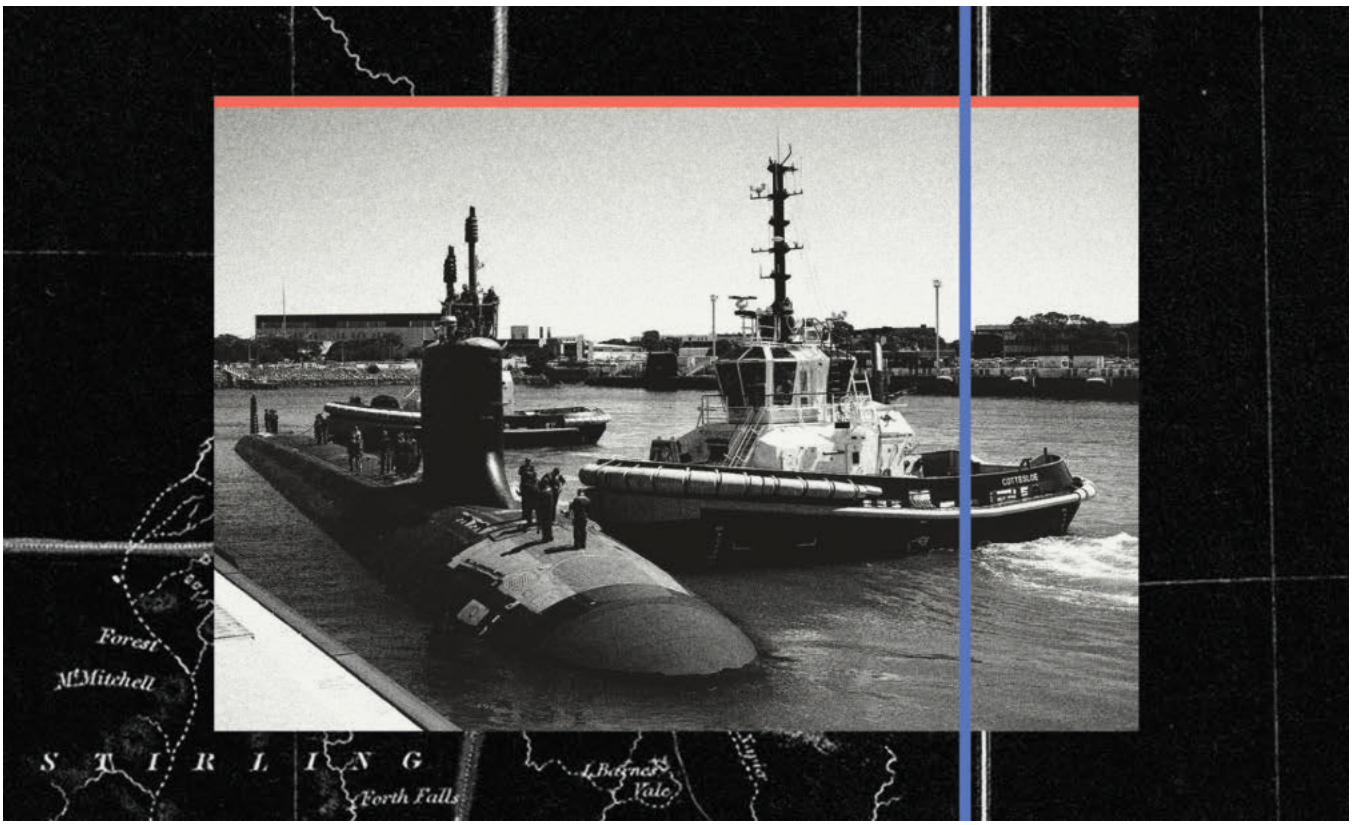
The danger for utilities is that they get sucked into a "death spiral": as big customers opt out of the grid, the costs get passed on to others, who follow them out of the door. In Pakistan, the most dramatic case, grid sales have dropped by 11% in three years. In South Africa, after years of blackouts, the utility is now grappling with a surplus. Zimbabwe's state electricity company is trying to encourage private firms to sell solar power into the grid, and hopes demand will grow fast. Its officials strategise from a brick tower, redolent of a 20th-century citadel; solar shops cluster nearby, like rebels at the gates.

For now, though, Africa's electricity systems are a bricolage, as is evident from a visit to an informal settlement on the outskirts of Harare. One resident, Mavis Masakara, sells meat from a fridge outside her modest bungalow. Three sets of cables snake through her living room, curling round the family portraits: one that connects to a petrol generator, another to the grid, and a third to a panel on the roof. ■



Walking on sunshine

Asia



Australia and its nuclear allies

The silent service

HMAS STIRLING

A visit to America's first new submarine base abroad for 53 years

SEAHORSE HOTELS had to be built first. The bony fish off Western Australia's coasts are bad swimmers, spending most of their lives with their tails hooked around bits of rock, or human artefacts like piers and docks. So when the Royal Australian Navy began to upgrade HMAS Stirling naval base to host nuclear-powered submarines, divers were sent to relocate 263 of the creatures to grids of rebar nearby.

No detail is too small as Australia readies Stirling to host American nuclear-powered attack submarines from next year. That will make it the first American submarine base to be established abroad in half a century, turning it into a port that will project American power deep into Asia. Its site offers a big advantage over America's existing bases: unlike its one at Guam, it is out of range of all but the most advanced conventional land-based Chinese missiles, but closer to Asian waters than other American submarine bases.

It is also the first big milestone for AUKUS, a deal that was announced five years ago by America, Australia and Britain to jointly design and build nuclear-powered submarines. The American presence at Stirling is part of the first phase, enabling Australian sailors to learn how to sail America's Virginia-class attack submarines. They will deploy on the boats and maintain them at Stirling. One, *USS Colorado*, has just arrived at the base for a workover by the Australians, and will return for good at the end of 2027.

In a second phase, Australia is to buy from America and operate its own Virginias in the early 2030s, though there are doubts over whether these will be delivered on time or at all. Finally, Australia and Britain are to jointly design, build and operate a new class of nuclear-powered submarine. The first Australian boat would begin operation in the 2040s. Despite mischief from Chinese spokesmen, no nuclear weapons are involved, only nuclear power. That would let Australian subs range much farther than the country's current diesel-powered boats without surfacing, giving Australia a punchier deterrent.

AUKUS remains controversial. Much of it was negotiated in secret because Australia was under contract at the time to buy French diesel-powered subs. When that contract was cancelled and AUKUS announced in 2021, it set off a big row. Only afterwards did it become clear to the plotters what a huge challenge it would be. Creaky shipyards in America and Britain would need a big jab of cash to meet the production targets. Some is coming from Australia, which has already handed over $2.6bn of a pledged $6.2bn. That, says Jennifer Parker of the Lowy Institute, a think-tank in Sydney, "is a drop in the bucket compared to what is needed". But it is a real sign of Australia's commitment.

This may help explain why a transactional Donald Trump has mostly left the

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deal alone, last year saying it was moving "full speed ahead". But if the cash infusion does not jolt the Anglo-American submarine industrial base out of its torpor, Australia risks ending up with fewer boats than promised. Hence some Australians, particularly those sceptical of the alliance with America, still oppose AUKUS.

But Australia gets quite a bit else out of the deal. In order to share with a new partner the closely held technology used to build and operate nuclear reactors under the oceans, America and Britain have both had to revamp laws and regulations on sharing their most sensitive defence-tech secrets. These have brought Australia into the innermost sanctum of American alliances, in a circle previously occupied only by Britain. It has also unlocked related co-operation between the three on other cutting-edge technologies like AI, quantum computing and hypersonic missiles.

But the biggest development has been the decision to base four American submarines at Stirling, an hour's drive south of Perth. That was not in the original AUKUS plan, and is a major change in plans for American forces in case of a conflict with China. The base will stay under Australian control; officially the foreign submarines will merely "rotate" through it. But that is a sleight of hand; each American sub will operate from Stirling for one to two years at a time. (A British sub may come to visit now and then, too.)

The American presence will be known as Submarine Rotational Force-West (SRF-W):"Surf West". Already $1.5bn has been spent on readying the base for American subs, with another $4.1bn planned. At one pier, crews are driving concrete piles into the seabed (displacing those seahorses) to let it withstand pressure from the 7,000-tonne nuclear-powered sub in bad weather. Engineers are installing five different types of back-up power. Even a vessel with its own nuclear reactor needs auxiliary power, to prevent a meltdown while the reactor is undergoing maintenance.

An American commodore will command the American navy's newly set-up Submarine Squadron 3 from Stirling. Secure communication equipment has been installed to let him talk to the Pentagon over classified channels. Nearby, housing is going up for some of the 1,200 American sailors under his command, along with a tax-free grocery shop stocking American snacks, open only to American sailors and their families. The island's cricket oval has been taken over by building crews; a basketball court has taken its place nearby.

Enormous questions persist over AUKUS. The three countries' plans foresee three to five Australian-flagged Virginias joining the American ones at Stirling in the early 2030s. But to meet the needs of both Australia and America, shipbuilders in



Connecticut, Rhode Island and Virginia will have to raise their output from 1.2 boats a year to 2.3 by 2031. If they cannot, a future American president might not release any to Australia.

Even bigger questions loom about the capacity of Britain's shipyards and nuclear industry, tasked with building 12 of the new AUKUS-class boats due to enter service in the late 2030s, instead of the seven that Britain first planned. If America and Britain cannot invigorate their shipyards, they could leave Australia with a nuclear-submarine base but no nuclear-powered submarines of its own. ■

Indonesia

Over and out

SINGAPORE

The vice-president resigns, escalating a destabilising feud

On paper, the resignation of Indonesia's vice-president on November 11th was a simple question of eligibility. Indonesia's electoral law requires that the vice-president possess a secondary-school diploma or its equivalent. Gibran Rakabuming Raka, who was elected in 2024, can do one better: he has a university degree. But on October 30th Indonesia's Supreme Court ruled that he had got into university without completing high school. In the days that followed, over 120 members of parliament called for his impeachment. Mr Gibran leapt before he was pushed.

In practice, however, there is little that is black and white about the latest trouble in a tumultuous year for Indonesian politics. The vice-president's resignation comes amid the collapse of a political partnership between President Prabowo Subianto and Mr Gibran's father, the former president Joko Widodo. The break between the two looks set to plunge Indonesian politics into further uncertainty.

Jokowi, as the former president is known, defeated Mr Prabowo in bitter presidential elections in 2014 and 2019, going on to lead the country for ten years. The two later reconciled, and a term-limited Jokowi offered up his son to serve as Mr Prabowo's running-mate in the 2024 election. The unity ticket coasted to victory, cheered on by Indonesians happy at last to be offered political stability.

Little of that stability has been on display in recent months, however. As markets and voters turned against Mr Prabowo's populist economic policies, the condominium between the president and his predecessor has come under strain. A break came on November 3rd, when police arrested Police General Listyo Sigit Prabowo (no relation to the president). Mr Listyo had just stepped down as the country's top cop. Authorities now allege he had used the force's wiretapping powers to snoop on Mr Prabowo's communications.

That might seem a straightforward allegation of abuse of power, but for Mr Listyo's long and close association with Jokowi. Mr Listyo owed his job to Jokowi. More than that, he was part of a close circle of officials with whom Jokowi worked before he became president, when Jokowi was mayor of the small city of Solo in Central Java and Mr Listyo was his police chief. After Jokowi was elected president, Mr Listyo rose rapidly. Authorities have not said that Mr Listyo bugged Mr Prabowo at Jokowi's behest. But the links between the two men have raised suspicions among those close to the president. Under Mr Listyo, the police discouraged opposition to Jokowi's administration, filing frivolous charges against critics and breaking up peaceful protests.

Jokowi leaned on the police in part because soldiers have long been more sympathetic to Mr Prabowo, a former army special-forces commander. The two forces have had a sometimes bloody rivalry ever since the police were carved out of the army in 1999. One risk, then, is that as relations between the two presidents fracture, each will use units loyal to them to seek advantage against the other. This could amp up tensions between two large groups of men with guns. Already there are signs of this. On the evening of Mr Listyo's arrest, Mr Prabowo ordered 21,000 troops to urgently deploy to Jakarta, the capital.

That sets the stage for a tense environment as parliament prepares to fill the three years remaining in Mr Gibran's term as vice-president. In the coming days the president will nominate two candidates, and the parliament will elect one of them as vice-president. Mr Prabowo enjoys a docile chamber, and will certainly get his pick of deputy. Undoubtedly a high-school diploma will be required this time. Unquestioning loyalty will be essential, too. ■

Japan

Meet the hachikin

SUSAKI

"Eight-testicle women" outdo men

SUSAKI, A FISHING town on Japan's Shikoku island, boasts plenty of charms, including fresh seafood, *nabeyaki* ramen (served piping hot in a clay pot), and Shinjo-kun, an otter mascot wearing said noodles on its head. Locals also take pride in *hachikin*—spirited, outspoken, hard-working women with a reputation for outdoing men. The term, which comes from the local Tosa dialect, is used throughout Kochi prefecture. Its origins are murky, but according to a popular theory it combines *hachi* (eight) and *kintama* (testicles). A *hachikin*, in other words, has the cojones of four men.

Not everyone welcomes the label because of its vulgar origins, but plenty embrace it. Takenaka Kanako, a Susaki local who runs a soy-sauce factory, says being called a *hachikin* is a compliment; she greets your correspondent wearing a T-shirt emblazoned with the English words "Eight Balls". Asked what makes Kochi's women so formidable, Kusunose Kosaku, Susaki's mayor, points to their ability to hold their drink. At local festivals, he recalls, some women knock back prodigious amounts of sake in one go.

Yet there is more to *hachikin* than drinking prowess. Kochi ranks first among Japan's 47 prefectures for economic gender parity. Women have relatively high employment rates, and the gap in earnings between men and women is comparatively narrow. Miura Mari of Sophia University points to men's earnings as a key factor. In wealthier, industrial areas, the male-breadwinner model remains strong. But in poorer places such as Kochi, men's low wages make women's labour indispensable to household finances and to the local community.

That does not make Kochi a feminist utopia. Women are severely underrepresented in politics, including on local councils. And the term *hachikin* can mask uncomfortable truths. Idolising women's resilience can gloss over the burdens they bear, from earning a living while continuing to shoulder much of the housework and child care. "Men hardly pull their weight, and women end up doing all the work. It makes me furious," says Ms Takenaka.

China and Japan

Getting out of the deep freeze

TOKYO

The two countries need a go-between. Donald Trump is not an ideal option

WHEN FUKUDA YASUO, a 90-year-old former prime minister of Japan, died last month, China's supreme leader, Xi Jinping, sent condolences. Mr Fukuda had devoted much of his career to stabilising Sino-Japanese ties. He worked behind the scenes to calm Chinese anger in the early 2000s over the then prime minister's visits to Yasukuni, the shrine in Tokyo that honours Japan's war dead, including 14 class-A war criminals. In 2014, when relations had frozen again over the disputed Senkaku Islands, he convinced Mr Xi to meet then-prime minister Abe Shinzo at the Asia-Pacific (APEC) summit in Beijing that year.

Another APEC summit, this one in the southern Chinese city of Shenzhen next week, could be the setting for a similar ice-breaking meeting between Mr Xi and Takaichi Sanae, Japan's current leader. Relations have been dire since Ms Takaichi suggested a year ago that Japan might respond with force to a Chinese attack on Taiwan. Chinese officials demanded that she should retract; she has not. Since then China has discouraged tourism, banned seafood imports, imposed tougher export controls on dual-use items, crucially including rare earths, and cut off most high-level government communication. Last December a Chinese jet is said to have locked its fire-control radar onto Japanese fighters; when Japan called its defence hotline with China, no one answered.



Lots to talk about

China's animosity has become personal. Its state-controlled media slams Ms Takaichi as a "neo-militarist" because she is leading a big Japanese defence build-up in co-ordination with America (though it is in response to China's many-times-greater expansion). Ms Takaichi has also long been outspoken about her belief that Japan is too apologetic about its past colonialism and wartime actions. She has not visited Yasukuni since becoming prime minister. But she still prayed to the shrine from a nearby car park in August, and sparked more Chinese rage when she sent a ritual offering in October.

Mr Fukuda was a "responsible statesman" with a "correct view of history," Mr Xi said, adding that Japan's leaders should "cherish the older generation's hard work" and adhere to the four political documents signed between the two countries. That was a pointed admonition for Ms Takaichi, since these documents formally state that Japan "fully understands and respects" China's position on Taiwan.

Ms Takaichi has insisted that her statements are consistent with Japan's past policy on Taiwan. She has close ties to Taiwan's ruling Democratic Progressive Party, which advocates Taiwanese self-determination, and flaunts it on social media: she posted 37 photos on Instagram of her visit to Taiwan in April 2025, months before she became prime minister. She also posted a photo of herself with Taiwan's representative to APEC on X last year.

China has shown no signs of openness to a meeting at this year's summit, though it has accepted several non-government Japanese delegations in recent months. The most notable was a group led by a former foreign minister, Iwaya Takeshi, who met China's foreign minister and one of its vice-premiers in Beijing in September. But officials in Tokyo see the trip more as a Chinese attempt to exploit divisions within Japan than an invitation to reconcile, given that Mr Iwaya is part of an opposing faction to Ms Takaichi's within the ruling party. "She hates him," says one official.

Some Japanese officials bridle at the question of how to fix the Sino-Japanese relationship. Japan, they note, has not retaliated against any of China's actions and remains open to dialogue. China's message, complains one Japanese official, is: "Bend the knee". There is no point in begging a bully to speak with you, he adds.

China has inflicted only limited damage over the past year. The number of Chinese tourists visiting Japan dropped by 56% year-on-year from January to September. But overall spending has been increasing, with the largest share coming from Taiwanese visitors. The seafood industry was cushioned by having just emerged from another Chinese ban in 2023 that pushed it to find different customers. And

Ms Takaichi's refusal to retract her remarks has been popular domestically; more than 40% of Japanese favour her tough stance.

The part of China's campaign that may start to hurt soon is the restriction on exporting rare earths. Japan is said to be only months away from running out of some of these, including yttrium oxide, used in making jet engines and semiconductors. Exports of yttrium oxide to Japan have fallen by 98% in the first nine months of this year compared with last year. China's temporary truce with America over rare-earth controls has pointedly excluded Japan.

Japanese officials hope that America will raise the problem with China when Mr Trump meets Mr Xi at APEC, as he did in September, in part because Japan is part of America's defence and semiconductor supply chain. But China is unlikely to soften its industrial punishment. It wants to make an example of Japan and "warn everyone against repeating Takaichi's mistake" on Taiwan, says Ren Xiao of Fudan University in Shanghai.

If only Japan had a go-between like Mr Fukuda. Alas, they must make do with Mr Trump, who is unlikely to have Japan's interests at the top of his mind at the APEC summit when he meets Mr Xi. Russia has also been raising pressure on Japan, perhaps in support of China's campaign, by detaining a Japanese journalist and seizing Japanese tobacco businesses in recent weeks. Japan, it seems, may have to brace for a deeper freeze. ■

ASHOKA
Not good enough

Tukaram Mundhe wants Indians to have higher standards

HOW MANY cockroaches is an acceptable number of cockroaches in a commercial kitchen? Readers of this column, by definition a discerning lot, would no doubt set the limit at zero. The Bombay High Court, however, took the view that the "solitary finding" of two bugs was insufficient reason for the food-safety regulator to shut down a kitchen. "We are in India, we have to take a realistic stand," the court's acting chief justice cautioned officials in July.

Tukaram Mundhe disagrees. "These laws are Indian, not foreign," says the man who, six months ago, was put in charge of enforcing them. The laws are meant for Indian conditions, he adds. They are drafted by Indian experts. And it is Indian people who implement them. The problem is "we have a very low estimate about ourselves," he says. "Our thought process is '*chalta hai*'," a Hindi phrase that means "it'll do" or "good enough" and that is seen by many, including Narendra Modi, as an attitude that holds India back. That is what Mr Mundhe wants to change.

Until a few months ago not many people in Maharashtra, a prosperous western state with Mumbai as its capital, had heard of its Food and Drug Administration (FDA). That changed with the appointment of Mr Mundhe in May. Suddenly the FDA's people were everywhere. They turned up stomach-churning violations ranging from vermin infestations and fungal growth on walls to expired food and poor handling in the kitchens of some of Mumbai's best-known eateries and poshest private clubs. Even two canteens at the Bombay High Court were shut down for lacking licences. Tall, strapping and suitably mustachioed, Mr Mundhe quickly became a folk hero.

This is a familiar story. Every now and then a competent civil servant surfaces in a position that directly affects the public and actually does his job. The media duly elevate the official to something between a saint and an action hero. For a while citizens look on in stupefied wonder as they are reminded that the Indian state can work for their benefit. Then that official moves on to another posting and everything goes back to normal.

Mr Mundhe, whose incorruptibility ensures he does not keep any posting for long, hopes his impact will last longer. He has proposed an ambitious restructuring of the FDA to the state government. He wants to add hundreds of food-safety officers as well as many more laboratories and technicians to bolster the state's ability to test food, drugs and cosmetics. He also wants to automate some of the FDA's surveillance. One example is to use data streams the government already receives from several sources to track milk supplies from cow to glass. The goal is to create a robust institution rather than one that relies on an energetic individual.

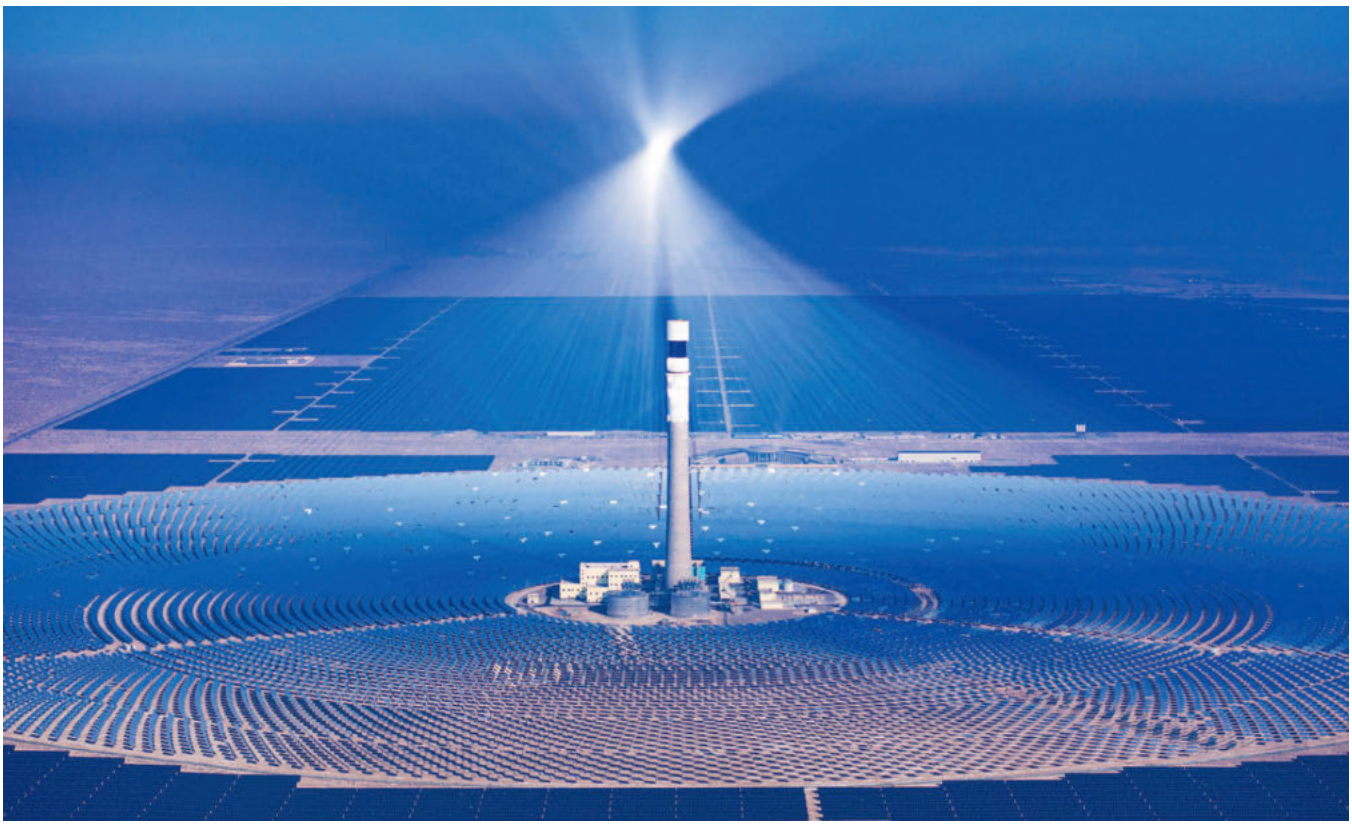


Such ideas are not uncommon among India's better bureaucrats, many of whom strive for excellence. Some even make progress at the margins. But they are the exceptions in a culture of *chalta hai*. As Niti Aayog, the government's think-tank, put it in a report last year about the poor quality of official data, once a *chalta hai* mindset takes root it "shapes everything: how platforms are designed, how staff are trained, and how performance is judged. Slowly, quietly, quality becomes optional." The Indian state has many weaknesses, but perfectionism is not among them.

Mr Mundhe's answer is to involve the public. Among the first things he did upon taking over at the FDA was to build a modern website for citizens to lodge complaints. It is surprisingly slick, especially relative to most other official websites, which seem designed to induce seizures. The backend is more impressive still: an AI co-pilot helps his officers see which specific rules apply to which violations, points them to possible next steps and even drafts any notices that are to be served. It also automatically escalates complaints if junior officers ignore them. The FDA says it has been receiving more than six times as many complaints as it did last year.

"It doesn't matter which government or party [is in power]. We, the people, have to take ownership," says Mr Mundhe. The complaint portal, the high-profile inspections and the interviews are all aimed at reminding citizens that the state is not irredeemable. Indians, he says, should stop tolerating bad institutions. They should demand more. Most important, they should have higher standards. "When the public itself says *chalta hai,* of course the system will work as *chalta hai*."

China



Carbon emissions

COphew

BEIJING

The world's largest polluter has begun to pump out less carbon dioxide

IN THE EFFORT to slow the rise in global temperatures, no country matters more than China. It has been the biggest annual emitter of carbon dioxide for the past 20 years; its multitudes of factories, steel mills, cars and power plants released over 12bn tonnes of the gas last year, or nearly one-third of the world's total. Still, that was a sliver less than the year before. In recent months, that fall has begun to speed up.

Data released last week by the Centre for Research on Energy and Clean Air (CREA), a think-tank in Finland, show that China's carbon-dioxide emissions dropped by 3.1% year-on-year in the third quarter of this year. The last time they fell so quickly was in 2022. That was during the covid-19 pandemic: lockdowns had stalled China's economy. This time economic growth has picked up a little.

So Chinese officials have some cheering news to offer COP31, the annual UN climate summit which began in Turkey on November 9th and will end on the 20th. They might also boast that China's exports of clean technologies are helping others to decarbonise (see next story and Middle East & Africa section). To be sure, the decline in emissions is still small. Yet China emits so much carbon that even little changes can alter the global trend (3.1% of China's emissions equals 100% of Britain's).

Some factors that have helped reduce emissions will not last for ever. A campaign to enforce safety standards in coal mines—after an accident in May that killed dozens of workers—pushed up prices of coal, so less of it was burned. The Iran war raised oil prices, to similar effect. Unusually mild weather reduced demand for power.

But a big reason for the fall is that China's economy needs less fossil-fuel. A property bust has slashed demand for steel and cement, which are produced by burning coal. In the first half of this year the proportion of power supplied by coal plants dropped below 50% for the first time on record. That was enabled by breakneck investment in cleaner sources of energy. As well as plenty of hydro- and nuclear-power plants, China has installed 1,000 gigawatts (GW) of solar capacity since 2022—more than the rest of the world put together—along with over 300GW of wind (twice the total wind capacity in America).

China's transport is electrifying fast. In September EVs and plug-in hybrids made up two-thirds of passenger car sales, up from a tiny fraction a few years ago. This has helped reduce demand for oil. Sinopec, a state-owned oil giant, expects the country's oil consumption to fall in 2026 for a third consecutive year, by nearly 4%.

Electrification is tougher for lorries: China has the world's largest fleet. They have to drive longer distances with heavier loads, so require more-powerful batteries. But Chinese-made lorry batteries have improved enough to meet this need. Half of the heavy-duty lorries sold domestically in

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September were electric. CATL, a Chinese firm that is the world's biggest battery maker, has set up hundreds of stations where lorries can swap their batteries for new ones in a few minutes, avoiding delays caused by a lengthy charge mid-journey.

Can China continue to push emissions down? It has promised to become carbon neutral by 2060. That will require the latest quarterly drop not only to be sustained but to accelerate. One cause for concern is that its blistering roll-out of clean technologies has started to taper. Though EVs comprise an ever higher share of new cars, the number sold has been declining for ten months. Subsidies to buyers and EV firms have largely been withdrawn. Officials believe the industry is mature enough to withstand market forces and want uncompetitive firms to fold in order to reduce overcapacity. Cautious consumers are also buying less of everything as the economy continues to falter. All this will slow the rate at which petrol cars are taken off the roads.

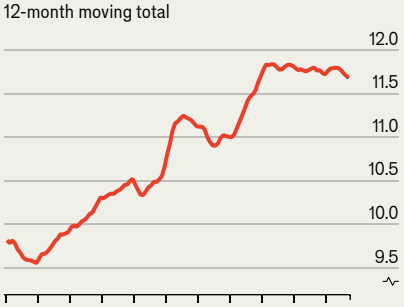
During the first nine months of this year China installed less than half the solar power-capacity than it did in the same period of last year. Power firms are becoming more hesitant because they worry they will not make much money, says David Fishman of The Lantau Group, a consultancy based in Singapore. China used to guarantee generous prices for electricity from new solar farms. But since June last year they have had to sell power at market rates. Much of China's electricity is traded via long-term legacy contracts which tended to favour coal. The grid also wastes much of the clean energy that is plugged into it because it cannot store or move enough of the excess power that is sometimes generated, such as on very sunny days.

China is trying to solve these problems. It is installing solar "power-towers" that can generate around the clock (a recently opened one in the western region of Xinjiang is pictured, previous page). It is building long-distance power lines and introducing electricity pricing that responds to fluctuations in the output of renewable energy. And it is imposing quotas on energy-intensive industries to make them use more green electricity. China's rapidly proliferating data centres will guzzle an ever bigger share of power output, but the government is trying to steer them towards wind- and solar-rich areas in the west. All this should eventually revive the installation of clean tech. But officials are wary. Power cuts in 2022, blamed on overzealous environmental policies, still haunt many local governments. Even as coal-consumption declines, many of them are building more coal-fired power plants, just in case.

Although many analysts believe that China's emissions have already peaked, the central government's deadline for achieving this is not until 2030. There is little chance that it will revise the target: China prefers to underpromise and overdeliver on its climate commitments. The worst outcome would be if local officials and state-owned firms see the next few years as a chance to implement dirty projects while they still can, notes Lauri Myllyvirta of CREA. That would turn a climactic moment in China's green transition into a last hurrah for dirty energy. ■

Carbon crest

China, CO_2 emissions*, gigatonnes
12-month moving total



Source: Carbon Brief *From fossil fuels and cement

Clean-tech exports

Green pivot

China's sales of clean tech to South-East Asia are soaring

In recent years, China's green-tech manufacturers have salivated over the market for their stuff in Europe. Demand there has surged as countries and consumers try to reduce their reliance on fossil fuels. European governments are becoming fretful about the impact on their industries and are trying to curb the influx, such as by imposing quotas on electric vehicles. But Chinese firms have options closer to home. Their exports to South-East Asia are soaring. Few in the region whinge.

The Iran war has supercharged South-East Asian demand. Many countries there depend on supplies of oil and gas from the Gulf. Fighting over the Strait of Hormuz has choked the flow, pushing up electricity prices and prompting a scramble for cheaper sources of power. In May the Philippines became the world's second-biggest buyer of Chinese solar panels, overtaking Pakistan, according to Ember, a think-tank in London.

In recent months shops in the Philippines have barely coped with demand, says Ping Mendoza of the Philippine Solar and Storage Energy Alliance, a trade group. Waiting times for installing panels are now two or three months, instead of just a week. Unlike Pakistan's relations with China, which are friendly, ties between the Philippines and China are bedevilled by territorial disputes in the South China Sea. But few in Manila worry about the tide of Chinese green tech. The Philippines does not have much industry that feels threatened. Westerners wonder whether some Chinese kit might pose security risks. There is little such angst in the Philippines.

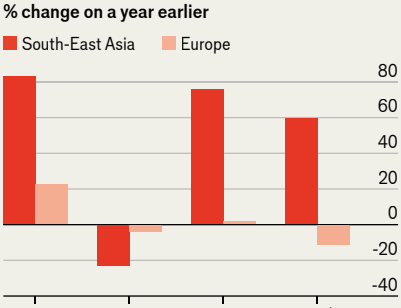
Much of South-East Asia's demand for clean gear from China does not relate to home markets. Countries in the region have been repackaging it for sale in the West, helping China evade American and European tariffs on Chinese goods. But the region is also rapidly emerging as an important end-market. In the first nine months of this year China's exports of solar technology to South-East Asia leapt almost 60% by output capacity. To Europe, they fell by 11% (see chart).

Most governments in South-East Asia, eager for energy security, are pleased. In June Laos suspended the import of fossil-fuelled vehicles until the end of 2026. Malaysia is boosting tax incentives for firms to buy and use clean energy. Indonesia still subsidises coal, but its president, Prabowo Subianto, has vowed to increase the country's solar-energy capacity from about 1.5 gigawatts (GW) to 100GW by 2029.

The prevailing desire in the Philippines is to "get as much [renewable capacity] built as possible", says Colin Steley, an Australian who sells clean-energy kit there. Chinese firms are happy to help. ■

Greener pastures

China, solar exports* by destination, % change on a year earlier



Source: Ember *Including panels, cells and wafers †To Sep



China hand

He who stayed

Ted Plafker, a stalwart of our China coverage, has died, aged 62

CHINA DOES not make reporting easy for foreign correspondents from the West. They are often harassed by local authorities when doing their jobs. They are routinely warned against reporting that offends the Communist Party. Resident visas can be hard to obtain. It is a difficult country for any Western journalist truly to call home.

Yet Ted Plafker, a native of New Jersey, did so. He arrived in China in 1989 after a bike trip through Europe and Asia. He planned to stay a few weeks and return to America to find work as a journalist. He ended up staying, witnessing that year's upheaval in Tiananmen Square and meeting Roberta, who was to become his wife and mother to their three children. He wrote for several publications, including, from 1994, *The Economist*. He joined the newspaper's bureau in Beijing shortly after it opened in 1997 and was its longest-serving member.

Ted became fluent in Mandarin (on top of Russian, which he had mastered already as a student at Wesleyan University in Connecticut) and a giant among Beijing-based journalists—for three years he headed the Foreign Correspondents' Club of China (the government shuns it). He will be missed for his great wisdom on the country, as well as his unfailing kindness, helpfulness and good humour.

Politics

National insecurity

Wang Huning describes threats to the Communist Party and country

CHINA'S RULER, Xi Jinping, is a student of history. Not history as one damn thing after another, but capital-H History: the grandiose kind that is picked over by philosophers and stoned undergraduates. Mr Xi has said that history progresses according to certain Marxist "laws", advancing in "stages" on the road to communism. He often refers to "great changes unseen in a century", suggesting that mankind has reached a new historical watershed.

The great-changes idea is probably not Mr Xi's. The far more likely inventor is Wang Huning (pictured below), who is the Communist Party's fourth-ranked leader and unofficially its chief ideologue (he is probably the author of "Xi Jinping Thought", which all cadres must study). Once a professor of political science, Mr Wang stands out among the grey men atop the party. He is the only one who has been a senior adviser to three leaders. Although his public-facing role is merely as head of a toothless advisory body, he is omnipresent on committees that draft big decisions.

So officials would have taken note on November 3rd when *People's Daily,* a party mouthpiece, published a bracing warning by Mr Wang: rather than steering history, the party risks becoming its victim. Mr Wang elaborated on a new phrase that was launched by Mr Xi at a meeting of the party's Central Committee in late October. It is the "three even more formidables" (no doubt Mr Wang's invention, too). It refers to growing challenges that the party leadership thinks it faces in safeguarding national security, sustaining reform and stability, and maintaining ideological purity.

Mr Wang worries that a changing world may catch China off balance: he cites "all kinds of storms" and "challenges coming one after another", from the artificial-intelligence revolution and protectionism to the erratic behaviour of certain countries (meaning, obviously, America).

Changes in China are a growing threat, too. Mr Wang describes a country racked by inequality between people, regions and industries. He points to demographic headwinds as China ages and its population shrinks. "Intelligentisation" (presumably meaning AI) could cause social disruption, he writes. New ways of working, meaning the gig economy that employs 320m people, have eroded the party's control over labour. These days in China "all kinds of ideas and values intertwine and clash", frets Mr Wang. He calls "contradictions" in society "unprecedented".

Many of these concerns have been aired before, including by Mr Xi (a book of worry-related extracts from his speeches was published in 2020). But Mr Wang's attempt to summarise the party's problems in one essay is unusually blunt. It relates how money-making opportunities and foreign ideas have corrupted some officials and caused others to lose faith in Mr Xi. The job of disciplining them, Mr Wang notes, is becoming harder as the party expands (it now has 100m members). At the Central Committee meeting, a resolution expressed concern about leaders born in the liberalising post-Mao years. They place "new demands on education", it said.

Creating a numbered term to sum up these concerns gives them new political weight. The aim, clearly, is to ensure that they are studied assiduously at every level of the party. Lest anyone dare to think that economic or political reform might solve some of these problems, Mr Wang argues for more control. That echoes the views of the Central Committee, which called for further concentration of decision-making power in the hands of senior leaders. It said technology firms should be overseen by higher-ranking officials, and listen more to their party cells. It also urged officials to use the internet to unite "the masses" and said they should guide gig workers to "listen to and follow" the party.

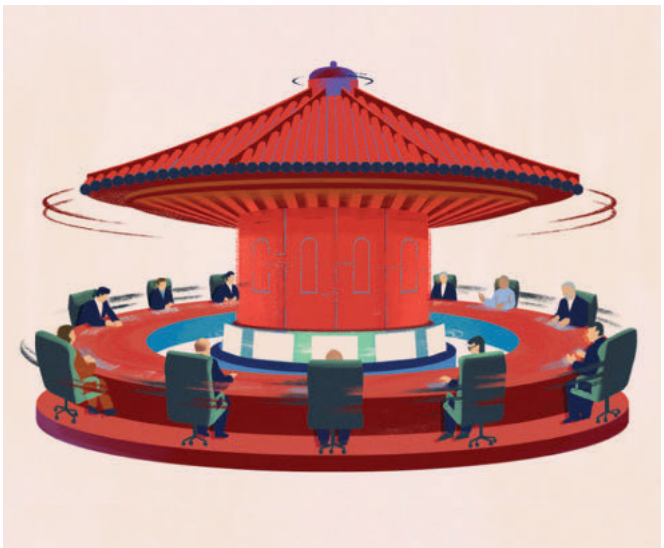
But will this work? Karl Marx, who also liked to muse on history, wrote that "changes in the economic foundation lead sooner or later to the transformation of the whole immense superstructure." Mr Wang appears not to believe that anything so dramatic is inevitable in China. He urged his comrades to "keep our resolve and press ahead bravely". That should do it. ■



Seeing triple

CHAGUAN
Back to the shared future

Strip away the jargon from Xi Jinping's grand slogan and an old doctrine emerges



WHEN DONALD TRUMP, Vladimir Putin and nearly 20 other national leaders gather in Shenzhen next week, they will be treated by Xi Jinping to displays of China's marvels. Drones will swarm and sparkle overhead, fleets of humanoids will usher delegates through conference halls and ultrafast-charging electric vehicles will shuttle them between venues. The message to the annual summit of the Asia-Pacific Economic Co-operation forum—that China's technology is cutting-edge—will be clear to all.

But there will also be a subtler message, signalling Mr Xi's idea of how the world should look. The summit's theme, "building an Asia-Pacific community to prosper together", is a deliberate echo of his main foreign-policy doctrine: "building a community with a shared future for mankind". Ma Zhaoxu, a vice-foreign minister, has made the link explicit, tracing the theme back to Mr Xi's calls since 2013 for an "Asia-Pacific community with a shared future".

To many observers, this language may seem obscure. It is certainly a mouthful. Even China hawks face a challenge in explaining to the public why a "shared future" is threatening (the literal translation, "common destiny", has a more chilling, deterministic edge, which is presumably why a switch was made to softer wording in English). Yet this is not just a casual slogan. It has been written into China's constitution and tied to every big diplomatic initiative that Mr Xi has launched for more than a decade. So it is worth asking what, exactly, he means by it.

A natural place to start is the Chinese government's white paper, published in 2023, that tried to explain Mr Xi's doctrine. Running to nearly 13,000 words, it might seem to cover a lot of ground. Alas, the content is overwhelmingly vague. Among its exhortations: countries ought to "work together in harmony and unity" and should "strengthen dialogue" while promoting "peace and development". Hard as it is to disagree, it comes across more like a general wish list than a specific, operable plan. Chaguan found only four forward-looking commitments. China will not seek hegemony, China will cut carbon emissions, China will modernise its economy, China will work with other countries. All are restatements of existing policy and, again, not much to go on.

Chinese scholars have tried to put meat on the bones. Yang Jiemian of the Shanghai Institute for International Studies made a notable attempt this year when he declared that the doctrine deserves to be seen as a full scientific system. It offers specific goals (eg, lasting peace), has a road map defined by Mr Xi's four global initiatives (on development, security, civilisation and governance), and is delivered concretely via Mr Xi's Belt and Road Initiative for global infrastructure-building.

The trouble with such elaborations is that they peel back abstraction to reveal yet more abstraction. In the parlance of our times, it is turtles all the way down. What is Mr Xi's "shared future"? Why, it is the embodiment of his global initiatives. And what are those? They are vehicles for principles like sovereignty, multilateralism and dialogue—which, in turn, bring us back to the definition of "shared future". At least belt-and-road projects are tangible, such as railways in South-East Asia and roads in Africa. But they do not amount to grand strategy; they are overseas investments, some productive, some not. You must feel a twinge of sympathy for diplomats in Beijing when they are asked by their home governments for concise notes on Mr Xi's "shared future".

A recent book by Steve Tsang and Olivia Cheung of, respectively, the School of Oriental and African Studies and King's College London, cuts through the ambiguity. They argue that the shared-future talk is a formal expression of Mr Xi's true aspiration: the creation of a Sino-centric world order. But they also see an essential truth in Mr Xi's repeated assertions that China is not seeking hegemony: he does not want to be burdened by global policing. He just wants recognition of China's pre-eminence and other countries to defer to it, even when China's behaviour impinges on their interests. His ideal world is one where sovereign leaders can do as they please within their borders—a world safe for autocrats and free of high-minded Western pontificators about rights and wrongs in other lands.

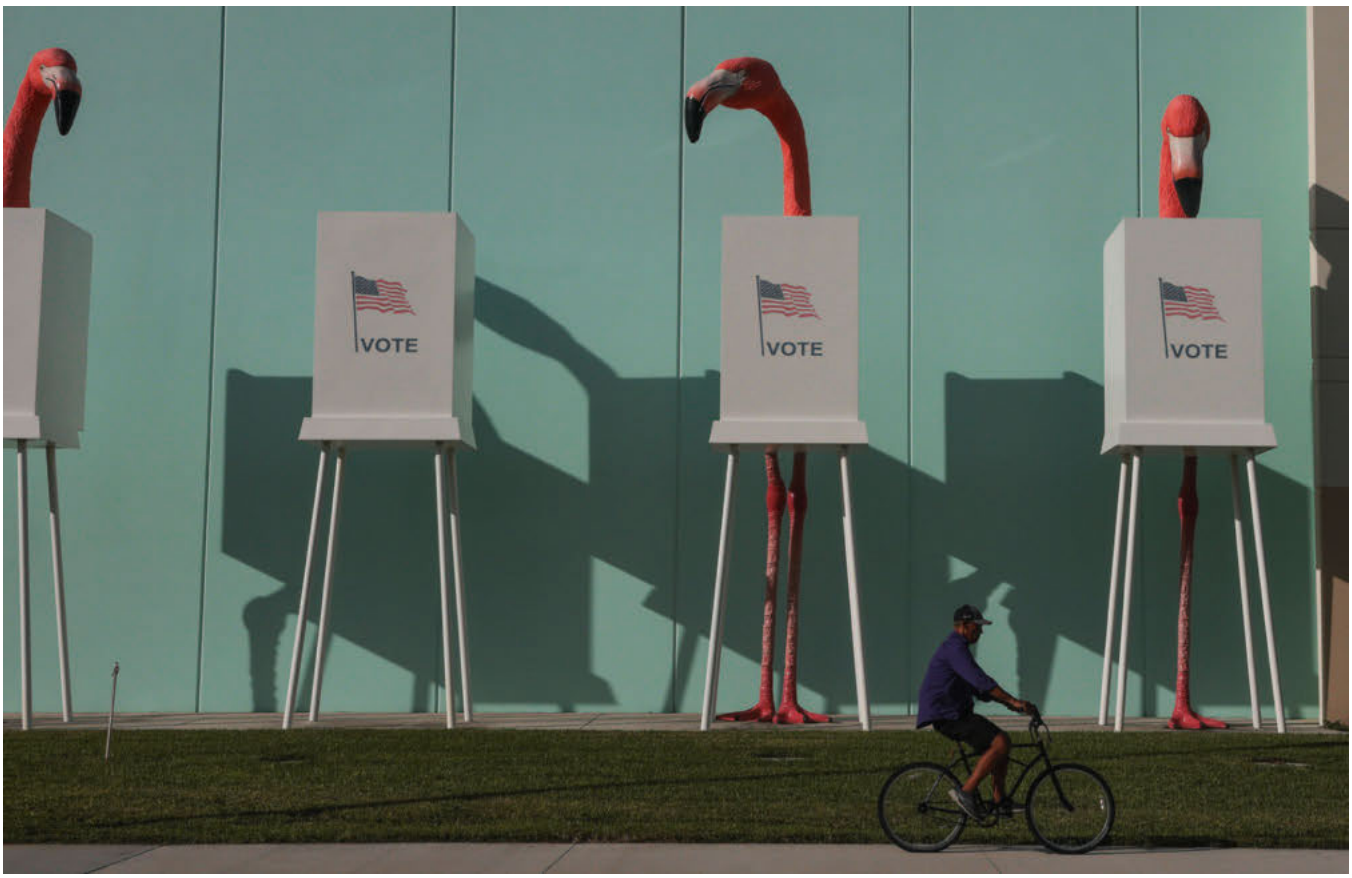
Common destiny's children

Students of Chinese history may feel they have seen this "shared future" before. It sounds a lot like the professed principle of mutual non-intervention that has been the much-touted lodestar of China's foreign policy since the 1950s. The usual criticisms apply to both concepts. China has a history of meddling, such as backing African rebel movements in the Mao era or grabbing disputed territory—look at recent encroachments on waters close to the Philippines and across the unsettled border with India. Chinese officials do little when their closest partners mess with others. They have, in effect, enabled Russia's invasion of Ukraine.

What has changed since the 1950s is the context. China's economic and military power is orders of magnitude greater. It can put real muscle behind its demand for non-interference in its own politics. That is worrying—especially if it ultimately gives China cover to do whatever it wants with Taiwan. But for now, governments and businesses around the world are more consumed by fallout from America's war against Iran and from Mr Trump's tariffs. The immediate uncertainty is not what Mr Xi might say in Shenzhen but how Mr Trump will behave as a gravely wounded president after the Democrats' triumph in the midterms.

Set against that, talk of a shared future is less threatening precisely because it is not a bold new vision for the world. Rather, it is a rebranding of a long-standing strategy: deeply conservative, occasionally hypocritical and focused on China's own betterment. Other countries may not love it. But they know it. ■

International



Election polls

Surveying the surveys

Despite misses in America and Brazil, political polling is more accurate than ever

"WE SHOULD ALWAYS be afraid of many things," muses Andrei Roman. "There's not much we can do about them, though." His gloom is not for humanity in general, but for one of its less celebrated endeavours: election polling.

Mr Roman's polling firm, AtlasIntel, was spot on in its soundings of American voters before the recent midterm elections. But most pollsters underestimated the Democrats' support. And AtlasIntel did get it wrong twice in Brazil's recent presidential election, first suggesting that Luiz Inácio Lula da Silva, the left-wing incumbent, would win the first round of voting and then that Flávio Bolsonaro, his opponent, was ahead in the run-off. Many other pollsters made the same mistake.

Are polls getting worse? Our analysis suggests not. Building on a dataset created by Will Jennings and Christopher Wlezien, two professors of political science, *The Economist* analysed polls of 469 elections in 49 countries between 1946 and 2026. Over the past 80 years, we found, polls have become slightly more accurate. An average of polls conducted within ten days of an election predicts a given party or candidate's share of the vote with a mean error of just two percentage points (see chart 1 on next page).

Celestial poll

That result is all the more remarkable given the methodological challenges besetting pollsters. There are many reasons why polling should not work, but it does. In fact, it works better than the alternatives.

The principle behind public-opinion surveys is simple. If you ask a large enough sample of random individuals in a population for their view on a given topic, you can say with a reasonable degree of accuracy that the whole population shares their beliefs. Early polling pioneer George Gallup likened it to tasting a soup. Providing the soup is well-mixed, you need only one spoonful to know how it tastes.

In practice, it can be very difficult to ensure that a sample is truly random. Famously the *Literary Digest*, an American magazine, inferred in 1936 from 2.4m postcards sent in by readers—a sample size unheard of today—that Republican Alf Landon would be elected president. Instead, Franklin Roosevelt was re-elected in a landslide. The sample may have been huge, but it was not random.

What followed was the first of many reinventions for the polling industry as it embraced "scientific" methods. In the 1950s and 1960s most pollsters relied on face-to-face interviews at random addresses. In the 1970s and 1980s many shifted to telephone interviews, calling numbers at random. But the willingness of ordinary voters to speak to pollsters has waned. "When I started doing this, the idea was you could do a

→ ALSO IN THIS SECTION

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phone survey and get a 50% response rate," recalls Doug Rivers of YouGov, a polling firm that partners with *The Economist*. Now he reckons the response rate is 1-2%.

As a result, a majority of pollsters have given up on using strictly random samples. Instead, the most common form of polling now involves self-selected panels of online survey-takers, who are paid for each survey they complete. Rather than randomness, pollsters rely on quotas of different types of respondents and post facto "weights", which adjust a sample to make it representative of the whole population. In a recent poll of Americans by Léger, a Canadian firm, 60% of respondents were 55 or older, for example. After weights were applied, they made up only 41% of the survey—a far cry from the ideal of random sampling.

Contrary to some conspiracy theories, pollsters have a strong interest in getting election surveys right. Rather than money-makers, election polls are in effect advertisements intended to persuade customers to commission research on other topics. If pollsters fumble an election, it hurts their reputation. "We always used to say political polling is 90% of the publicity and less than 1% of the revenue," says Ben Page, a former boss of Ipsos, another polling firm.

Pollsters' judgment remains critical, however. In 2016, for example, the *New York Times* gave four pollsters the same raw data from Floridian voters in that year's presidential election. After weighting, the groups came back with four different conclusions about how the election would go. One showed Mr Trump leading by a percentage point; another, trailing by four.

Polling firms must play methodological whack-a-mole, correcting errors from the previous election and anticipating future mistakes. In recent years discussion has been dominated by the issue of "non-response bias": the idea that those who do not want to be polled lean in a particular direction politically. As politics in many Western countries has become less about economics and more about cultural issues, educated voters—who are more likely to respond to polls—have moved towards centre-left parties. A team of political scientists including Messrs Jennings and Wlezien found that polls have tended to overestimate left-wing parties by an average of 1.4 percentage points globally.

In America, this effect has been compounded by Republican scepticism of the institutions, such as universities and the media, that often commission or produce polls. In the past three American presidential elections, polls substantially underestimated support for Donald Trump. In its poll in October of the Senate race in Kansas, the *Washington Post* reported that 32% of Democrats responded to its survey, compared with only 12% of Republicans. The large gap suggests not only that Republicans were underrepresented, but also that the few who did respond may not have been representative.

Along with non-response bias, online pollsters have to contend with "low-quality" respondents, who are more interested in bagging the reward for completing the survey than in giving their opinions. Mr Page compares the struggle to weed out such participants to drone warfare between Russia and Ukraine, with each side innovating just as fast as the other.

Poll position

"Polling is increasingly about statistical modelling as much as sampling," says Mr Jennings. One of the most successful polling initiatives of the midterm elections was a collaboration between the *New York Times* and Siena College. This year the team adopted an incredibly complicated system of survey weights which involved estimating the left-right position of every registered voter in the country, to ensure polls were ideologically representative. On top of that, rather than weighting for each demographic characteristic separately, the pollsters created a system that assesses respondents by how unusual their unique combinations of characteristics were, compared with the population ("energy balancing"). The previous method would have overestimated the winning margins of Democrats who won Senate races by three points, on average. The new system showed almost no bias.

So what were pollsters doing wrong in America and Brazil? "Mobilisation was a huge component of the result for both the first round and the run-off, like never before," says Mr Roman of Brazil's election. "Voters didn't show up for Lula in the first round, and they really showed up on a mass scale in the run-off." After Mr Bolsonaro's victory in the first round, centre-left voters realised that he might really become president. Lula's supporters were energised, particularly on social media. Overall turnout rose from 119m to 124m, with larger increases in municipalities won by Lula, especially in big cities. In the end he won with 52% of the vote—four points higher than his share in pre-election polls.

Surveys also seem to have misjudged turnout in America's midterms. *The Economist* analysed seven polls released in October that included a detailed breakdown of the composition of their sample. Respondents who said they had voted for Kamala Harris in 2024 outweighed those who had plumped for Donald Trump by two percentage points. That number already indicates some turnout adjustment on the part of pollsters: in reality she lost the election by 1.5 points. However, exit polls suggest that the actual electorate this November was even bluer, having preferred Ms Harris by five points. If you retrospectively adjust the polls to account for this, they go from showing Democrats with a 9.5-point lead to 11.5, explaining around half of the polling error (Democrats won by 14 points).

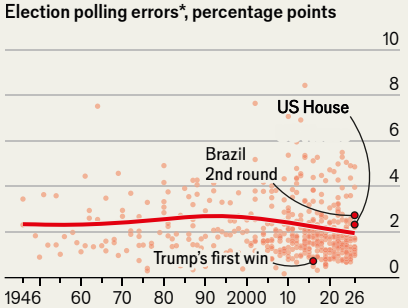
For Democrats, this enthusiasm advantage was partly driven by black voters, especially in the South, who helped elect Democratic senators in deep-red South Carolina and Mississippi. The *New York Times* estimates that they made up 24% and 33% of voters in those two states respectively, up by three percentage points compared with 2024. Elsewhere, Hispanic voters showed up to vote in greater numbers than in previous midterm elections. Meanwhile, many Republicans stayed at home. In counties and districts won by Ms Harris with more than 80% of the vote in 2024, turnout in the midterms was around 81% of that in the presidential election. In those where Mr Trump won with more than 80% of the vote, the figure was 12 percentage points lower.

The elections expose a particular weakness of opinion polls. "My general view is that surveys are totally crappy these days about getting non-voters," says Mr Rivers. By their nature, those who respond to polls are more likely to be highly engaged, and more likely to vote, than those who do not. At the same time, respondents are optimistic (or dishonest) when answering questions about their likelihood to vote. Unlike demographic questions, which are fairly consistent over time and which respondents tend to answer accurately, turnout is fluid. "The typical approach would be to ask people on a scale of one to ten how likely you are to vote," says Mr Page. "But if you get a big increase in the number of people who say they are eight, nine or ten, do you believe them or not?"

Despite this weakness, the polling misses also show that pollsters are striving to improve their estimates. In Brazil polling firms re-weighting their surveys after the first round to reflect the electorate that voted for Mr Bolsonaro. This was methodologically sound, even though it led them to overstate his support in the second

Better than you think 1

Election polling errors*, percentage points



*Mean absolute error of 469 elections from 49 countries
Sources: "Election polling errors across time and space", by W. Jennings and C. Wlezien, 2018; *The Economist*

round. Meanwhile, American pollsters were trying to correct their errors in the election of 2024, when they underestimated Republicans (see chart 2).

The Economist's forecast of this year's congressional elections aimed to anticipate polling errors, based on historical data. Our model incorrectly judged that pollsters were overestimating the Democrats, since projected landslides tend to underwhelm. It also judged that the low share of undecided voters in this year's polls was a good sign for Republicans, because undecided voters tend to vote against the president's party in midterms. These factors meant that the central forecast of our model compounded the pollsters' errors, rather than remedying them.

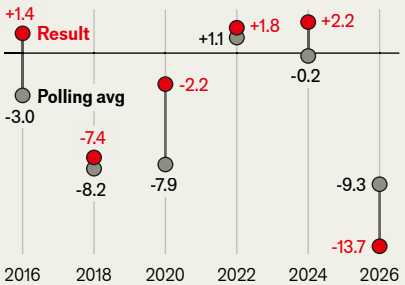
The similarities in the polling misses in America and Brazil might lead some observers to predict the same skew in polling of other elections. Optimistic centrists might, for example, conclude that polarising right-wing candidates will always galvanise centre-left voters to defy the polls. Indeed, that is the hope of French centrists, who are looking warily towards next year's presidential election. Marine Le Pen, the leader of the populist-right National Rally, leads opinion polls of the first round with around 35% of the vote, on average. She also leads most hypothetical polls of the second round. In the past two presidential elections, Emmanuel Macron, France's centrist president, defeated Ms Le Pen soundly, with a slightly higher vote share than polls had predicted.

However, the historical evidence for repeated polling errors is thin, let alone across different countries, or in presidential elections with different candidates. Indeed, the second-placed candidate in most polls is a left-wing firebrand, Jean-Luc Mélenchon, with around 17% support. He is one of the most polarising and unpopular figures in France, whereas voters have warmed to Ms Le Pen since 2022. A contest between the two is unlikely, therefore, to inspire a surge of voters determined to foil Ms Le Pen. What is more, French pollsters may have learned from their previous mistakes, or even overcorrected. Though a polling error is certainly possible, relying on one is never a good idea. (*The Economist*'s forecast model of the French election will be published next year.)

Likewise, social democrats hope that Pedro Sánchez—a left-wing escape-artist who is prime minister of Spain—can repeat his poll-defying feat in 2023 and cling to power. That year, polls underestimated his Socialist Party (PSOE) by around three percentage points. It was just enough to cobble together a coalition of leftist and regionalist parties to stay in power. *The Economist*'s poll tracker for the election on November 29th shows 27% support for PSOE, just behind the centre-right People's Party on 31%. However, since 2023 Mr Sánchez's coalition partners have taken a tumble and the populist-right Vox has gained ground. The combined right-wing parties are polling at 50%, so should secure a majority under Spain's electoral system. The left trails on 35%, with regional parties on 9%. There is still time for public opinion to shift, but if the polls hold, only an unusually large error would save Mr Sánchez.

Turn of the skew 2

United States congressional elections, Republican vote margin, percentage points



Sources: National polls; FiftyPlusOne; *The Economist*

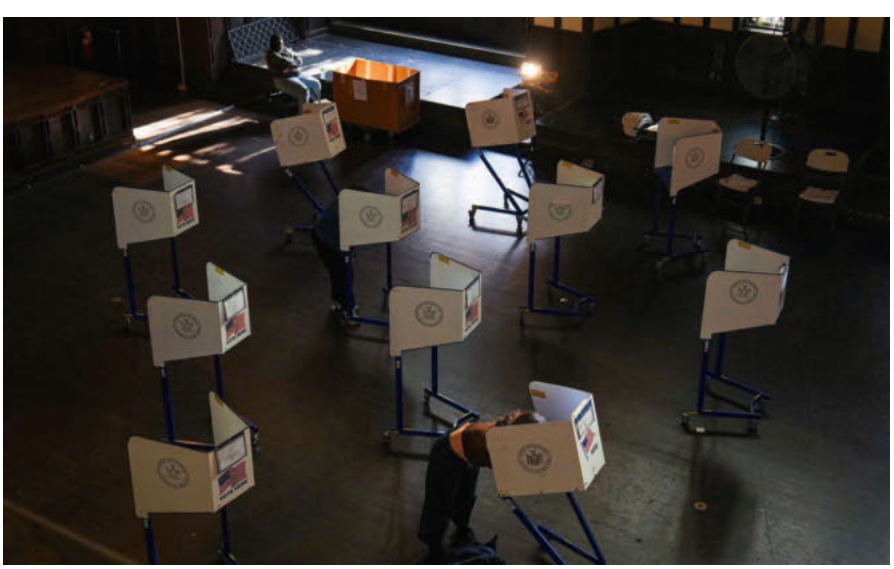
Totem polls

Next year anxious poll-watchers will no doubt hope for a polling miss that favours their preferred candidates in Poland and Italy, too. However, there is no sign that polling errors are growing, nor that their slight past skew to the left has become a bias to the right. An average absolute polling error of two points does not preclude the possibility of a big miss but, given the ever deeper potential pitfalls, is remarkably accurate. From early in the midterm campaign, the polls clearly indicated a big win for Democrats and a swing from Latinos in particular. That the polling averages foresaw the biggest blue wave in a generation, rather than two, seems forgivable.

Most important, polls look better than the alternatives. In many of the most infamous polling misses, such as Britain's vote to leave the European Union or Mr Trump's election in 2016, the polls came closer to the final result than most pundits did. A survey of 33 British journalists before the Brexit referendum found that 32 of them expected the country to vote to remain in the EU, for example. Some vaunted alternatives, such as social-media monitoring, have never taken off. Others, such as prediction markets or AI-generated surveys, themselves depend on polling. The famous prediction-market "whale", who made $80m betting on Mr Trump's re-election in 2024, reportedly commissioned private polling from YouGov, for example.

As good as the polls' record is, their creators should be clear about their imperfections. For pollsters that chiefly means being transparent. Methodological notes by the *Washington Post* and the *New York Times* about the surveys they had commissioned helped contextualise their polling in this election, for example. More information about sampling and weighting can improve scrutiny, making it easier to weed out fake polls and cowboy pollsters. Publishing survey results even when they are surprising can help avoid "herding", whereby polling is skewed by pollsters' reluctance to go out on a limb.

Consumers of polls, meanwhile, must understand their limitations. They should treat any individual poll with a dose of scepticism. Where possible, they should refer to averages of multiple surveys, such as those produced by *The Economist*. In all elections, they should be ready for the polls to be off by a few percentage points in either direction for every party or candidate. The polls are better than ever, but they are not infallible. ■



Who will turn out?

THE TELEGRAM

Global bullies deploy uncertainty as a weapon

America and China, as well as rogues like Russia and Iran, see profit in keeping the whole world on edge



IS THE STRAIT OF HORMUZ open or closed? Nobody can answer that question with confidence. The maritime choke point is not a barn door that is either open or shut. It is a place of unknown dangers for shippers, sea captains and governments. For Iran, a bankrupt, isolated mid-size rogue, engendering that uncertainty creates leverage over stronger, richer foes.

Is Russia behind recent bomb hoaxes that have alarmed European politicians and business bosses? Nobody knows, and that is also the point. Russia's aim is not to convince adversaries to believe its twisted version of the truth. Since Soviet times, it has specialised in deniable attacks that leave others doubting whether anything is true.

So far, so roguish. Such agents of chaos as Russia and Iran have long relished their ability to keep stability-loving rivals off-balance. Today, the unwelcome shock involves America and China playing the same game. Not long ago those two giants saw an interest in upholding a stable and predictable global trading order (while bending its rules as needed). Now the two countries seem to like ambiguous rules and hard-to-enforce agreements that leave trade partners dependent on their goodwill.

To be sure, statesmen have been masters of ambiguity since they wore robes and swords, and carved treaties on stone tablets. In the modern era, what is more, America had always been careful to avoid offering hard-and-fast security guarantees to allies, lest they started foolish conflicts, believing that Uncle Sam would come to their aid.

President Donald Trump is different. He breaks new ground by treating inconstancy as his superpower. This is true in foreign policy, as he threatens to bomb countries before offering them friendship in the next breath. It is the case in trade policy, as he adjusts tariff rates and export controls on a whim. When Trump aides are asked how foreign governments or investors are supposed to agree to big, long-term deals if the terms may later change, they serenely reply that "there is a value to uncertainty." In their telling, doubt usefully reminds foreigners that access to America's market is a privilege, not a right. They note the advice of the president himself: if outsiders wish to avoid tariffs, all they need to do is make things in America.

In Trumpworld, American dominance is enhanced when foreigners do not know where they stand. In the context of the Ukraine war, that might involve Europeans pleading for continued access to American-made weapons or the Starlink satellite-internet system owned by Elon Musk. In future, it might involve access to the best AI models. Foreign pleading is the pay-off.

China is also breaking new ground. It spent decades tut-tutting at America's high-handed and changeable ways. Officials in Beijing would accuse America of nagging trade partners to open their markets, only to turn round and enact export controls and other curbs before a foreign rival became too formidable a competitor. America changes the rules when it fears losing a game, they would grumble. Worse, America claims to enjoy a "long-arm jurisdiction" to enforce its laws worldwide, as Chinese legal experts complained.

The grumbling lasted until China became dominant in the production of vital industrial inputs and world-class technologies, from rare-earth elements to batteries. Just in time for Mr Trump's uninhibited second turn at the presidency, China found itself in a position to retaliate in relative safety. In the past couple of years China has enacted its own export controls and long-arm laws to punish foreign companies if they obey American laws and sanctions that hurt China.

If a multinational firm is now paralysed with doubt, not knowing how to balance laws in America, where it is listed, with those in China, where it sources important components, that is no accident. In an echo of Mr Trump's line—to avoid tariffs, make things in America—China has its own form of blackmail to propose. If companies wish to avoid the vaguely written, politicised rules that govern export licences for rare earths and the like, they can make products in China and export them as finished batteries or electric cars. The offer is not subtle: China-based factories have no trouble sourcing rare earths; dependence is a small price to pay.

If carrots do not work, China has sticks to use on foreigners trying to de-risk and diversify away from dependence on its supply chains. Specific rules aim to stop foreigners building up stockpiles of critical minerals, and even govern the export of machines to process and recycle them. Some Chinese controls are currently suspended as trade talks continue with America and Europe, yet hang like a sword over negotiators.

America and China would rather be feared than trusted

At least China is still bashful about weaponising uncertainty. Even as it keeps countries on edge, its officials insist that their government is a rule-abiding champion of globalisation and openness, though nobody actually believes this. In contrast, Trump administration officials do not pretend that their president's word is his bond. Unblushingly, they portray his unreliability as a sign of strength and cleverness. In this, Trump-era America resembles Russia and Iran more than it does a traditional great power.

For the mark of a true rogue is to inspire fear, but not care about getting caught. On November 9th France blamed Iran's Revolutionary Guard Corps for cyber-attacks that remotely turned freezers into ovens in hundreds of French supermarkets. The attacks were not subtle: traces of Persian were found in the hackers' computer code. What logic guides Iran to spoil food in a French supermarket, without hiding its traces? Logic has nothing to do with it. In brutal times, sowing doubt is the win. ■

Business



Jensen Huang

CUDA known better

SAN FRANCISCO

The recklessness of Nvidia's boss leaves the chip giant with no good options

FEW COMPANIES have looked as unassailable as Nvidia over the past few years. Its whizzy chips, together with its software and networking gear, made it indispensable to the artificial-intelligence boom, affording it an outsize share of the profits from the technology. Now Jensen Huang, who co-founded the company and has led it for over three decades, has weakened Nvidia to a degree that no rival could have hoped to achieve. On November 12th, as *The Economist* went to press, its board was reportedly preparing to oust him.

Mr Huang's unravelling has been swift. In a short memo on November 8th he confessed to an extramarital affair, apologising to his family and his company. At the same time Nvidia's board announced it had launched an investigation into whether he had "been the target of a foreign-intelligence effort". The admission followed reports that he had been romantically involved with Alice Huang (no relation), a Chinese executive at Megaspeed, a Singaporean data-centre company that buys Nvidia's chips. American officials suspect Megaspeed of smuggling banned chips into China—and believe Ms Huang to be a Chinese agent (a claim rejected by the Chinese government).

Then on November 11th *The New York Times* reported that Mr Huang also had an affair with an executive who reported directly to him. Nvidia's share price, which had been down by 7% since Mr Huang's memo, plunged by a further 9% in after-hours trading after reports his job was in jeopardy. Colette Kress, Nvidia's finance chief, is widely tipped to step in as interim boss if he goes.

Two questions now loom large. Can Nvidia, until recently the world's most valuable company, thrive without Mr Huang? And can the AI build-out, which the company has done so much to bankroll, survive the shock?

It may be the affair with a subordinate that seals Mr Huang's fate, but it was his entanglement with the Megaspeed executive that raises the most troubling questions. Since October 2022 America has barred the sales of its leading-edge chips to China. Yet Chinese firms have found ways round the ban. Some do so by renting computing power in data centres abroad. Others rely on intermediaries in South-East Asia that smuggle chips into China.

Megaspeed, a "neocloud" that rents out access to AI processors, is suspected by American officials of operating across both routes. It took its current name in 2023, the year Ms Huang was listed as its managing director, and soon became one of the biggest buyers of Nvidia's chips in South-East Asia. Culper Research, a short-seller, estimates that Speedmatrix, Megaspeed's Malaysian subsidiary, imported

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$4.6bn-worth of goods between December 2024 and January 2026, most of them servers packed with Nvidia chips. As far back as September 2024 American officials began investigating Megaspeed. (The firm denies the allegations.)

None of this seemed to give Nvidia's boss pause. He and Ms Huang were repeatedly photographed together, and his company continued to vouch for its customer. Late last year Nvidia said its own checks had found no evidence of diversion. Last month Mr Huang called his dealings with Ms Huang "completely normal and not unusual", and insisted that Nvidia had "counted every one" of Megaspeed's chips. In recent days *Bloomberg* and the *New York Times* have independently reported that Tim Teter, Nvidia's general counsel, intervened last year in the Commerce Department's investigation of Megaspeed. An Nvidia spokesperson says that the company regularly consults export-control officials to share knowledge.

President Donald Trump's administration seemed no more troubled. Mr Huang has been one of Mr Trump's favourite businessmen, and a frequent presence at his side. Yet the president appears to have been warned about the relationship at least twice. Reportedly he was briefed on the intelligence about Ms Huang roughly a year ago. In May, as he flew to China with a group of executives, Marco Rubio, the secretary of state, reminded him of it shortly before Nvidia's boss joined the trip during a refuelling stop in Alaska.

The administration will now have to answer for why it took no action on the warnings, and why it continued to allow Mr Huang to wield so much influence on a matter of national security. Three Republican committee chairmen have summoned Mr Huang to a closed-door congressional briefing on November 18th. Howard Lutnick, the commerce secretary, will also face scrutiny, particularly once Democrats take control of Congress in January. Chris Coons, who is set to chair the Senate Foreign Relations Committee, has promised to investigate "the insane relationship between the Trump administration, Chinese spies and AI billionaires".

The scandal could also revive a handful of stalled bills to tighten China's access to AI chips. One would turn into law the administration's policy of blocking the sale of Nvidia's most advanced chips to China. Another would require exporters to show that their chips have not been diverted, for instance by verifying where they are.

If Mr Huang goes, it will be a sorry end to a brilliant career. He co-founded Nvidia in 1993 to make graphics chips for video games. But in the mid-2010s Mr Huang became convinced that AI would transform computing, and that Nvidia's form of chip would provide its essential building blocks. The bet proved prescient. Between the start of 2023 and the beginning of this year Nvidia's share price rose 13-fold. In October 2025 it became the first company to be worth more than $5trn.

Finding a permanent successor would be hard. Jay Goldberg of Seaport Research Partners, a firm of analysts, reckons that "nobody can fill Jensen's leather jacket". Although Nvidia has grown into a giant, with some 40,000 employees, it is run as an extension of its charismatic leader. Mr Huang is a micromanager, with some 60 people reporting directly to him. His ties with suppliers such as TSMC, a Taiwanese chip manufacturer, and SK Hynix, a South Korean memory-maker, have helped secure scarce capacity. Some outsiders have been floated, including Lisa Su, boss of AMD (and a distant relative of Mr Huang). Yet any newcomer would inherit a firm full of the old boss's loyalists.

Nvidia's performance may hold up for now. Mr Goldberg notes that many of its chips are sold out into next year, and demand for AI gear remains strong. But the saga looks set to be a lasting distraction, even if Mr Huang is replaced. On November 9th shareholders filed a class-action accusing the company and Mr Huang of misleading investors when they responded to reports about the relationship between him and Ms Huang.

Mr Goldberg also thinks that Mr Huang's exit would "take a lot of the spirit out of" the investment boom. Nvidia's boss is one of AI's loudest cheerleaders; his leather jacket, stadium keynotes and sermons on the technology have made him a rock star among the tech faithful. Lately he has also become the industry's banker, using Nvidia's cash to bankroll AI startups and its balance-sheet to guarantee the debts of myriad data-centre projects. With Mr Huang gone, the web of deals he has spun may start to unravel. ■

Business in China

All over the shop

NANCHANG AND SHANGHAI

A franchise revolution is bringing buzzy retail brands to every corner of the country—and beyond

YANG GUOFU spent much of the 1990s running from the *chengguan*, a dreaded troop of goons with the authority to rough up street vendors in the name of tidier cities. At the time he was grilling squid from a cart in a north-eastern town. Since then Mr Yang has turned his business into a global restaurant franchise with more than 7,000 outlets. His company, Yangguofu, dishes up a spicy Chinese soup known as *malatang*. Most of its shops are in China, but it has expanded to more than 20 other countries, opening in London and Rome last year, and in Luxembourg last month, far from the reach of the *chengguan*.

Mr Yang is part of an oddly timed retail revolution. Consumer spending in China is by most accounts miserable; retail sales grew by a lousy 1.1% in September, year on year. Once-popular Western brands are



Snow storm

struggling. And yet walk down the street in a typical mid-size city in China and you are likely to see dozens of new retail shops wherever you look. There are myriad milk-tea outlets. On the streets of Nanchang, a south-eastern city, every corner seems to have a GoodMe selling teas and treats. Snack shops, such as Busy Ming, which peddles a wide variety of sweets, crisps and dried meats, are almost as numerous. The snow-man mascot of Mixue, a popular cold-drinks franchise, is now ubiquitous.

The growth of these businesses has been striking. Between 2023 and 2025 China's 300 largest food- and drinks-franchises may have opened more than half a million outlets. That is roughly five-times the number opened in America during its franchising heyday between 1964 and 1969, when McDonald's and Holiday Inn first took off. Today Chinese brands such as Mixue, Busy Ming and JI Hotel control some of the world's largest franchise networks in their industries. The explosive growth required at least 100bn yuan ($15bn) in fresh capital in 2025, *The Economist* reckons, much of which came from household savings.

Until recently consolidation of China's retail sector has been tedious. It is made up of millions of small-time entrepreneurs, many of whom run single-shop enterprises in small cities. In 2018 just 13% of restaurants were part of a corporate chain. But by 2025 that rate had shot to 25%, a sign these entrepreneurs have been signing up to franchises in droves. Hotels, an industry once dominated by dingy independent businesses built into housing units, have consolidated even faster.

Souped-up

A handful of factors have come together to make this possible. Chief among them is the honing of China's distinctive franchising model. American fast-food giants make most of their revenues from royalties and rents paid by franchisees. McDonald's, for example, owns many of the properties from which its burger joints operate; last year rents provided nearly 40% of its revenue. China franchisors, by contrast, act more like suppliers. They source raw materials and use sophisticated logistics networks to provide them at low prices to franchisees. They also sell equipment. These are the source of nearly all Mixue's revenue, for example. Only in the past few years have such supply chains become sufficiently mature in China.

Ferocious competition in China has been another factor. Tepid consumer demand in recent years means that margins are razor thin for most retail businesses. That makes scale essential, and one way to achieve it is to open as many shops as possible with the help of franchisees. The brands, in turn, must keep license fees and royalties low in order to recruit new shop owners.

This model, which helps to lower prices, suits China's reluctant spenders. Cotti, a coffee chain that has opened 18,000 shops since 2022, charges nothing upfront to its franchisees. Yangguofu asks for just 8,888 yuan to open one of its shops, and then an annual management charge of 5,000. The cost of renting the outlet, refurbishing it and stocking it with the brand's equipment is covered by the franchisee. The main financial arrangement between Yangguofu and its restaurant operators is for the soup base that goes into its *malatang*, sales of which account for about 90% of the company's revenue.

The final ingredient is capital. Funding retail enterprises in China is notoriously difficult. For years the central government has frowned on retail brands raising public capital. It would rather funds be channeled into favoured industries, such as chipmaking and artificial intelligence. Since 2022 retail businesses have managed to grab less than 2% of the total equity-capital raised on mainland Chinese bourses.

China's ascendant retail brands have instead been built on household savings. Not long ago Chinese workers poured their savings into the property market. At its peak in 2021 up to 80% of household wealth was tied up in the value of flats. But a popping of the property bubble that occurred around that time has meant fewer funds flowing to the sector. Much wealth has ended up in bank deposits, but more than ever it is going into franchise outlets, says Chen Luo of Bank of America.

Many of these franchises are going global. As of the end of last year the top 50 Chinese food- and beverage-retailers were thought to have opened at least 6,800 overseas shops cumulatively. These outlets are important because margins are often juicier outside China. Extending supply chains to other countries can be difficult, but some are trying. One Chinese hotel chain has just started shipping room modules to Europe in a bid to make its hotels there cheaper to construct and more uniform.

Back home, the unbridled growth of franchises has not been without its challenges. Shops have been closing rapidly even as many more open up. More than 2,500 Mixue outlets appear to have been shut last year. Brands are grappling with inconsistencies in operational standards and divergent business philosophies among their franchisees, says Zhu Danpeng, an industry analyst. Rapid growth has made quality control difficult. Tianlala, one rapidly expanding tea-shop chain, acknowledged such shortcomings this year after numerous complaints surfaced online. It has forcibly shut many stores. Growing a franchise is one thing. Sustaining it may prove another. ■

SoftBank

Egg on face

Everything is going wrong for Masayoshi Son's investment giant

AT THE START of the summer, the outlook was sunny for SoftBank and its swashbuckling boss, Masayoshi Son. The giant investment firm briefly toppled Toyota as Japan's most valuable company. At the end of June the net value of its assets reached ¥72.3trn ($445bn), an increase of 80% in just three months thanks to gains in its artificial-intelligence holdings. Mr Son crowed that investors had once again underestimated SoftBank (and himself), likening his creation to a goose laying golden eggs: "What matters is not the eggs. It is the goose itself."

The period since has not been a fertile one. By early August the net value of SoftBank's assets had dropped to ¥58.3trn, as the share prices of many of its big investments tumbled. From its peak in June, SoftBank's market capitalisation has fallen by more than half (see chart); it now ranks only ninth in the Japanese league. Analysts had expected the firm to report a modest profit in the most recent quarter, but on November 10th the company disclosed a $7bn loss, much of it the result of write-downs linked to its American data-centre investments. Mr Son's eggs look less golden than cracked.

To understand what has gone wrong, consider the four elements of SoftBank's bet on AI: semiconductors, models, robotics and infrastructure. One of SoftBank's biggest holdings is its stake of about 90% in Arm, a British company that made its name creating blueprints for chips in smartphones and other gadgets. Now Arm is pushing into selling its own silicon for use in AI data centres. Investors are worried that royalties from its original busi-

Wayward Son

SoftBank Group, market capitalisation, $bn



Source: S&P Capital IQ

ness will slow faster than new profits can replace them. Such concerns have sent Arm's stock down by more than 50% since mid-June. In the same period shares in Intel, an American chipmaker and another of SoftBank's investments, have also fallen by more than half.

Turn next to Mr Son's $65bn bet on OpenAI. The model-maker has delayed its plans for a public share offering, allowing its arch-rival Anthropic, which set its price range on November 10th, to beat it to the stock market. That will slow any payout for SoftBank, which borrowed vast sums to invest in OpenAI. Analysts estimate that the ratio of SoftBank's debts to the value of its assets has risen from 16% at the end of September to somewhere between 20% and 25%, SoftBank's self-imposed notional maximum. Some expect it to hit 28% by March. That has made lenders twitchy. This month spreads on SoftBank's five-year credit-default swaps hit a four-year high, implying a 31% probability of it being unable to service its borrowings.

Another of Mr Son's debt-fuelled bids, to buy the robotics arm of ABB, a European machinery-maker, is also in peril. This month regulators in China, the division's biggest market, blocked the sale of the local business to SoftBank. They are said to be uncomfortable with the prospect of Mr Son harvesting data from ABB's machines to help OpenAI and others train models. SoftBank and ABB are exploring whether a carve-out of the Chinese business would salvage the deal, though doing so would make the purchase less worthwhile.

Last, and the latest to run into trouble, is SoftBank's investment in AI infrastructure. This includes what will, if built, be one of the world's largest data centres, a ten-gigawatt project in Ohio for which OpenAI is the primary tenant. Yet having rushed to nail down contracts for its data centres, SoftBank has cancelled reservations for power-generation equipment, taking a $3.7bn writedown.

The company has given few details about the written-down kit, other than to deny that it was related to the project in Ohio. But the situation suggests that SoftBank may be rethinking its broader ambitions. Part of what lies behind the recent market turmoil surrounding AI is a change in the political wind. Several victorious Democratic candidates in America's elections this month, including the next governor of Ohio, campaigned aggressively against data-centre development.

Mr Son is not alone in having staked his firm and his reputation on AI. He may yet be vindicated, if Arm's data-centre business takes off or OpenAI's listing is a roaring success. He and his firm have suffered setbacks—and staged comebacks—before. As a new chapter in the AI fable unfolds, will the goose produce once again? ■



Film-making

From "Backrooms" to living rooms

LOS ANGELES

YouTube is bringing creative destruction to Hollywood

IN THE MOVIE industry, there are two competing storylines. The darker one—call it old Hollywood—prevailed on November 9th when Skydance, the newly formed combination of Paramount and Warner Bros, laid out plans to reduce its $87bn debt. Like other media giants, such as Netflix, its near future is one of attrition and job cuts, glossed over by promises of big hits to come. The other storyline—call it new Hollywood—is less well known and more upbeat. It is made on YouTube.

To glimpse it, your correspondent travelled to an unmarked building in the Hollywood hinterland of Burbank, home to the new 32,000 square-feet studio of Smosh, a YouTube comedy channel as old as the video platform itself. The precise whereabouts are kept secret to deter overzealous fans. Suffice to say, it is not glitzy. Similarly, Smosh's comedy has less polish than prestige TV. Yet it is a YouTube sensation. Smosh has more than 45m followers across its channels, revenue that has grown fivefold in the past three years and a headcount that has tripled to 100, says Alessandra Catanese, its boss. "I've been making this joke lately, but I'm totally serious. Paramount, Disney and Netflix: their layoffs are our draft," she says.

Burbank is home to much of this YouTube *demi-monde*. Its scruffy creators are not big enough to offset the malaise of old Hollywood. But they have started to rattle the incumbents, which have been forced to battle YouTube for screen time in part by imitating its ways. Whether what some call "YouTube panic" is working is debatable. Yet it may be unavoidable. In the words of Mark Fischbach (aka Markiplier), who earlier this year mobilised his 40m-odd YouTube followers to turn his self-financed horror film "Iron Lung" into a box-office hit, "YouTube is the thousand-pound monster lurking over everyone's shoulder."

YouTube's effect on the media zeitgeist has been palpable this year. After "Iron Lung", two young directors who honed their craft on YouTube released "Backrooms" and "Obsession", which became blockbuster films. The platform's disruptive force has become increasingly evident on TV. Nielsen, a data gatherer, measured YouTube's share of America's TV watching at 15.8% in August, almost as much as Netflix and the streaming services of Disney, Paramount and Warner Bros combined (see chart on next page). That is double its level in early 2023, when YouTube overtook Netflix as the biggest streamer. When it comes to attention, "YouTube is by far the biggest winner," says Ernesto Pagano of BCG, a consultancy.

The platform's economic heft is becoming more apparent, too. For the first time this year it disclosed annual revenue, reporting $60bn from ads and subscriptions in 2025. That was more than Netflix's $45bn and far more than other streaming platforms. KPMG, an accounting firm, esti-

mates that it easily outspent its peers on content last year, shelling out $28bn, compared with, say, $18bn at Netflix. The more content YouTube streams, the more data it has to improve its algorithm, further boosting viewer engagement—and revenue.

YouTube's megabucks enable it to throw its weight around in ways that challenge Hollywood's incumbents. It is investing in more traditional fare such as sports. Next year it will offer the ad-supported tier of Peacock, the streaming service of NBCUniversal, at no charge for its Premium subscribers. Its creators, as they earn more money, are pouring it back into making longer, more professional shows.

YouTube benefits from a business model that has less risk than that of its rivals. Whereas studios and streamers pay upfront to commission content, and own or license the resulting work, YouTube usually pays nothing in advance. Instead it takes a 45-55% cut of ad revenue and channel subscriptions. This pay-for-performance approach makes YouTube less of a hostage to fortune than its peers, who can waste huge sums on films that bomb.

The platform's ownership by Google, a pioneer in artificial intelligence, has also helped it to develop new technology to support creators. AI tools offered by YouTube are used to simplify editing, autodub content into other languages and automatically tag products that appear in clips. Many in Hollywood fret about leaning too heavily on AI, because surveys suggest it turns audiences off. But while other streamers such as Netflix use the technology to trim production costs, YouTube leads the way in using it to boost revenue—for its creators and itself.

YouTube's growing clout has stirred a belated fightback. Several streaming services, including Netflix and Disney Plus, have introduced swipeable short-form vertical videos similar to YouTube Shorts. Last year Ted Sarandos, Netflix's co-chief, dismissed the creator community as a place for "killing time". Now he is eating his words. Netflix has pledged $1bn over three years for deals with creators, according to LightShed Partners, a media-research firm. In some cases it is paying lavish sums upfront for new shows. Next year, for instance, it plans to stream a kids' competition by Mark Rober, a YouTube science geek, that an insider at the company describes as "Pop Idol for scientists". With Netflix's support, the budget is said to be equal to what Mr Rober normally spends on content in a year.

The poaching extends beyond creators to YouTube executives. In October Sony Pictures, one of Hollywood's biggest studios, named Fede Goldenberg, who at YouTube helped bring "Iron Lung" and other hits to the big screen, as head of one of its film divisions. The hope is that he will turn more creators into film-makers.

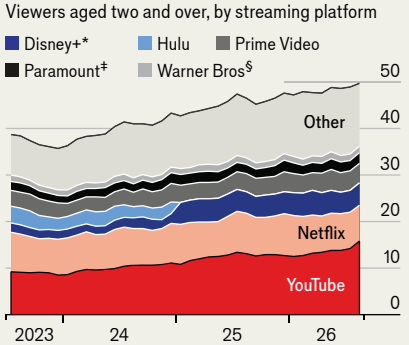
Evidence for the success of Hollywood's response is so far mixed. Netflix's share price is down by almost a third this year as revenue growth has slowed. Disney has had a better year; its shares have risen by around 5%. But the company has become heavily reliant on theme parks to generate profit. Skydance aims to bundle HBO Max and Paramount Plus together in early 2027, which may yield a stronger competitive position in streaming. But the merged studios also need to shave $6bn off their overheads.

YouTube is not impregnable. Neal Mohan, its chief executive, dismisses attempts to poach its creators as "flattering". But there are signs of genuine concern. YouTube has reportedly offered millions to ensure some creators release shows exclusively on its site. And it faces upstarts of its own. TikTok, a short-video platform, is working with Tubi, a free streaming service owned by Fox Corp, to develop ten original long-form series. Meta has rolled out a version of its Instagram app for smart TVs, on which users can now watch Reels, its short-form videos. Last month it offered creators the opportunity to test horizontal videos of up to 90 minutes.

Yet YouTube is far ahead for now—and Hollywood as a whole is stronger for it. Not long ago, Netflix was a force for creative destruction, breaking the stranglehold of broadcasters and cable companies to usher in the streaming revolution. In a recent podcast interview, its retired co-founder, Reed Hastings, drew an analogy with the 1950s and 1960s, when the rise of television drove the movie industry into a funk until a new breed of talented film-makers broke through in the 1970s. Today, he said, YouTube is analogous to TV back then, and Netflix to the movies. "We have to take up the creative bar and push ourselves to be ever more gripping," he argued. "It's hard to out-YouTube YouTube." ■

Rise of the Googlebox

United States, share of television viewership, %
Viewers aged two and over, by streaming platform



*Includes Hulu and ESPN+ from Jan 2025
‡Includes Paramount+ and Pluto TV
§Includes only HBO Max prior to Mar 2025
Source: Nielsen

The toy business

Life in plastic

Mattel wants to be an entertainment giant. It will not be easy

GAMES ARE afoot at Mattel. In recent weeks the business behind Barbie dolls and Hot Wheels cars, which has seen its market value plunge by 20% this year, has replaced its chief executive and much of its leadership team. Big shareholders are calling for a sale. Interested buyers are said to include Zuru, a maker of water pistols, and Authentic Brands, custodian of trademarks from Care Bears to Juicy Couture. Mattel's new boss is instead counting on remaking it from a traditional toymaker into a buzzy entertainment firm.

It is a bad time for producers of playthings. The Iran war has sent commodity prices soaring. Toys of the sort Mattel makes require plastic, and plastic requires crude oil. Parents, feeling the pinch from inflation, are turning stingy. In a recent survey by Mintel, a research firm, 65% of toy buyers said price is now their top consideration. Many are turning to retailers' cheaper own-brand alternatives.

The challenges go deeper still. Anthony Bonadio of Wells Fargo, a bank, reckons the industry is in structural decline. Birth rates are falling and children are abandoning toys at ever-younger ages. On average, American children aged between eight and 18 spend 7.5 hours per day on screens, leaving little time for physical toys.

Global sales have grown at a meagre compound annual rate of 3% over the past decade, mostly through higher prices, according to UBS, another bank. Even that overstates things. Circana, a data provider, points out that much of the growth has been in categories where nostalgic adults are propping up sales. That includes trading-card games (think Hasbro's "Magic: The Gathering") and building sets (Lego).

The pattern is reflected at Mattel. On November 5th it reported that sales of Hot Wheels (another favourite of kidults) were up by 6% in the third quarter, year on year. But those for Barbie were down by 10%, and Fisher-Price, a brand for infants, plunged by 15%. The company slashed its annual forecast for sales and profits.

It will fall to Mattel's new leadership to bring back the joy. Roger Lynch, who took over as its boss last month, previously ran Condé Nast, publisher of *Vogue*. Before that, he was in charge of Pandora, a music-streaming service. On his first earnings call he said that what drew him to Mattel was what had drawn him to Condé Nast: its intellectual property (IP). UBS reckons

Mattel's stable of names is worth $8.7bn, nearly double its current market value. They could form the basis of lucrative films, video games and live experiences.

To date, Mattel has struggled to make use of this treasure trove. "Barbie", the top-grossing film of 2023, boosted operating profit by around $100m (or 15%) that year. But the uplift in doll sales was short-lived. "It was more about ladies dressing up in pink and showing up at the movies," says Jaime Katz of Morningstar, a research firm. Mattel's latest films, "Masters of the Universe" and "Matchbox: The Movie", have been flops.

Video games have also been a disappointment. In 2018 Mattel set up a mobile-gaming studio in collaboration with NetEase, a Chinese gaming giant; this year it acquired its partner's 50% stake in the venture. But releases such as UNO! Mobile, based on the card game, have been better at attracting eyeballs than generating money. Because mobile games are cheap to make—more so now with the rise of artificial intelligence—competition is fierce.

Even so, rivals have had better luck than Mattel cashing in on their IP. Hasbro worked with a video-game studio to produce Monopoly Go!, an adaptation of its infamous board game; the app, released in 2023, generated $41m in royalties for the toymaker in its most recent quarter alone. Mr Lynch will be hoping for similar feats from Mattel's IP. Barbie may soon be put to work once again. ■

BARTLEBY
Price war

Why the panic over personalised pricing is overdone

ONE OF THE great promises of artificial intelligence is personalisation. The ability to crunch vast amounts of data and generate tailored content at scale raises all sorts of possibilities: individualised lesson plans for pupils in a classroom, treatments geared to the needs of specific patients, financial advice for a person rather than a persona. But in one area in particular, personalisation looks poisonous.

Legislators in America and beyond are queuing up against personalised pricing, the idea of charging people different prices for the same product based on what firms know about them personally. The states of Maryland, Connecticut and New Jersey have all passed laws this year restricting the practice. New York already requires the use of personalised pricing to be disclosed; a more draconian law is awaiting the signature of Kathy Hochul, the state's governor. On October 28th the Federal Trade Commission ordered some of the country's best-known firms, including Delta, Uber and Walmart, to hand over information as part of an investigation into personalised pricing. Regulators across the Atlantic are also swarming around the topic.

This is both unsurprising and misguided. It is unsurprising because the public hates the idea. Dynamic pricing, the practice of varying the price of things like airline seats or ride-hailing fares over time in response to demand, is controversial enough. Personalised pricing, which means you might pay more than someone else who is buying an identical product at the same time, sounds even more galling. When people are asked how they feel about this possibility, they give it a big thumbs-down. Given the march of AI and widespread concerns over "affordability", it's no great shock that policymakers are rushing to curtail the practice.

That doesn't make them right to do so. In the proper circumstances, personalised pricing is perfectly acceptable to people. If you make bids on an auction site like eBay or negotiate a deal on behalf of your company, you are reaching a price based on your own willingness to pay. If you take part in a loyalty programme, you actively want your previous behaviour to affect prices. Entire industries depend on risk-based pricing that reflects information about individuals: the laws in Connecticut and New York, for example, have exemptions for insurers and lenders.

Personalised pricing would make products cheaper for some. In a paper published in 2022, Jean-Pierre Dubé and Sanjog Misra of the University of Chicago conducted an experiment with ZipRecruiter, a jobs marketplace, to see how differential pricing plays out. They found that adjusting prices based on employers' willingness to pay yielded both higher profits overall for ZipRecruiter and lower prices for a majority of its subscribers. In June Colorado's governor, Jared Polis, vetoed a state law on personalised pricing for fear that it would make life less affordable for most consumers.



Competition increases the likelihood that consumers would be better off in a world of individualised pricing. In an earlier paper, Mr Dubé and his colleagues looked at what happened when two Chinese cinemas started to offer discounts to consumers based on their smartphone location data. Each chain had an incentive to offer deeper discounts when people were closer to a rival chain, encouraging the other to respond with defensive price cuts of their own.

There are good reasons to worry about personalised pricing. Without robust privacy rules, firms will be tempted to use consumers' personal data without their consent. There is a real benefit to having reference prices; if every price were tailored to individuals, customers might never be sure whether they were getting a good deal. But these concerns, combined with consumers' instinctive aversion to the idea, is also reason to think that lots of firms will tread carefully.

Amazon suffered a public backlash way back in 2000, when some DVD buyers were aggrieved to find that they were being charged a different price for the same title. The firm pledged then not to use customer demographics to set prices. In September John Furner, the boss of Walmart, made the same promise in an open letter. "We price the product, not the person," he wrote. The crackdown on personalised pricing is understandable. But it risks hurting lower-income shoppers and piling on compliance costs in order to prevent something that may not materialise. That's a bad deal.

SCHUMPETER
The Huang affair

There has never been a corporate scandal like it



IN THE GOSSIP columns it is the story of a steamy affair between an American billionaire who wears a leather jacket and a younger woman who allegedly works for Chinese intelligence. On Wall Street it illustrates a three-fold concentration risk: the danger of a stock market which depends on one technology, which depends on one firm, which depends on one man. In Washington they talk of a rotten Commerce Department, the closeness of President Donald Trump to tech bosses, and divisions in the Republican Party over China. "Two clichés make us laugh. A hundred clichés move us," wrote Umberto Eco of the film "Casablanca". And so it is with the Jensen Huang affair: not one scandal, but many.

The annals of corporate crisis contain nothing like it. Chief executives frequently face trouble in the boardroom over something that has happened in the bedroom. Every few years some more serious crisis fundamentally changes how the world views an important firm. These things do not happen simultaneously. John Browne was the oil industry's "sun king". In 2007 the BP boss resigned after telling a "white lie" in court about a relationship: a mark on the man, but not so much his firm. Conversely, there was not one individual to blame for, and nothing titillating about, BP's oil spill in the Gulf of Mexico three years later. Rupert Murdoch's media empire has been shaped by his five marriages and four divorces. But Wendi Deng, his wife at the time, never hacked phones for the *News of the World*.

After the crisis comes the crisis response. This means a press release which attempts to maximise contrition and minimise legal risk. Mr Huang sent an all-staff email which mixed the panicked clichés of the disloyal husband ("cannot undo what I have done") with those of the disgraced leader ("privilege of my life"). In all communications, the word "independent" must be used as frequently and liberally as possible: Nvidia's "independent directors" tasked "independent counsel" to do an "independent investigation". Sides are quickly chosen. Mr Trump jumped to Mr Huang's defence. "He's got to stay in that seat, at all costs" said one presenter of "All-In", a bro-ish tech podcast, going all-in to defend Mr Huang and protect the stock market.

Bad news often begets more bad news. New reports have now emerged that Mr Huang may also have slept with a subordinate. As we published this, Nvidia's board was said to be planning for his departure, though the timing was unclear. Volkswagen's boss resigned within a week after its emissions-rigging scandal in 2015. The boss of Wells Fargo lasted a month after the bank was fined for opening thousands of fake accounts in 2016. Boeing's boss stuck around for a year after a 737 MAX crashed in 2018.

The worst crises linger. Boeing's next boss was felled by the same issue. The very worst become lengthy trials. In the early 2000s Roland Dumas, a French government minister, was tried (and eventually acquitted) over his girlfriend's lobbying for a state-owned oil firm. Some end up immortalised in salacious books. The same girlfriend recounted the affair in a tell-all entitled "The Whore of the Republic".

Mr Huang's Chinese affair could go down as the most expensive shag in history. Nvidia is worth perhaps $500bn less than it was at the end of last week, which ranks this among the most costly corporate crises of all time. (The sum is greater still when you consider that the rest of the market is up.) The ultimate financial cost depends on two hard questions. How much was the influence wielded by Mr Huang in the White House actually worth? And could a new boss at Nvidia maintain the carefully balanced financial deals that Mr Huang assembled? Both matter not only for the chipmaker's shareholders, but all of Silicon Valley. Mr Huang is the industry's most vocal lobbyist and its keenest financial backer.

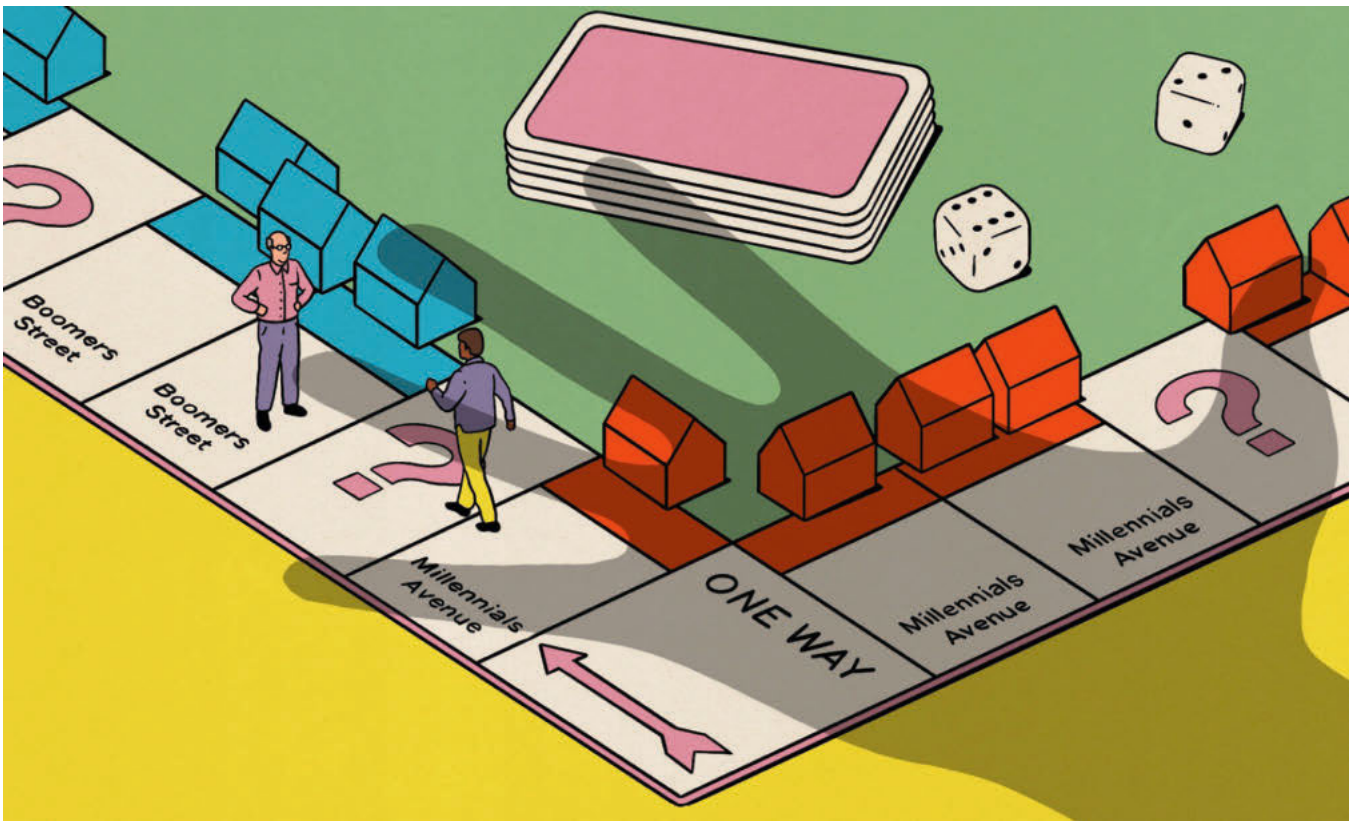
The worst scandals are obvious in hindsight. Researchers drew attention to Volkswagen's dodgy emissions figures a year before it was sued by the American government over "dieselgate". A report by a short-seller on Mr Huang's dealings with his mistress, Alice Huang, was published in May. That she might be a Chinese agent would have been obvious to Mr Huang had he inquired about her background: before going into business, Ms Huang worked at a Chinese state-run broadcaster known by its unimprovable acronym, "CCTV". Mr Huang's lack of inquisitiveness is bested only by that of Neil Bush, son of one American president and brother of another. When travelling in Asia during the 1990s, women would show up uninvited to his hotel room and have sex with him. "It was very unusual," Mr Bush said later during his divorce proceedings.

A great scandal is like a sponge, soaking up everything around it. The Huang affair is likely to become the focus of corruption inquiries by Democrats in Washington. How might it have been prevented? Investment restrictions have been adopted in recent years to prevent the Chinese from acquiring secrets by buying companies. But there are no good rules to stop them sleeping with executives. Never has the stock market depended on so few people so unaccustomed to being playboys.

Sleeping with the enemy

The best precedent for the Huang affair has nothing to do with Silicon Valley, and it exploded all the way back in 1963, the year Mr Huang was born. John Profumo, an up-for-it British government minister with a national-security brief, had an affair with a young showgirl who was also said to be involved with Yevgeny Ivanov, a Soviet naval attaché. It mattered little that an official (indeed an "independent") inquiry determined that no state secrets had been compromised by their relationship. Harold Macmillan, the prime minister, resigned soon after. Profumo withdrew from public life and spent the remainder of his days helping the poor of London's East End. How will Mr Huang spend his? ■

Finance & economics



Boomer communism

Over the hill

Across the rich world, the geriatric share of income and wealth is ebbing

THE RIOTS in France gave another airing to a familiar grievance: that baby-boomers have cornered the market. After cushy careers, the gripe goes, people born between the mid-1940s and mid-1960s own all the best houses and most of the stock market, while receiving generous pensions to boot. Politicians, knowing that these oldies vote in large numbers, fall over themselves to hand them goodies. Younger adults are stuck with expensive housing, insecure work and a crumbling education system. In June Samuel Moyn of Yale University published a tome on the scourge, titled "Gerontocracy in America".

Mr Moyn's book and the sentiment it reflects may, however, be out of date. A range of data analysed by *The Economist* suggests that the world has passed peak boomer. Elderly incomes are falling relative to those of working-age people, the young are accumulating more wealth and governments are introducing more policies that benefit the stripling. The unwinding of boomer communism, as the phenomenon is less charitably described, is a ray of hope for indebted governments, which cannot afford to continue to lavish perks on an ageing population. It also suggests that Western political systems are less ossified than commonly assumed.

Boomer communism was the result of the postwar settlement. The welfare system of the 1950s and 1960s treated working men well but did far less for everyone else. Many older people, women in particular, made do with meagre occupational pensions and quickly outlived their savings. Old age was a synonym for destitution. In America in the mid-1960s close to 30% of people over the age of 65 had incomes below a threshold required to meet basic needs, compared with just 10% of working-age folk. In Canada in 1976 (the earliest available data) 47% of elderly households were poor (under a looser definition), versus 15% of 18- to 64-year-olds. Even when pensioners were not poor, they were rarely rich. In Britain in 1961 the income, after benefits, taxes and housing costs, of the median pensioner was 30% lower than that of the median person of working age.

By the 1980s poverty among the elderly became politically unsustainable. British newspapers were full of stories of pensioners "freezing to death", for which they blamed stingy pensions. Scandals in nursing homes gripped America and France. Politicians who could safely ignore old people when there were few of them started paying attention as their ranks swelled. Strong economic growth at the time gave governments plenty of fiscal space for handouts to the old. They made pensions more generous and indexed them to wages or prices, expanded health care and added targeted help (for housing, heating, public transport and other amenities).

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Britain, which has the best historical data, shows how things changed. In the 1990s and 2000s the incomes of pensioners soared. By the mid-2010s the retired had nearly as much coming in as working-age Britons (see chart 1, left panel). The trends were similar elsewhere. We estimate that the income of the median elderly household in America, after taxes and benefits, rose from 57% of that in other households in 1979 to 90% in 2012. From 2003 to 2019 the median disposable household incomes of elderly Italians, relative to those of working age, rose from 79% to 92%. By 2015 Greek pensioners had come close to outearning younger compatriots. In many rich countries, the earnings of working people stagnated or fell, especially after the global financial crisis of 2007-09.

Governments' big mistake was to help oldies who did not really need it. Plenty of boomers were already reaping the windfall of long bull markets in property and equities. This wealth was supplemented by income from generous defined-benefit pension schemes, which mostly tied payouts to final salaries. In addition, almost every country offers goodies to its elders that by any rational accounting it should not.

Most oldies get discounted or free admission to museums and art galleries. All Londoners aged 60 or over, from the poorest to the poshest, can ride many buses and the Tube free of charge. Spain subsidises pensioners' holidays. Donald Trump's big tax bill of 2025 gave taxpayers over 65 an additional $6,000 annual deduction.

Despite the aches and pains, in other words, being old can be pleasant. But maybe not for much longer. We found data on working-age and pensioner incomes for 32 rich countries. In 26 of them the elderly are declining relative to the young. Working-age Greeks now earn nearly 20% more than pensioners receive. Had British oldies' progress of the early 1990s to the mid-2010s continued, their incomes would be 10% above the working-age median. In fact they are 10% below it. The median incomes of America's elderly have not gained on the non-elderly for over a decade. Child poverty has fallen sharply in recent years, and now is only a bit higher than elderly poverty (see chart 1, right panel). Even in Brazil, where the median older household once got 20% more than working households, things are coming back into balance.

Younger people are not just earning more. Many have also found better-quality work. Economists have long argued that European job markets are subject to "insider-outsider" dynamics, in which old people sit in well-paid and protected roles while younger ones suffer on insecure, temporary contracts.

One way to quantify insider-outsider dynamics is to compare how common temporary work is among different cohorts. In much of the 2000s and 2010s younger workers in OECD economies were becoming relatively likelier to fill temporary roles, suggesting that insider-outsider dynamics were intensifying in the club of mostly rich countries (see chart 2, left panel). More recently, though, the gap has narrowed.

Americans over 70, who make up 13% of the population, do hold a huge share of their country's overall private wealth—about a third, according to the Federal Reserve. But since the late 2010s their share of wealth has grown more slowly than their share of the population. Young people, many of whom have bought into the stock market, are doing surprisingly well. American millennials (born between the early 1980s and the mid-1990s) may mope about their lot but they are richer than any earlier generation at their age. Early signs provide some indication that Gen-Zers are accumulating wealth even faster (see chart 2, right panel).

The elderly's dominance of the housing market is also not what it used to be. In the decade to 2019 the median age of American homeowners rose from 54 to 58. But since then it has not budged—even as the population has aged. In England, which has less precise data, the share of homeowners aged 65 and over has been flat at about 36% since 2017-18. This implies that younger people are finding it easier to get on the "housing ladder".

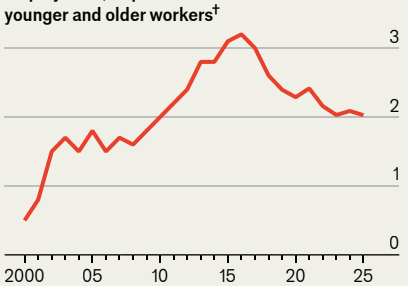
Yours sincerely, wasting away

Economic gerontocracy has peaked for a few reasons. One relates to the economy. Excluding the short downturn of 2020, amid the covid-19 pandemic, the rich world has not experienced a synchronised recession for two decades. Strong demand for labour has boosted workers' wages, which in turn has made it easier for them to accumulate wealth. Post-covid inflation, meanwhile, probably hit old people harder than youngsters. Wages have kept up reasonably well with rising prices, whereas many defined-benefit pensions pay a fixed nominal amount. Inflation has also eaten up the savings on which many oldies live. A paper published by the European Commission found that the recent "cost-of-living crisis" hit pension-age households nearly three times as hard as those of working age.

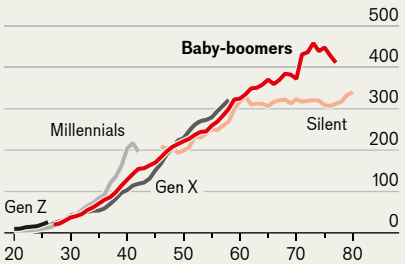
These relative gains in favour of the young would have occurred even if politicians kept their pro-oldie bias. In fact, policy is also turning less boomer-friendly. Over the past decade many European governments have liberalised labour markets. This benefits younger workers (since firms

I could be handy, temping for you 2

OECD*, share of people in temporary employment, %-point difference between younger and older workers†



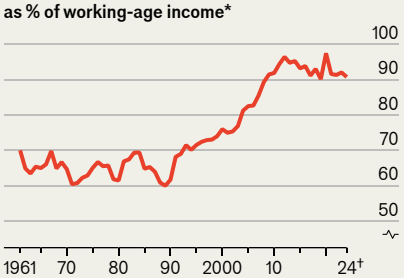
US, median household net worth by age, $'000
2025 prices



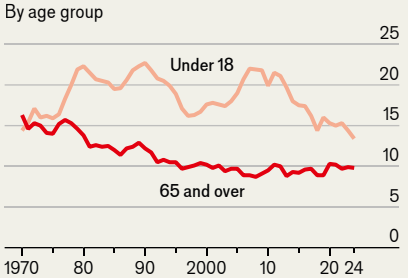
*Simple average of 32 countries †25- to 54-year-olds minus 55- to 64-year-olds
Sources: Federal Reserve; Jeremy Horpedahl; OECD

When I get older, losing my share 1

Britain, average pensioner income as % of working-age income*



United States, poverty rate, %
By age group



*Median incomes after housing costs †Estimate
Sources: Department for Work and Pensions; Institute for Fiscal Studies; Census Bureau; *The Economist*

are more willing to take a chance on a fresh hire if they can sack people more readily) at the expense of the old (who are now easier to get rid of). Quantitative indicators produced by the OECD suggest that in recent years employment-protection rules in Greece and Italy have become less strict. France has made firings more predictable for employers, including by capping compensation for unfair dismissal.

The clearest shift away from gerontocracy may be in public spending. Wonks at the University of Pennsylvania allocate federal spending in America to different age groups. Using their methodology, we estimate that until the 2010s Americans over 65 received ten times as much federal money per person as other age groups did. Outlays on Social Security and Medicare, the health-care programme for the elderly, vastly outweighed spending on child benefits (lots of education spending is within the purview of states and cities rather than the federal government).

Pots of money continue to flow to the elderly. But because so many people are ageing so fast, individual oldsters are losing out. By 2024 the American old were getting six times as much government largesse as younger cohorts rather than ten times. In the majority of the other 29 rich countries we examine, we find similar trends. In Italy old-age spending has gone from almost 15 times as much as spending on families and children before the pandemic to less than ten times as much.

Some of the narrowing of the largesse gap has to do with how much governments are splurging on the old. Many have put a lid on health-care spending, which disproportionately flows to the elderly. After soaring during the 2000s, American health spending has been roughly flat as a share of the economy. Many other countries in the OECD have also bent the health-care curve, thanks to expanded use of cheap generics, stingier payments to health-care providers and other cost control.

Public pensions are changing, too. Reforms in the 1990s had, bizarrely given ageing populations, reduced the average age at which people in the OECD retired, from about 65 to 61 (see chart 3). Pension systems thus had to support old folk for longer. Now governments are encouraging people to stay in work. In the past decade the average age at which an Italian man retires has increased by four years. Even in France, which has one of the world's most generous pension systems, the age at which people hang up their boots is rising.

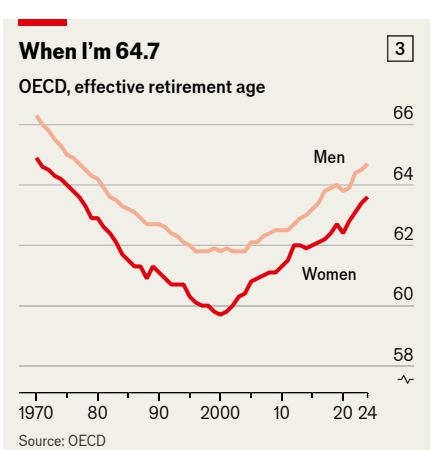
A new database of pension reforms, maintained by the IMF, suggests that after years of giveaways, policies are becoming somewhat more hardnosed. Britain's prime minister, Andy Burnham, recently said that his government would reform the "triple lock" on the state pension that raises it by inflation, earnings growth or 2.5%, whichever is highest. In 2025 China, where most men retired at 60 and women in blue-collar jobs could do so as young as 50, began implementing its first increase in the retirement age in over 70 years (to 63 for men and 55-58 for women by 2040).

Even as they have tried to contain spending on the old, governments have become less stingy with the young. Many have increased handouts to families, often in an attempt to boost fertility rates. Since 2024 Germany, Ireland, Japan, Poland and South Korea have introduced or expanded child allowances. Parental leave has grown more generous, too. Uncle Sam is chipping in $1,000 to seed investment accounts for children born in 2025-28. Whether or not such policies meaningfully boost birth rates (and economists are sceptical), they certainly increase the incomes of young parents and their existing offspring.

Perhaps some regression towards youth was inevitable after decades when everything seemed to go oldies' way. Daniel Stockemer and Kamila Kolodziejczyk of the University of Ottawa and Aksel Sundström of the University of Gothenburg manage a data set which tracks the ages of political cabinets across the world. Our analysis of their data suggests that in the 2000s and 2010s, old people were increasingly overrepresented. More recently, however, this trend appears to be turning.

In America's House of Representatives the average age at the start of the current Congress in 2025 was 57.9 years, down from 58.4 in early 2021. It may be younger still next January, given the results of the midterm elections on November 3rd. The Senate will certainly get less geriatric: newly minted senators are nearly 15 years younger than the incumbents they replace. In Britain the average age of MPs elected in 2024 was 49, down from 51 five years earlier. In recent years the share of French ministers who are 40 or under has jumped from about one in ten to one in four. President Emmanuel Macron is 48, and first took office at the age of 39.

Policy almost everywhere remains biased towards pensioners. The old hold a formidable stock of property and financial assets, and the coming pressure on health and long-term care will be severe. But for the first time in decades, governments are beginning to recognise that they do not exist to serve the needs of a single constituency. Slow growth and high public debt make it impossible to increase pensions indefinitely. Low fertility makes the cost of excluding parents from work more obvious. And to the extent that politicians look out for their own kind, these shifts may continue. The golden age of the golden oldie may be nearing its end. ■



Taxing rich emigrants

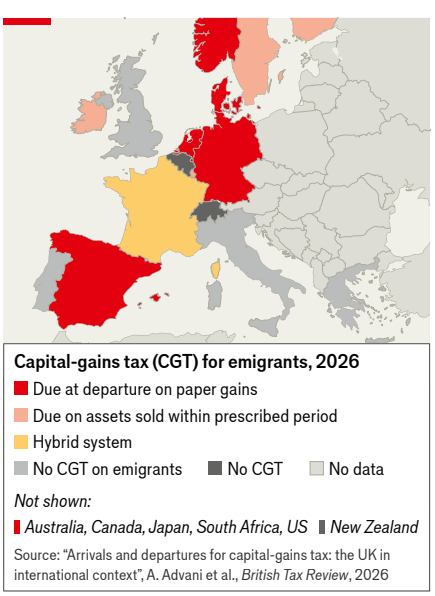
Fight or flight

BERLIN

Italy's proposed exit tax on capital gains causes ructions

ONLY A FEW days after Giorgia Meloni, Italy's prime minister, said her draft budget bill for next year would contain an "exit tax" on wealthy emigrants' capital gains, she was back-pedalling. On November 5th her deputy economy minister, Maurizio Leo, said the government was "open to changes". From tax lawyers to politicians, critics have been vocal. They include Matteo Renzi, who as prime minister proposed a flat tax of €100,000 ($111,000) on rich immigrants' income from abroad. Introduced in 2017, it has been credited with making Italy attractive to foreign professionals. A populist measure, he says, will waste a decade of work.

In principle an exit tax has something



to be said for it. It removes the incentive to move abroad to dodge capital-gains tax on, say, shares or bonds that have risen in value. Several countries have adopted such taxes (see map on previous page). Under Italy's draft law, which is subject to a vote next month, residents with more than €800,000 of financial holdings worldwide who leave the country will pay a 26% capital-gains tax, regardless of whether they sell their stash. It covers gross financial assets (ie, before liabilities or debts), including derivatives and crypto assets as well as equities and bonds—a broader base than in other countries. Anyone resident for six out of the ten tax years before leaving Italy will be liable.

But the tax has its flaws. Gains are to be calculated from the purchase price of assets, even if they were bought before someone arrived in Italy. Emigrants might also grumble about getting a bill for unrealised gains, although if they move to another European Union country and hold on to their nest-eggs they will be reimbursed after five years. Tracking those liable and calculating what is due may also be fiddly. And the Italian government will reap little: it expects merely €3.4m next year, €6.7m in each of the following four and €3.4m a year from then on.

Government insiders say that besides courting voters before next year's parliamentary election, Ms Meloni has acted in the belief that Britain would introduce an exit tax, leaving Italy as the only G7 country without one. That fear seems misplaced. Last year Rachel Reeves, then Britain's chancellor, pondered a 20% charge on unrealised capital gains on emigrants' business assets. But she ditched the idea after warnings that it would prompt rich folk to move to places with no such levy—such as Italy.

In 2022 Germany switched to a system that, like Ms Meloni's proposal, taxes gains on the paper value of emigrants' assets. Hitherto tax had been due only if assets were sold within ten years. Ulrich Stoll, who heads the Stiftung Familienunternehmen, a lobby group for family companies, argues that the new set-up inhibits entrepreneurs' mobility. Mr Stoll, who also owns one-sixth of Festo, a 101-year-old engineering firm, says that under the new regime it would have been prohibitively costly to work in America for six years, a spell that proved useful for his career.

A well-designed tax might allay such concerns. Christian Kempges, a lawyer at Baker Tilly, a consulting firm, says he can think of no country that has got exit taxes right. He suggests they should kick in only if an asset is sold, but with no time limit—and that the OECD should devise a rule to apply to all its members. Ms Meloni may be pushed into changing her plan. But her worry is losing votes, not losing the rich. ■

The anti-AI trade

Diya or don't ya

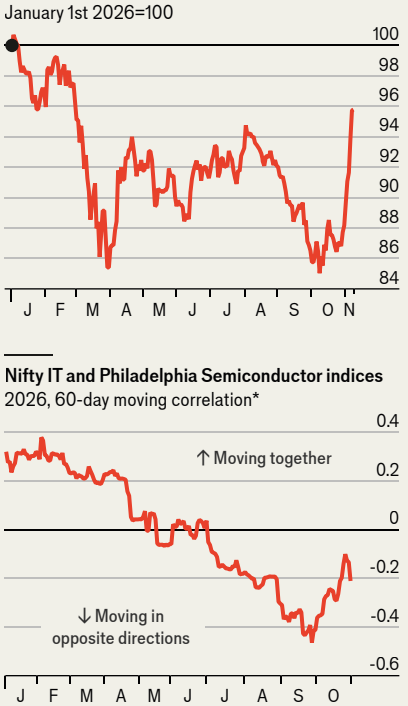
MUMBAI

The worse chipmakers do, the better Indian equities perform

MOST OF THE world's traders were still enjoying a weekend break on Sunday November 8th after a rough few days in the markets—except those in Mumbai, India's financial capital. Its two big bourses opened for a 70-minute special session to mark Diwali, the festival of lights, and to welcome Lakshmi, the goddess of wealth. Trades made during this so-called Muhurat session are meant to be particularly auspicious. Investors are supposed to make long-term purchases: buying gold and silver is common as are conviction bets for the sake of the grandchildren.

Investors in India had plenty of reason to be optimistic. The Nifty 50, a benchmark, has risen by more than a tenth over the past month, becoming the best-performing stock-market index in Asia. In the week running up to Diwali, it stood out in a sea of red as investors elsewhere feared that an AI bubble had finally burst. The index rose by 2.4% on November 5th as the NASDAQ fell by 5.5%. The rally even extended to the rupee, which on November 6th reached its highest level since April.

A nifty hedge



*Correlation of same-day log returns
Sources: FactSet; Google Finance; *The Economist*

Indian equities have largely sat out the AI boom. Investors saw the country as a victim of disruption rather than a disruptor itself. In February 2026 the market plunged after the launch of Claude Code, an AI tool. A viral note from Citrini Research, a firm of analysts, added to the gloom, concocting a scenario in which India seeks an IMF bailout in 2028 as its coding industry falters. India earns about 10% of its GDP from services exports. (Predictions of doom are still far from being borne out: employment in IT has grown and total Indian services exports are up by 8.7% so far this fiscal year.)

Now that investors are re-evaluating AI's prospects, India has gained. Since May India's tech stocks have traded in the opposite direction to AI hardware stocks (see chart). As investors have become concerned about overexposure to AI hardware (memory chips and the like), they have rotated to AI wetware, the coders who use the tools. The Nifty IT index, which includes consultancies such as Infosys and Wipro, has risen by 28% since July, having previously fallen by 36%. The seesawing is mostly about sentiment, points out Anmol Garg, of DAM Capital, an investment bank. Excessive pessimism about Indian IT companies was the counterpart of excessive optimism about chipmakers. Both excesses are now subsiding.

Foreign investors have rushed back to India after a long absence. On November 5th Indian equities received $1.6bn of foreign inflows in a single day, the most since February 2021. It was also a reversal of the year-long trend: $30bn has left India in the first ten months of 2026. It is not only AI that is tempting investors back. Valuations look more attractive, says Shibani Kurian of Kotak Mutual Fund: earnings have been growing at a "robust clip". By the end of October the Nifty 50 was trading at close to its cheapest ratio of price to earnings for a decade.

There are other auspicious developments. Indian assets have benefited from lower oil prices. The country imports about 90% of its oil, historically from the Gulf. As investors bet that a humbled Donald Trump would seek a deal with Iran to stabilise the oil market, the rupee rallied and the yield on government bonds fell. There has also been encouraging chatter that the government may remove long-term capital-gains taxes from foreigners.

Sadly the 70 minutes of Sunday trading ended in anti-climax: the market finished slightly down, for the first time in nine years. AI stocks rallied the next day and Indian stocks largely missed out on the exuberance. Those holding on to shares for their grandchildren should not mind too much. There is plenty of time for Lakshmi to do her thing. ■

Trumponomics

Veto and fro

WASHINGTON, DC

The art of the deal may yet prevail

DONALD TRUMP has a knack for fitting his politics into four letters. His supporters relish wearing red baseball caps emblazoned with MAGA. After his party got thumped in the midterm elections, he posted a picture on social media of the familiar cap bearing a new slogan: VETO.

A sign of things to come? Perhaps. With Democrats set to control both chambers of Congress starting in January, gridlock may seem inevitable. Yet Mr Trump would not be himself if he did not also expect to make deals. "After a couple of months of vetoes, they'll call," he predicted of Democrats. "And we'll work together."

Such bipartisan bargaining would certainly be a departure from the first two years of the president's second term. With Republicans controlling the House of Representatives and the Senate, Mr Trump passed a sweeping tax-and-spending law that disproportionately benefited the rich and swelled projected deficits. Much else, from his massive tariffs to mass deportations, was enacted through presidential powers that he continues to hold. What, then, will Trumponomics look like in its remaining years?

On fiscal policy, two looming deadlines may provide opportunities for negotiation. The first concerns government funding. It expires on December 11th, a month before members of Congress are sworn in, but a temporary extension could leave the next budget deal to the new Democrat-controlled legislature. The second deadline, to raise the debt ceiling, could provide even greater leverage for Democrats later next year, when failure to reach an agreement would risk a default. Mr Trump struck deals with Democrats on both issues in his first term, at times siding with them against Republican congressional leaders.

Any fiscal bargain could prove expensive. Mr Trump wants much more money for the armed forces. His budget for 2027 proposed a rise of roughly 40% in defence spending, although the full request is highly unlikely to be met. Democrats, meanwhile, want to restore tax breaks for health care that expired at the end of 2025 and otherwise ease financial burdens on households. Hakeem Jeffries, their leader in the House, has prioritised expanding the child tax credit and earned-income tax credit, a top-up for low earners.

In the old guns-versus-butter debate, America's usual answer is to "spend more on both", observes Rohit Kumar, who served Mitch McConnell, a Republican former Senate majority leader, as deputy chief of staff and is now at PwC, a consultancy. For every additional dollar the Pentagon receives, he reckons, Democrats could demand a matching increase for domestic programmes.

All of this would add to the deficit. Allianz Research, an arm of an insurance company, expects a fiscal loosening of about 0.2% of GDP in 2027. Additional demands could include delays to planned cuts in Medicaid (health care for the poor) and food stamps. How much red ink this adds will depend partly on offsetting budget tweaks elsewhere. Democrats could try to restrict tax breaks for data-centre investment or impose a new levy on the AI industry, suggests Mr Kumar.

Compromise may also shape Mr Trump's ambitions for America's artificial-intelligence boom. In the past two years Mr Trump has championed data centres, taking a "let it rip" approach to regulation. But Democrats prevailed in races for the governorship in Georgia, Ohio, Texas and elsewhere promising pauses or other limits on new construction. Incoming governors who back such measures won in states that account for 41% of planned data-centre capacity, according to Cleanview, a research firm. It would be wrong, though, to conclude that these governors want permanent bans on data centres. Most merely want their operators to pay more for electricity, notes Gabe Horwitz of Third Way, a centre-left think-tank.

That could open the door to another bargain for Mr Trump, in a perennially promising area of reform: permitting. A bipartisan bill backed by the president would speed up construction of power plants and transmission lines, while requiring large data centres to shoulder more of the costs they impose on the grid. Its chances of passing before January have dimmed, with some Democrats now hoping to extract further concessions after their electoral victories. But it is still possible to imagine a deal that makes it easier to build while shielding households from higher electricity prices.

Even where Mr Trump can act without Congress, he may face new constraints. After a big setback at the Supreme Court, what remains of his chaotic tariff campaign faces more legal challenges. Democrats are preparing congressional investigations and legislation to curb his trade powers further. These efforts may achieve little without enough Republican support to override a presidential veto. Yet a bigger constraint could be public opinion: nearly two-thirds of midterm voters said his tariffs had hurt the economy. That might encourage Mr Trump to ease some duties, says Ryan Majerus, a former American



All hat and no majority

trade official now at King & Spalding, a law firm. He could find an off-ramp in a pending court ruling on "Section 301" tariffs, which are supposed to punish countries for unfair trade.

Mr Trump's room for manoeuvre may narrow in other ways, too. In the past he has repeatedly pressed the Federal Reserve to lower interest rates. Now a Democratic Senate could block his attempts to install another loyalist on its board, strengthening the central bank's independence. Public pressure may also encourage Mr Trump to soften his immigration crackdown. In a post-election interview with CBS, a television network, the president acknowledged that his deportation policy "might be too tough" and said that he would "love to do something on immigration" with Democrats, particularly for long-term undocumented workers.

Mr Trump's willingness to compromise is, of course, far from certain. Only hours after his CBS interview he appointed Stephen Miller, an architect of the "tough" deportation campaign, as White House chief of staff. The appointment of a hardliner may have been meant to put paid to the popular notion that "Trump always chickens out" in the end.

Still, with Democrats controlling Congress, bargaining may offer the best route to advancing Mr Trump's remaining economic agenda. When it comes to confrontation with triumphant Democrats, TACO may prevail over VETO. ■

BUTTONWOOD
Skittled

Lessons from a miserable month for hedge funds

NOVEMBER, WITH its post-election market swings and the Jensen Huang affair, has so far been bruising for hedge funds. But October was brutal: many funds had their worst month since the covid-19 pandemic began, according to JPMorgan Chase, America's biggest bank. A wobble in markets' enthusiasm for artificial intelligence forced a sell-off of technology stocks. The surprise re-election of Brazil's left-wing president, worries over France's sovereign debt and tumult in credit markets added to the pain. A Bloomberg index of the industry's returns fell by 1.7% in the month. The biggest fund at Millennium, a giant manager, lost 2.3%. The main fund of Arini Capital Management, a fast-growing credit shop, was down by 19.7%.

By the time tech stocks plunged again on November 5th, managers were already so light they had little left to sell. According to data compiled by UBS, another big bank, there were six days in the previous month on which funds had unloaded more. Hedge funds sometimes get the blame for market falls. This time they were innocent, though they have been given food for thought. The industry has been coasting on the AI boom: the Bloomberg returns index still ended October 4.1% higher then it began the year. But October exposed the dangers of being caught on the way down.

One category, multi-strategy funds, has more to ponder than most. Whereas a typical hedge fund implements the vision of a single portfolio manager or a few working together, multi-strategy funds recruit several, all of whom are free to pursue their own trades. The central fund constrains them only by controlling capital allocation among its various "pods" of traders and imposing a strict risk policy to limit losses. In theory the managers' independence makes their trades unrelated, raising the whole fund's risk-adjusted performance compared with that of one manager. In booming markets returns are also less volatile than in single-manager funds.

Multi-strategy funds were pioneered by such luminaries as Ken Griffin of Citadel and Izzy Englander of Millennium. Others have enjoyed remarkable success, too. PivotalPath, a consultancy, estimates that the ten largest control gross assets worth $2.2trn. But in recent years their rise has levelled off—and in recent weeks the tight risk policies have begun to pinch. Many force managers to start unwinding positions when losses exceed only 5%. Lose more than 7.5%, and a pod may be shut down. With leverage, even small movements are enough to derail trades.

October's movements were more than enough to force liquidations. By November 9th, when investors had cooled on the financial instruments enabling the build-out of data centres by giant technology companies from Nvidia to Meta, 32% of hedge funds' books were exposed to AI, down from 47% in June.



Managers became timid. Funds, which borrow from markets as well as using their investors' cash, reduced their net leverage by eight percentage points in the week to November 6th, reports Morgan Stanley, another bank. This may reflect more than caution: it has been a bumper year for attracting new investment, the best since 2007. But mindful of scaring investors away, fund managers are also eager to limit damage to their returns with too much deleveraging.

The episode raises questions for the multi-strategy model. Its supposed advantage is the managers' independence. With several supposedly making insightful independent decisions, the fund should be protected should some calls not pay off. Gains from a trade on steel, say, could cushion losses from a bet on neocloud firms. But it is increasingly difficult to avoid AI. In July a plunge in chipmakers' share prices forced funds to sell stocks and bonds whose value depended on the technology's success. Burned, many managers promised not to load up again. Just a few months later, they must have déjà vu.

There are two reasons for this. The first is the sheer amount of the financial system now within the reach of multi-managers. Finding a broad enough range of instruments with which to deploy $2trn-worth of firepower is hard even in normal times. The second is that now almost no corner of the world economy is untouched by AI. A portfolio manager buying copper futures is of little use to balance the risks taken by a colleague backing neoclouds if the price of copper depends on AI's future development. The growing pervasiveness of one technology may ensure the multi-strategy hedge fund's best days are behind it.

FREE EXCHANGE
The snatch-and-grab state

A new history of confiscation sheds light on modern economic warfare



As a Quaker, A. Mitchell Palmer did not relish conflict. In 1913 the American congressman turned down an offer to serve as secretary of war. But conflict in Europe challenged his pacifism. Six months after America joined the fight against Germany and Austria-Hungary in 1917, Palmer was appointed Alien Property Custodian. The job put him at the forefront of the economic battle against the two aggressors. Tasked with seizing enemy-owned assets across the American economy, his office hoovered up factories, stocks, buildings, patents and more. Soon it began auctioning these to raise money for the war effort. By 1918 Palmer was helping to finance the fighting with the enemies' own wealth. Germany began the war as the world's third-biggest foreign investor, after Britain and France. By the time the guns fell silent, more than half of its foreign assets had been confiscated.

The story of Germany's expropriation is an important episode in "The Age of Confiscation", an insightful new book by Nicholas Mulder of Cornell University. Armies have often financed themselves by looting their enemies. But because so many German-owned assets were located in Allied jurisdictions, many of them could be taken with little more than a pen stroke. As Mr Mulder writes, Germany was the first country in the 20th century to have its assets expropriated on every continent.

Today the West's enemy is Russia. After its full-scale invasion of Ukraine in February 2022, Western governments moved quickly. By 2023 they had blocked some $60bn in Russian oligarchs' assets, from villas in Saint-Tropez to yachts in the Caribbean, and frozen some $300bn-worth of Russian central-bank reserves held in the West (mostly at Euroclear, a Belgian depository).

Yet Western leaders have remained divided over what to do with these assets. Some of the bling and boats were auctioned and in 2024 Ukraine's allies agreed to use the interest earnings on Russia's reserves to extend a $50bn loan to Ukraine. But Belgium complained that confiscation of the Euroclear reserves could leave it liable for damages equal to a third of its GDP. Others worried about the risk to Europe's reputation as a bastion of strong property rights, which could make the continent less attractive as an investment destination. Christine Lagarde, the head of the European Central Bank, warned that seizing Russia's assets would "start breaking the international legal order".

As Mr Mulder explains, such debates have a long history. For centuries governments' confiscatory capabilities developed hand-in-hand with property rights. Once states grew strong enough to protect claims to property, they also took powers to abrogate them. When Hugo Grotius, a 17th-century Dutch jurist, argued that all societies were formed to protect property rights, he was careful to create an exception. Sovereign rulers, he wrote, maintain the right of "eminent domain", allowing them to seize private property for the public good. The idea caught on. Grotius's theory was adopted by the Founding Fathers in America and by Napoleon in post-revolutionary France.

Because property rights tend to support economic growth, observers have often understated the role of confiscation in the history of rich, prosperous states. In 1989 Douglass North and Barry Weingast, two economic historians, argued that Britain's Glorious Revolution of 1688 brought on "the elimination of confiscatory government". That was an oversimplification. The power of confiscation moved from the monarchy to Parliament, but the state wielded it to redistribute land, raise money for wars and the like. Some 83% of constitutions adopted between 1850 and 2008 enshrine the right to expropriate property for the public good.

Things get especially messy in times of war. In America Palmer seized not just factories and businesses from rich Germans in New York, but also the possessions of poor immigrants. Thousands of American women who had married German and Austro-Hungarian men also lost their property. Britain pursued a similar campaign against enemy-owned businesses across the empire. But it also forced British investors to sell the British state American securities, which it needed as collateral for loans from America. It bought them supposedly at market prices but paid the investors in sovereign bonds rather than cash.

Confiscation is also contagious. Europe's embrace of it during both world wars was carefully studied by the leaders of the continent's former colonies. During the 1950s a wave of nationalisations spread across the Middle East and Asia. In 1956 Gamal Abdel Nasser, Egypt's president, snatched the Suez Canal from the British and French. Law 285, which initiated that seminal expropriation, was modelled on the Trading with the Enemy Acts that Britain and America had used during the first world war.

Ready, aim, take

The contagion is spreading again. The Kremlin responded to the seizure of Russian assets by taking over Western firms' concerns in Russia and distributing them among Vladimir Putin's cronies. Four years into the war the country has more billionaires than it did in 2022 (even if it is harder for them to flaunt their wealth in Mayfair or on Avenue Montaigne). Autocracies, including post-colonial ones, are also catching the bug: in recent years juntas in the Sahel have seized Western-owned gold and uranium mines. America is not immune, either. This year Donald Trump, who called eminent domain "an absolute necessity" during his first presidential run in 2016, has ordered the capture of Venezuelan oil tankers and threatened to seize the Panama Canal and Greenland.

The brief spell of globalisation and peace around the turn of the millennium, when foreign assets ballooned and seizures all but stopped, was a historical anomaly, Mr Mulder thinks. It also left the world replete with property there for the taking. ■

Science & technology



Women's health

Vicious cycles

A new understanding of the biology of endometriosis should lead to quicker diagnosis and better treatment

THE ENDOMETRIUM is a layer of tissue in the uterus which typically thickens during the menstrual cycle. If a fertilised egg doesn't implant, this lining typically thins and sheds. But in women with endometriosis, tissue similar to the endometrium starts growing outside the uterus. The condition can warp and bind together pelvic organs, including the ureter, bladder and bowel, and even spread into the abdominal wall. Over time it leads to nausea, vomiting and intolerable pain. It is estimated that 190m women have the disease.

Modern medicine cannot cure endometriosis, and treatments are inadequate. Its causes are still largely unknown. Obtaining a diagnosis can take almost nine years, requiring such invasive surgical procedures as laparoscopies (in which small cameras are inserted through a slit in the abdomen) and biopsies (in which tissue samples are removed for testing). Even then, results do not always correlate with the symptoms, making it hard to assess the severity of the condition.

Fortunately, there have been a number of promising scientific developments in recent years. "There's been a surge in awareness of the condition," says Krina Zondervan of Oxford University. More patient data have helped, too. Australia, Denmark, France and Spain have launched action plans to improve clinical care or boosted funding for the condition. After decades in the dark, researchers are rapidly moving towards a clearer understanding of the forms endometriosis takes, less invasive ways of diagnosing the condition and a variety of possible treatments.

Dr Zondervan's work helped trigger this transformation. In 2023 she and her colleagues published the results of what was then the largest-ever study of endometriosis. It compared the genetic data of 60,000 women who had the condition with those of more than 700,000 without it. Among the genetic markers common in patients were a number linked to other painful and inflammatory conditions. This suggests potential avenues for treatment.

The following year Dr Zondervan and her team published a detailed map of the types of cells in the uterine lining, including those embedded deep in tissue layers. This allowed them to describe how cells communicate throughout the menstrual cycle, and to pinpoint the cell types most likely to be affected by the genetic markers associated with endometriosis.

More progress was made in April when a team led by Dora Koller, a researcher at the Sant Pau Research Institute in Spain, published the results of an even larger genetic study. It covered 1.4m women, including more than 105,000 with endometriosis. Their results linked specific genes to immune-system responses and hormonal processes characteristic of endometriosis, as well as identifying a genetic connection with chronic fatigue, a symptom

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that doctors frequently dismiss. Such work will help scientists identify genetic risk factors for endometriosis.

Dr Koller, who has endometriosis herself, says her team's results support the idea that the disease affects the whole body, rather than being confined to a woman's pelvis. She says their study could guide new drug development and give researchers clues about whether existing treatments that work for other painful diseases could be used for endometriosis, too.

Research efforts on quicker and less invasive means of diagnosing the disease have also ramped up. Katherine Burns of the University of Cincinnati, who has also experienced endometriosis, has spent time studying white blood cells in the menstrual fluid of women with the disease. She has found they are distinctive in two ways: the cell nuclei are smaller, and they have more lobes than their healthy equivalents. Dr Burns is now using that information to develop ways to diagnose endometriosis without the need for surgery.

Another diagnostic approach is to rely on molecular biomarkers such as proteins and microRNAs (short molecules that regulate gene expression) that feature in the body's inflammatory and immune response to endometriosis. In March scientists from various organisations, including HerAnova Lifesciences, a Boston-based firm, reported that detecting several of these biomarkers could be used to diagnose endometriosis. In 61.5% of these cases, vaginal ultrasounds and imaging had missed signs of the disease.

An even less invasive way to diagnose and monitor endometriosis was described in the *Lancet Obstetrics and Gynaecology* in April. Researchers at Oxford found a new imaging agent (a dye or contrast that is injected into the body to see microscopic biological processes) that was well tolerated by patients with superficial peritoneal endometriosis, the most prevalent early-stage form of the disease. 99mTc-maraciclatide, as the agent is known, attaches to cell receptors that signal inflammatory conditions, causing it to accumulate in areas where there is inflammation. The hot spots can then be seen with imaging tools. Maraciclatide, which is being developed by Serac Healthcare, a pharmaceutical company based in London, hopes to go through phase-3 trials (when compounds are tested at scale in humans) and validation in the near future.

More avenues for treating endometriosis are also opening up. In March, Gesynta Pharma, a Swedish pharma company, announced that it had begun its phase-2 clinical trial of Vipoglanstat. Instead of interacting with hormones, as existing treatments do, the drug blocks an enzyme that is needed to make a pain-related chemical in the body. In doing so it reduces pain and inflammation, making life more bearable. A non-hormonal treatment developed by EndoCyclic Therapeutics, a biopharmaceuticals firm, was cleared by America's drug regulator for phase-1 human trials in March. Called ENDO-205, it aims to go one better: clearing lesions and reducing the rate at which they recur.

More funding may well lead to more progress. Much of the work so far has been done "on a shoestring", says Dr Zondervan. America's National Institutes of Health allocates less than 0.1% of its budget to endometriosis—far less than that for much rarer conditions (Crohn's disease, for example, receives about 15 times more money per patient). A programme launched in 2024 under President Joe Biden to fund women's health research, including endometriosis, was cut this year.

With more cash researchers could conduct trials on women from across the world, to understand how varied the effects of endometriosis are. They could also generate richer data to help distinguish between the disease's many forms and investigate the different types of lesions involved. Such advances could, then, drive the development of targeted therapies that might bring relief to millions. ■

Biology

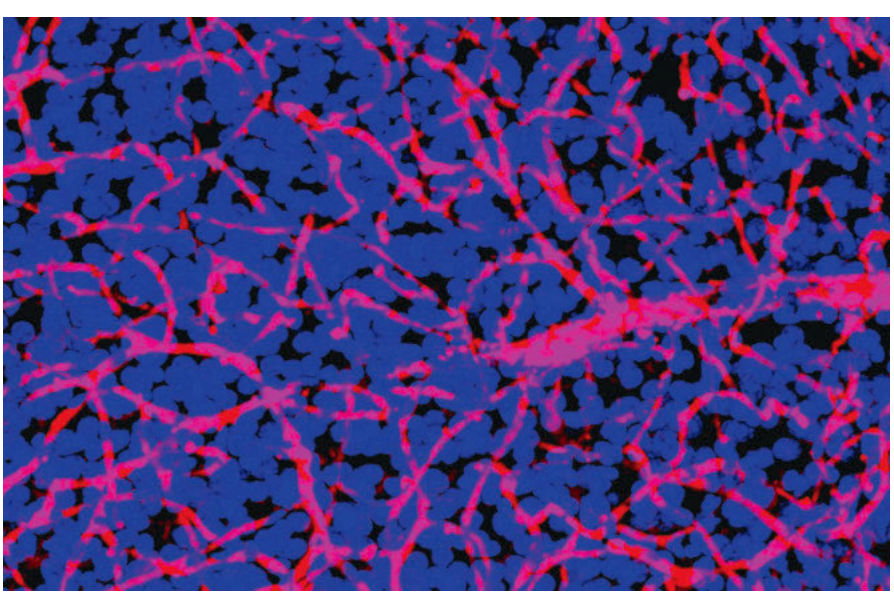
Mental block

The blood-brain barrier may play a vital role in aiding cognitive function

As the command centre of the human body, the brain requires the best protection biology can supply. The hard, bony casing of the skull helps to shield the organ from threats outside the body. But dangers lie within, too. Blood can contain toxins and pathogens which would wreak havoc in the brain's delicate environment. Keeping such vandals out is the job of the blood-brain barrier, a tightly packed network of cells coating the interior surfaces of blood vessels leading to the brain.

In a new study, published in *Cell* on November 11th, a team led by Andrew Yang, a neuroscientist at the Gladstone Institute of Neurological Disease in San Francisco, has shown that the blood-brain barrier is surprisingly sophisticated. By cataloguing the proteins that were allowed through the barrier in mice, the researchers found that it plays a far more active role in brain health than previously thought. The barrier both protects the organ and keeps it supplied with beneficial proteins. The team believe their results may suggest a new approach to treating Alzheimer's disease.

The blood-brain barrier is more like a bouncer than a brick wall. Its cells keep the harmful stuff out while letting in a select few essential molecules found in blood, such as oxygen and glucose, which fuel neural processes. It also ensures that conditions inside the brain are optimal by expelling any unwanted molecular by-pro-



Sorry, your molecule's not on the list

ducts back into the bloodstream. By controlling what gets in and out, the barrier keeps the brain's chemical environment stable and its neurons firing properly. But which molecules are on the brain's guest list, and why, have so far remained unclear.

To answer this question, Dr Yang and his team tagged the proteins in mouse blood with small chemicals that would be invisible to mouse biology. By subsequently extracting brain tissue and identifying any tags within it, the researchers could see which proteins had ended up where.

"What we started seeing is that there was an unexpected breadth and diversity of proteins in the blood that made their way into the brain," says Dr Yang. Of the 861 tagged proteins, 92 reached the brain's tissue. Further contrary to their expectations, such physical features as size or electric charge did not affect which proteins made it through. Most had also been produced in organs far from the brain.

The surprises did not stop there. "We thought [the proteins] would cross and then just get dumped into the brain," says Dr Yang. Instead, his team found that the proteins appeared to target specific cells. One protein, known as apolipoprotein A1 (APOA1), began accumulating in cells called astrocytes which perform a variety of supporting jobs around the brain.

In cells kept alive outside the mice's bodies, the researchers found that APOA1 helped the astrocytes deliver molecules of cholesterol to the neurons, which use the stuff to build and maintain connections between one another. APOA1, which is produced primarily in the liver, thus appeared to support a crucial neural process.

APOA1 also engaged with a gene whose reduced function has been linked to the risk of Alzheimer's disease. When the team applied their protein-tagging technique to mice with an early-stage Alzheimer's-like condition, they found that less APOA1 got through the blood-brain barrier. Conversely, when the researchers engineered the mice's livers to produce extra APOA1, they saw a corresponding rise in the protein's levels in the brain. The number of neuronal connections in treated mice increased, and their performance on movement and memory tests improved. "If validated in humans, this work could open an entirely new therapeutic field," says Egle Solito, an immunobiologist at Queen Mary University of London.

The blood-brain barrier's connection to Alzheimer's is not new. It has long been known that a weakened barrier, accompanied by a leak of harmful proteins into the brain, is an early sign of the disease. But Dr Yang's findings suggest that it is not only the barrier's erosion that may be harmful but also its failure, while still intact, to supply protective proteins to the brain. He reckons many more surprises await. ■

AI and maths

Run of the Yang-Mills

AI has proved a theory underpinning fundamental physics is trustworthy

On October 26th OpenAI, an artificial-intelligence lab, announced that one of its unreleased models had taken a significant step towards solving one of the open Millennium Prize problems, some of the biggest challenges in maths. Known as the Yang-Mills existence and mass gap problem, it is closely related to models of the subatomic world routinely used by quantum physicists. Those eager to see the proof have had to wait while a committee of five external physicists assessed its validity. On November 10th they declared themselves satisfied.

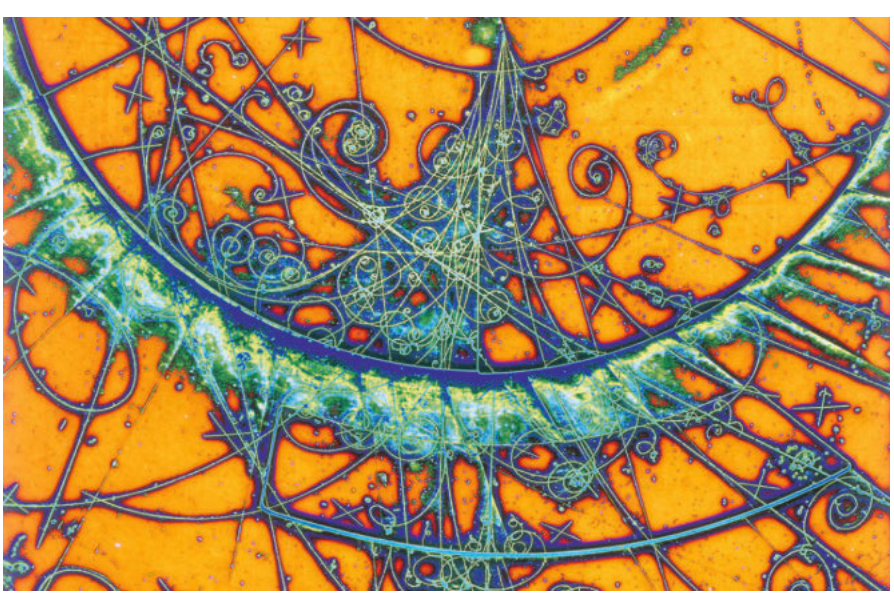
The problem concerns a set of equations, known as Yang-Mills theory, which physicists have long used to describe the working of three of the four known fundamental forces: electromagnetism and the strong and weak nuclear forces. The fourth force, gravity, requires a separate description known as general relativity.

Physicists have good reason to trust Yang-Mills theory. They use it to make predictions about particle behaviour which are borne out to a staggering degree of accuracy. Mathematicians, however, being of a more rigorous bent, would like to confirm it stands on firm mathematical footing.

The first part of the Yang-Mills problem aims to do just that. That involves proving the theory breaks no rules and has no exceptions, all without making any simplifying approximations. The committee which OpenAI convened has confirmed that, in their judgment, the model has successfully cleared that hurdle. To do so, the physicists checked that the AI's formalisation of its solution in Lean, computer code confirming the proof's internal logic, corresponded to the problem at hand. Although the committee has published the formalisation, which runs to around 1m lines of computer code, the AI's 1,147-page "natural language" proof—which, the committee members said, "we do not claim to fully understand"—has not yet been shared. No reason for this secrecy has yet been given.

What is known for now is that the proof builds on techniques developed in the 1980s by Tadeusz Balaban, a researcher at Rutgers University. "There were no obvious showstoppers in his programme, but [it] was very complicated," says Edward Witten, a mathematician and physicist at the Institute for Advanced Study in New Jersey, who helped formulate the official Yang-Mills problem statement. "I actually believe if there had been ten Balabans, this would have been done by the 1990s."

Dr Witten calls OpenAI's proof a "very important milestone", but reckons it is unlikely to change how physicists work. A solution to the second part of the Yang-Mills problem, which involves showing that the theory predicts no massless particles (and on which OpenAI's latest results shed no light), would be a different story, however. Such a proof may shed light on why subatomic particles called quarks bind together to form the protons and neutrons found in atomic nuclei. Though the AI had Dr Balaban's work to draw upon when proving Yang-Mills's solidity, Dr Witten believes no such handholds exist for the mass gap. "At the risk of possibly sounding foolish," he says, "my guess is that it's pretty far off." ■



Yes, that looks about right

Botany

Hide and seek

Space-based cameras could help spot invasive species on Earth

As its name implies, the Earth Surface Mineral Dust Source Investigation (EMIT) exists to analyse terrestrial dust—and to do so from the International Space Station. It does this by recording the wavelengths of light that dust absorbs and reflects, measurements that are important for modelling how Earth's temperature changes over time. Unexpectedly, though, as a paper in *Biological Invasions* by Susan Meerdink at the University of Iowa has now shown, EMIT may bring a second environmental benefit: an ability to track invasive plant species.

Such tracking has real value. Invasive plants compete with native crops, infest livestock pastures, clog waterways and destroy native ecosystems. In America alone their spread cost over $190bn between 1960 and 2020. But spotting them is not as easy as might be supposed.

Until recently the best way to find invasive plants was to go into the field and look for them. That changed with the invention of hyperspectral imaging. This does not record colours in the way that ordinary cameras do. Instead, it records how surfaces both absorb and reflect different wavelengths of incoming light. The result is a visual fingerprint that permits surfaces that appear identical in colour to the eye—such as the leaves of different plant species—to be distinguished from afar.

To test whether such fingerprints might be visible from space, Dr Meerdink and her colleagues decided to turn EMIT's camera onto the Everglades, a network of swamplands in Florida that is rife with alligators and challenging to survey in person. They first took high-resolution photographs from a helicopter of 242 locations to see where Brazilian peppertrees—an invasive species that grows rapidly and can endure brackish conditions—were present. The team then ran a computer analysis of EMIT images of the same locations, looking for the peppertree's hyperspectral fingerprint.

EMIT, they found, supported the conclusions of their helicopter survey. Satellites less sensitive to the wavelength of incoming light, by contrast, confused native plants with the invasive target. Since EMIT has already snapped pictures of most of Earth's land-surface at least once, and the catalogue is expanding (and is freely available from NASA), it should now be possible to use it to track invasives more widely, and take appropriate action. ■

Well Informed

What your grip reveals about your health

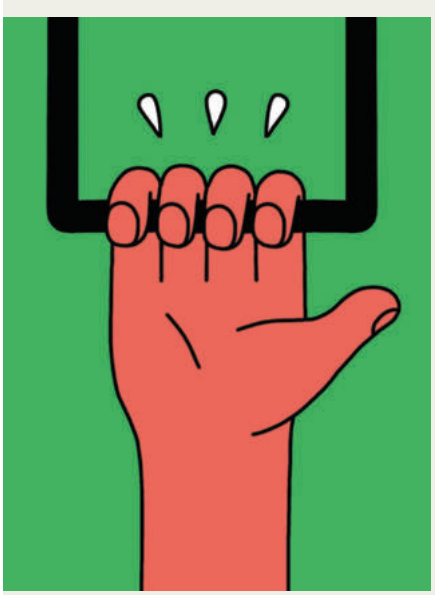
Hand strength can offer early clues to physical and cognitive decline

"Get a grip" goes the idiom. Lately, the fashion for exercises including "dead hangs" and "farmer's carries", and for squeezing hand grippers, suggests that some are taking the advice literally.

The likely trigger was a headline-grabbing study in the *Lancet* in 2015 that associated grip strength with longer life. Following 139,691 people in 17 countries for an average of four years, the researchers linked every 5kg decrease in grip strength with a 16% higher risk of death from any cause. For cardiovascular death, the figure was 17%. Grip strength, they found, was a better predictor of both than systolic blood pressure.

Alas, regular grip exercises alone are unlikely to lengthen your life. They may, however, be a good way of monitoring your overall health. Muscles, notes Brian Clark, a physiologist at Ohio University, are "puppets" at the end of a neurological chain of command. To generate force, electrical signals must be continuously generated by the brain and transmitted to the muscles by nerves. If any part falters, strength suffers.

What makes a squeeze especially revealing is its complexity. To produce a firm grip, the brain must co-ordinate a system of 39 muscles controlling the hand and wrist. Such orchestration is neurologically taxing, which helps explain why fingers clenching together produce less force than the sum of what each can muster alone. Tellingly, in a small experiment with older people, published in 2024 in *Ageing Clinical and Experimental Research*, this shortfall in force was greater among participants with lower scores on a cognitive test.



This raises another intriguing possibility. A weakening grip, says Ivan Bautmans, a researcher on ageing at Vrije University in Brussels, can also foreshadow cognitive decline. Dr Bautmans believes that easy and inexpensive strength tests could provide a valuable early warning. Consider a meta-analysis he co-wrote, published in June in *Neuroscience & Biobehavioural Reviews*, that examined 60 observational studies involving around 380,000 people. Across studies with follow-up periods ranging from one to 22 years, participants with stronger grips were 19% less likely to experience cognitive decline.

Grip asymmetry may be another useful measurement. Having a dominant hand that is roughly 10% stronger than the weaker hand is common, but larger gaps can be telling. A meta-analysis published in April in *Archives of Gerontology and Geriatrics* pooled nine cohort studies involving around 900,000 people, some followed for many years. Participants whose hands differed markedly in strength had a 29% higher risk of death from cardiovascular disease, perhaps because problems with the nervous system can also impair control of the heart and blood vessels. Comparing both hands, the researchers argue, can reveal subtle neuromuscular problems that testing just one might miss.

The brain's division of labour may be responsible. Each hand is chiefly controlled by the brain's opposite hemisphere, and neurological deterioration often progresses unevenly. This can produce a striking imbalance. When one hand weakens to half the strength of the other, Dr Bautmans warns, that decline may be accelerating.

A word of caution is in order: a weak or lopsided grip is no diagnosis. It can, though, suggest that further checks are warranted. As for enthusiasts for grip exercises, research has shown resistance training of muscles across the body can help keep the mind sharp. Hang in there.

Culture



Plague, bad teeth and early death

Remembrance of things past

Idealising the past is in vogue. But is it smart?

The Grim Old Days. By Chelsea Follett. *Cato Institute; 536 pages; $25.95*

MANY PEOPLE yearn for the good old days. In a global Ipsos poll, respondents given a choice of being born half a century ago or now picked the past by nearly two to one. A startling number think even the distant past was not so bad: in a YouGov poll, 40% of Britons were unsure that life was worse in the 1600s. Anti-capitalists on social media grouch that workers in Amazon warehouses are more oppressed than feudal farm labourers. "You have less free time than a medieval peasant," and this is "frankly outrageous", complained one on X.

P.J. O'Rourke, an American satirist, once offered a one-word rebuttal of paeans to the pre-industrial past: "dentistry". Chelsea Follett, a scholar at the Cato Institute, a free-market think-tank in Washington, expands on this incisive quip. The poor in pre-modern Europe ate cheap bread made by crooked bakers with grit, chalk, animal bones and other tooth-chipping hazards. The rich had sugar but no toothpaste. Queen Elizabeth I lost so many teeth that she stuffed her mouth with fine cloth to stop her cheeks from sagging. The ones that remained were famously black.

Dentists were either quacks (Louis XIV's medical adviser favoured treating cavities with partridge brains) or barbers with filthy pliers and only grog for anaesthetic. Tooth extraction was agonising and often fatal. In a typical week in London in 1665, infections caused by dental surgery accounted for nearly 10% of deaths, if one excludes those from the plague.

In "The Grim Old Days", Ms Follett lays out in gruesome detail how life was before the Industrial Revolution, thus offering a rip-roaring reminder of why material progress matters. In the old days even palaces stank, for no one had flush toilets. Chamber pots were emptied into cesspits or out of the window. During the Dutch Golden Age, rules required compensation for passersby whose clothes were ruined by falling "night soil", but elsewhere people just had to wipe it off and wish they had a spare outfit, which most did not. Dismal sanitation spread disease and killed in other ways, too. In 1184 a wooden floor collapsed during political negotiations in Erfurt, plunging a room filled with nobles of the Holy Roman Empire into a "latrine cesspit", where 60 of them drowned.

The popular idea that pre-industrial labourers led more leisurely lives than their harassed modern peers is bunk. It is based on an estimate by Gregory Clark, a historian, that medieval English workers toiled for 150 days a year. However, Dr Clark later concluded that it was more like 300. And even that fails to account for the domestic

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drudgery that occupied nearly every waking hour. People today may gripe about fuel prices, but pre-industrial peasants had to walk miles to gather wood to heat their gruel and avoid freezing to death in winter. Even the rich were cold: Louis XIV's wine sometimes froze on his table.

Some people think food today is worse than in the past, since so much of it is highly processed. Ms Follett invites us into an old-fashioned kitchen—or rather the single, cramped, smoke-packed room in which a typical family cooked, ate, fought and slept. Their diet was hard bread and bland porridge. Since the water was foul, even babies were fed bread soaked in beer, which damaged their brains.

Before refrigeration, food spoiled. Milk was carried to market in open pails, exposed to "overflowings from mud-carts...and trash chucked into it by roguish boys". Samuel Pepys, a 17th-century diarist, was repelled by a dish of sturgeon with "very many little worms creeping". Spices were so precious that wars were fought over them. When harvests failed, people starved. Europe saw thousands of bread riots between the 15th and 18th centuries; one sparked the French revolution. In 1672, after a year of war in the Netherlands, an angry, hungry mob killed and ate their prime minister.

Pre-industrial homes were tiny and spartan. Multiple families squeezed into a space smaller than a single modern American bedroom. If pre-industrial peasants had seen such a bedroom, with its soft bed and glass windows, they would have assumed it belonged to a duke, at least. Furniture was rare. In 1743 Horace Walpole, an earl, wrote a letter describing how much he loved his new sofa. His correspondent "didn't know what a sofa looked like".

Some pundits praise pre-modern sleeping habits. Ms Follett retorts that "unimaginably high levels of stress" made it hard for people to relax on bug-ridden beds that they shared with the whole family. They lay awake for fear of evil spirits and kept weapons at hand to ward off thieves. Homes were pitch dark at night, candles were expensive and the streets outside were a "black stage for tragedies and murders", as Shakespeare put it.

But at least people weren't glued to their screens all day, right? True. "Our forebears were bored out of their minds most of the time," writes Ms Follett. Public executions offered sporadic entertainment; people would walk miles to watch a heretic burn. They amused themselves by torturing animals, too. On Shrove Tuesday, English crowds would tie a rooster to a post and stone it to death. At the Festival of Cats in Belgium, felines were tossed from belfries and set on fire. Until 1770 Londoners could buy tickets to gawp at the mentally ill locked up in Bedlam, an asylum. However, less than a fifth of English towns in the early 1700s had a toy shop.

Perhaps, though, there was a deeper sense of community in the old days? Well, yes, in the sense that pre-industrial peasants seldom dared venture more than a few miles from where they were born. "The number of potential [marriage] partners in one's tiny village was low, and the few available choices might all be one's cousins." Birth defects were, inevitably, rife.

Statistics about pre-modern life are so grim that many readers will struggle to imagine the world they represent. In 1764 most newborns in London did not reach the age of five. Children died in such numbers that "their graves often went unmarked", and "practically every major poet explored the subject. The words 'tomb' and 'womb' were frequently paired as rhymes." On the plus side, the relentless struggle for survival gave our forebears a sense of purpose. Suicide was rarer in the grim old days than now.

At a time when important political movements in the rich world are based on a rosy view of the past and a cynical attitude to science, this book is a splendid corrective. As Ms Follett was finishing it, her daughter Celeste contracted scarlet fever, which used to be deadly. "I am forever grateful", she writes, "that Celeste was born into a world with antibiotics." ■

Creating Sherlock Holmes

Clued up

Sleuth-Hound. By Lindsey Fitzharris. *Farrar, Straus and Giroux; 320 pages; $30. Allen Lane; £25*

SHERLOCK HOLMES was real—or so lots of people thought. Each month dozens wrote to Arthur Conan Doyle, imploring him to forward their letters to the famous detective. (A few asked him to investigate their neighbours; some pleaded for help finding a missing person.) When news of Holmes's death reached the public in December 1893, newspapers published obituaries. It was said that some Londoners wore mourning bands.

Of course, Sherlock Holmes was not an actual person: he lived only on the page, in the minds of Doyle's readers and, later, in films and TV shows. (No human literary character has been portrayed on screen more often—some 250 times—according to Guinness World Records.) But as a terrific new book points out, Holmes was based on a real person: Joseph Bell, a Scottish surgeon who had taught Doyle at the University of Edinburgh in 1878-81 and for whom the young medical student had worked as a clerk. In "Sleuth-Hound" Lindsey Fitzharris, a medical historian, tells the forgotten story of an exceptional man known as "the demon of diagnosis".



Mystery man

Bell was preternaturally observant, able to glean information about patients before they opened their mouths. He could deduce whether a man was a carpenter or a mason from the calluses on his hands and distinguish a soldier from a sailor based on his gait. A person's shoes could reveal an ailment or where they lived. A scar on the cheek could indicate someone smoked a short-stemmed clay pipe. In the amphitheatre of Edinburgh's Royal Infirmary, Bell "transformed the business of diagnosis into electrifying theatre" for his students.

Henry Duncan Littlejohn, Edinburgh's police surgeon, called on Bell for help with criminal investigations. Together, they performed painstakingly detailed post-mortem examinations. Scientific experiments were conducted. To prove a man was murdered and had not accidentally discharged his gun into the back of his own head, for instance, shotguns were fired at human cadavers at various distances and with different types of powder and shot.

So when Doyle decided to give detective fiction a go, at the age of 27, he based his protagonist on his old professor. He created an investigator who did not rely on chance or the blunders of criminals—such coincidences were an annoying trope of the genre, he thought—but one who succeeded with "the science of deduction and analysis". Bell had shown that major clues could be found in seemingly minor details. "By scrutinising a scratch on a desk, a trace of cigar ash, or the guttering of a tallow candle, Holmes—and Bell—

BACK STORY
Yo, Adrian!

Released 50 years ago, "Rocky" isn't the film you remember. It's better

THE CAR starts flying over halfway through "Chitty Chitty Bang Bang". "Jaws" is very funny. Classic films are often misremembered, reduced to striking moments or motifs. Such has been the fate of "Rocky", released 50 years ago in November 1976. Sylvester Stallone's knockout hit is not, in fact, a punchy fantasy about a fighter realising his dream. It is a great American movie because it honours dreams like Rocky's yet sees that they can be chimerical.

Half a century has shrouded "Rocky" in myth. Among film fans, the legend of how it was made has blurred with its plot. This fable is retold for the anniversary in "The Steps", Mr Stallone's moving new memoir, and the warm tribute film "I Play Rocky", out now, in which Anthony Ippolito plays the star in the 1970s. In his book Mr Stallone evokes his dismal upbringing, his knock-backs as a young actor in New York and his gruelling day jobs: cutting fish in a deli, cleaning out lion cages at the zoo and as an usher in a cinema. He taped the dialogue to study in his flophouse room.

When Mr Stallone wrote the screenplay for "Rocky", avowedly in three days, his wife was pregnant and he was broke. Still, in a quixotic negotiation that is the entertaining heart of "I Play Rocky", he turned down astronomical offers for it, insisting that he—rather than, say, Burt Reynolds—must play the lead. A tiny budget meant the crowd in the arena in the finale was largely made up of homeless people and psychiatric patients. This origin story culminates in a pole-axed Mr Stallone, sporting lavish lapels, collecting the Oscar for Best Picture.

Thus did a dauntless underdog fight and triumph. The film itself is more nuanced. Take the fighting part first. "I Play Rocky" raises a laugh when a pre-



tentious character insists "Rocky" isn't a boxing movie but just "happens to have boxing in it". (In another good in-joke, a producer is doubtful about the immortal horn music.) Actually, he is right.

Cultural memory is unreliable. Increasingly silly sequels, in which Rocky pummels Mr T and the Soviets, appealed to febrile schoolboys but made the franchise seem much more wallopy than it started out. Mr Stallone's subsequent career as an action hero likewise skewed perceptions. In "Rocky" he fights only twice, briefly at the opening and again at the end. Both bouts are ugly. "You gotta be a moron to want to be a fighter," he says.

As for the triumph: don't forget that Rocky's dream is not to be world champion, but simply to prove to himself he isn't "just another bum from the neighbourhood". That, and to win the love of Adrian, his shy girlfriend. The real climax is when, in the fight of his life, he is flattened by Apollo Creed, the preening champ; urged to "stay down" by his corner, he staggers to his feet. In "The Steps", Mr Stallone calls the film "a love story about regular people looking for dignity and respect".

Its deep theme is being poor in America, a subject he knew from the inside—just as, from childhood, he knew the meaner streets of Philadelphia where "Rocky" is set. (He bristled at a bid to shoot it in Beverly Hills.) Rocky's shabby leather jacket was Mr Stallone's; he, too, once subsisted on raw eggs. In a telling moment, Rocky gives his card to a promoter's secretary, then asks for it back. Later Adrian's hat falls off as she rushes to embrace him in the ring. "Where's your hat?" Rocky asks in almost the last line. He'd hate for her to lose it.

And the thing about Rocky's character arc is that, like his match with Creed, it could go the other way. Working as a loan shark's enforcer, he almost commits a vicious assault. Feeling disrespected, he berates his wily trainer before teaming up with him. You worry he might come on a bit too strong to Adrian.

The bleaker tale inside Rocky's unfolds in a minor key. The protagonist of this shadow movie is Paulie, Adrian's brother, who works in a meatpacking freezer, insulating himself with liquor. "I can't haul meat no more," he rages. Paulie has a dream, or rather several. He is always looking for an angle, claiming to understand PR, or marketing, or boxing. When a *deus ex machina* in the form of Creed gives Rocky his shot, he—like Mr Stallone—doesn't waste it. But the film shows that some people never get one.

A fairy tale that knows it's a fairy tale, "Rocky" isn't as good as you remember: it's better. Its greatness is captured in a perfectly paced exchange between Rocky and the promoter. "Do you believe that America is the land of opportunity?" the bigshot asks the bruised man in fingerless gloves. Rocky hesitates, just for a second, and says, "Yeah."

could build a case from what seemed like trivialities," Ms Fitzharris writes. "Their genius lay not in knowing everything, but in noticing what others overlooked and uncovering its meaning."

"Sleuth-Hound" will fascinate anyone interested in literary or medical history, forensics or true crime. (Though you need a strong stomach to read about some of the cases Bell and Littlejohn worked on.) It reveals something essential about the nature of the creative process, too. Like so many writers of fiction, Doyle drew on real people and events, but he transmuted them into something new. He took Bell, Littlejohn and not one but two Dr Watsons, using them as the bones on which to put the flesh of his stories. He gave Holmes flaws and idiosyncrasies all his own: an Inverness cape, ear-flapped cap and magnifying glass (not to mention a cocaine habit). It is the combination of these traits and influences that makes for one of the world's most enduring characters.

Doyle dedicated an edition of the collected Holmes stories to Bell—and the association with the fictional detective became something of a curse. Until his death in 1911, Bell was constantly pestered by journalists and fans; people wrongly assumed he was as emotionally detached as the character. "I am haunted by my double," Bell confessed to a friend. Sherlock Holmes may not have been real, but he proved a real nuisance to the man who inspired him. ■

A history in four paws

Pride and pedigree

Yap! By Stephanie Howard-Smith. *Ballantine Books; 288 pages; $32. Granta Books; £16.99*

IT WAS NAPOLEON BONAPARTE'S first defeat. On his wedding night in 1796, the plucky young general found his bride, Joséphine de Beauharnais, already had company in her bedchamber, in the form of Fortuné, a pug. Josephine insisted Fortuné stayed, even when the pup bit Napoleon on the leg. "He who dictated Europe's rule could not put a dog out of his home," a biographer later observed.

In a new book Stephanie Howard-Smith, a historian at the University of York, chases tales (and tails) to show the "outsize pawprint" of small dogs. For centuries, while big dogs were kept outside homes, small ones sprawled on their owners' laps and furniture. Little dogs "became the blueprint for the modern pet", shaping how humans care for their furry friends today.

In ancient Greece and Rome, white pomeranian-like dogs were popular. The Romans wrote epitaphs to their little pets. One owner mourned "sweet Patrice" and her affectionate "kisses", "wagging tail" and "greedy tongue". Some Roman beliefs were admittedly odd: Pliny the Elder, a Roman writer, reckoned putting a small dog on your stomach could cure a stomach ache (illness passed from human to dog, his theory went, and the dog would die).

The author finds small dogs in the corners of history. When Mary Queen of Scots approached the executioner's block in 1587, she was accompanied by a "little dogg", which hid beneath her skirts. (A witness said that it would not leave and lay soaked in her blood between her body and severed head.) King Henri III of France carried his favourite pups in a basket around his neck; one barked and snapped when he was visited by the young friar who fatally stabbed him in 1589. Man's best friends have travelled to unusual places. General Charles Lee took his pomeranian to the front lines of the American revolutionary war. British troops stole a pekingese from the Summer Palace in Beijing during the second opium war, naming it "Looty" and giving it to Queen Victoria.

Yet small dogs were not always seen as prized companions. "Yap!" shows how they have long been condemned as "useless" distractions. Lapdogs, pampered by royals, were symbols of excess and female frivolity. The careless, canine-obsessed mother became a stock character in 18th- and 19th-century novels. Take Jane Austen's "Mansfield Park": the indolent Lady Bertram thinks "more of her pug than her children".

Breeds have fallen in and out of fashion, from 18th-century "pugmania" to the poodle boom of the 1950s. Today pocket-size pooches are more popular than ever: in America, the number of small dogs has doubled since 1999. The French bulldog replaced the larger Labrador retriever as the country's top dog in 2022.

Dogs are more doted on than before, too. Americans are expected to spend $165bn on their pets this year, forking out for treats and accessories. Today you can put your small dog in a handbag or push it around in a pram. More Gen Z say they will own a pet than have a child, according to recent research by Ipsos, a pollster. Lady Bertram would probably approve. ■



Enchanted or appawlled?

Pornography

A peep under the covers

Guilty Pleasure. By Patricia Nilsson. *Farrar, Straus and Giroux; 288 pages; $29. Allen Lane; £25*

ANYONE WHO thinks that modern society is over-sexualised should pay a furtive visit to the National Archaeological Museum in Naples. There, in a gallery known as the *gabinetto segreto*, or secret room, is evidence that 2,000 years ago the Romans were as excitable as a teenager who has just discovered Pornhub. Statues, vases and frescoes depict every imaginable kind of sex between men and women—as well as gods, swans and goats.

Porn has long been with us. But now "we are living through another sexual revolution," argues Patricia Nilsson, a *Financial Times* journalist, in an illuminating new book about a dimly understood industry. Porn has moved from fresco to videotape and to the web, where many of the most popular sites heave with actors faking ecstasy. The internet has changed porn and public attitudes to sex. But, Ms Nilsson argues, porn has also shaped the internet.

X-rated content was arguably closer to the cultural mainstream in the pre-digital era. In the 1970s a handful of blue movies became box-office hits, such as "Deep Throat" (which was not about Watergate). At the end of the 1960s a quarter of American male college students read *Playboy*—for the articles, naturally. Pornographic images retreated from the mainstream in the 1980s, pursued by Reaganite conservatives on the right and a feminist backlash on the left. Watched on VHS and cable TV, porn became a more hidden pursuit.

As one of the first kinds of entertainment to go online, porn established many of the internet's ground rules. Section 230 of the Communications Decency Act of 1996 shields tech companies from being sued over users' uploaded content. It provides the legal foundation for everything from Wikipedia to TikTok. The case that inspired the law? *Playboy*'s lawsuit against an online forum that pirated its photos.

Porn also pioneered online technology. The tech that people use today to call their parents or dial into the office was developed for distinctly spicier purposes. Strip sites such as Babes4U were among the first businesses to accept credit-card payments online. Allowing viewers to pay "tips" for attention was popularised on porn sites before being adopted by other platforms such as Twitch, which livestreams gaming. ▸▸

The toxic effects of algorithmic feeds were seen first in adult entertainment, too. Before algorithms pushed social-media users towards more extreme political ideas, they promoted wilder porn. Ms Nilsson draws a comparison between vaccine conspiracy theories and choking during sex: the extreme is what grabs attention and is fanned by algorithms. This "escalates and normalises what already flickers at the edges of our minds", she writes. (Some of the details are not for the faint-hearted.)

Two things are now changing porn again. One is OnlyFans, a British platform that has scrapped the free, ad-funded model in favour of subscriptions and direct payments to creators. Last year nearly 1m people registered to post on OnlyFans, whose revenue exceeded $7bn. Performers have taken back control: calling the shots on content, taking 80% of the revenue and keeping the copyright. The platform has "revived the adult industry and made it financially possible to be a professional porn star again", Ms Nilsson writes.

The second change involves AI. This is the biggest potential disrupter—and the biggest gap in Ms Nilsson's book. She makes the startling claim that AI-made porn is close to overtaking that produced by humans (presumably in terms of volume), then frustratingly draws the curtain.

The subject needs more study. As Ms Nilsson observes, porn has been "treated as a fringe phenomenon, when it was actually mass entertainment". One British MP, involved in drafting rules for the industry, confesses that she avoided researching one of its leading companies in case her browsing history became public. That hardly spells good governance. Porn's producers and consumers alike will be better off if the business can be brought out of the *gabinetto segreto.* ■

Indian blockbusters

An epic adaptation

"Ramayana: Rise of a Legend", India's biggest film, turns a Hindu god into a star

NO SPOILER ALERTS are required. Every Indian knows the story of the "Ramayana", an epic poem that dates back some 3,000 years. Ram, a Hindu god-king, battles Ravana, a demon. Good triumphs over evil, and cosmic order is restored.

The tale has been retold many times. But "Ramayana: Rise of a Legend", which opened on November 5th, is the splashiest version yet. (It is the first instalment in a two-part adaptation; the second will be released around Diwali in 2028.) With a budget of $430m, the duo are the most expensive films in Indian history. This is also the first adaptation with explicitly global ambitions. The producers have announced plans for a Marvel-style cinematic universe featuring spin-offs, video games, merchandise and theme parks.

To help export the story, the film-makers have brought in Western talent. The soaring score was co-written by Hans Zimmer, an Oscar-winning composer known for "Gladiator" and "Pirates of the Caribbean". DNEG, a visual-effects firm responsible for some of the spectacular imagery in "Dune" and "The Odyssey", helped realise the mythological world. But can "Ramayana" follow "The Odyssey" in mastering the global box office?

The investment has paid some divine dividends. "Ramayana" is a sumptuous visual feast, perhaps the most impressive Indian cinema has served up. Ravana delivers a knock-out blow to a flying elephant; a demi-god vulture attacks a flying chariot. There are plenty of heroic slow-mo shots that are a staple of Indian cinema.

"Ramayana" has gone down well in India, where it is ruling the box office. Audiences have rated the movie 9.3 out of ten on BookMyShow, India's biggest ticketing platform. Yet audiences abroad may not be as mesmerised. In focusing on spectacle, Nitesh Tiwari, the director, has neglected some fundamental elements of cinematic craft such as story and character development. Figures appear suddenly, then vanish. The dialogue is stilted and clumsy. The plot jumps from episode to episode as it ticks off the best-known bits.

Dramatising Ram is not straightforward. He is venerated for embodying *dharma* (righteousness): he is the ideal son, husband, brother and king-in-waiting. But flawless men rarely make for compelling heroes (and Ranbir Kapoor's listless portrayal of Ram does little to help). The creators of "The Chosen", which dramatises the life of Jesus Christ, faced a similar issue. But they took more creative liberties to humanise their sacred subject, and the show has been enjoyed by 300m people.

In an epic battle between good and evil, virtue alone is not enough. In "Ramayana" Ravana, the demon, emerges as flamboyant and charismatic—so much so that some have accused the film-makers of glorifying the villain (much as John Milton's readers accused him of being too sympathetic to Satan in "Paradise Lost").

To be fair, it is not an easy story to take on. The last big cinematic adaptation, "Adipurush" (2023), provoked fury in India over its characterisation, slang and cartoonish visual effects. Politicians and religious groups demanded a ban, and public-interest lawsuits sought to prevent its distribution in cinemas and on streaming platforms. The film-makers were forced to make edits after its release.

This "Ramayana" tries to avoid controversy by being a largely faithful retelling of a divine story for the faithful. But the choices made to ensure it succeeds in India are what will stop it from being a global hit. Ram, it turns out, can conquer Ravana, but not a bad script. ■



Doesn't quite hit the target

Economic & financial indicators

	Gross domestic product, % change on year ago				Consumer prices, % change on year ago			Unemployment rate, %		Current-account balance, % of GDP, 2026†	Budget balance, % of GDP, 2026†	Interest rates, 10-yr gov't bonds			Currency units	
	latest		quarter*	2026†	latest		2026†					latest, %		change on year ago, bp	per $ Nov 11th	% change on year ago
United States	2.1	Q3	3.4	2.3	na	Oct	3.3	4.1	Oct	-3.5	-6.5	5.0		85	-	
China	4.5	Q3	4.9	4.7	0.7	Oct	0.9	5.2	Sep‡§	4.3	-5.4	1.3	§§	-20	6.67	6.7
Japan	0.9	Q2	1.4	1.0	2.1	Sep	1.8	2.4	Sep	4.7	-1.8	2.7		104	159	-2.9
Britain	1.4	Q2	2.1	1.3	3.5	Sep	3.3	4.7	Jul††	-3.4	-5.2	5.1		65	0.75	1.3
Canada	1.1	Q2	3.3	0.9	3.1	Sep	2.9	6.7	Oct	-0.1	-2.1	3.7		55	1.42	-1.4
Euro area	1.3	Q3	1.7	0.9	4.0	Oct	3.1	6.5	Sep	2.4	-3.6	3.3		64	0.90	-3.4
Austria	0.6	Q2	-0.5‡	0.7	3.5	Oct	3.1	6.3	Sep	1.3	-4.0	3.5		58	0.90	-3.4
Belgium	0.7	Q3	1.2	0.3	5.2	Oct	3.6	6.0	Sep	0.2	-5.2	4.2		96	0.90	-3.4
France	-0.1	Q3	-0.5	0.2	3.8	Oct	2.6	8.5	Sep	-0.4	-5.4	4.8		135	0.90	-3.4
Germany	1.2	Q3	0.9	1.1	2.8	Oct	2.6	4.1	Sep	4.4	-4.2	3.3		64	0.90	-3.4
Greece	1.8	Q2	1.4	2.0	5.7	Oct	3.8	7.6	Sep	-5.5	0.6	4.2		83	0.90	-3.4
Italy	0.8	Q3	0.1	0.8	5.6	Oct	3.4	6.3	Sep	0.7	-3.1	4.4		97	0.90	-3.4
Netherlands	2.1	Q3	2.6	1.6	3.3	Oct	2.8	4.0	Sep	8.1	-3.0	3.4		56	0.90	-3.4
Spain	2.7	Q3	2.6	2.6	4.9	Oct	3.9	10.3	Sep	2.2	-2.5	3.8		64	0.90	-3.4
Czech Republic	1.8	Q2	1.1	1.6	2.4	Oct	2.2	3.0	Q2‡	nil	-2.8	5.1		62	21.8	-3.6
Denmark	5.8	Q2	3.6	2.7	2.2	Oct	1.9	3.1	Sep	11.3	1.2	3.0		50	6.70	-3.4
Norway	2.0	Q2	2.7	1.5	3.6	Oct	3.0	4.6	Aug‡‡	13.0	10.0	4.3		22	9.52	6.4
Poland	4.1	Q2	4.5	3.5	3.5	Oct	3.2	5.8	Oct§	-2.2	-7.0	6.2		82	3.94	-6.9
Russia	1.3	Q2	8.3	0.8	6.3	Sep	6.2	2.2	Sep§	3.1	-3.2	16.7		224	82.5	-1.9
Sweden	3.0	Q3	1.6	2.1	0.9	Oct	1.6	8.1	Sep§	5.2	-2.3	3.0		39	9.87	-3.6
Switzerland	2.8	Q2	7.8	1.8	1.5	Oct	0.7	3.1	Oct	7.9	0.1	0.5		35	0.83	-2.4
Turkey	2.3	Q2	4.6	2.7	29.8	Oct	30.6	8.5	Sep§	-2.4	-3.5	33.3		293	50.2	-15.9
Australia	2.1	Q2	1.7	2.1	4.3	Sep	4.0	4.7	Sep	-3.3	-1.0	5.1		74	1.46	4.8
Hong Kong	5.2	Q3	7.8	4.1	1.9	Sep	1.9	3.9	Sep‡‡	8.2	-2.6	3.8		83	7.85	-0.9
India	7.8	Q2	6.8	7.2	5.5	Sep	5.0	4.7	Oct	-1.6	-4.3	7.2		71	93.9	-5.5
Indonesia	5.5	Q3	5.4	5.2	3.2	Oct	3.4	4.8	Aug§	-2.1	-2.9	7.5		137	18,075	-7.6
Malaysia	5.3	Q3	4.7	5.6	1.8	Sep	1.9	2.9	Sep§	3.0	-3.6	3.9		35	4.06	2.5
Pakistan	4.0	2026**	na	3.0	9.6	Oct	9.3	6.9	2025	-1.0	-4.7	12.4	†††	46	277	1.5
Philippines	2.1	Q3	0.4	2.9	7.8	Oct	5.8	6.0	Q3§	-4.6	-6.3	7.8		193	63.1	-6.7
Singapore	5.4	Q3	4.4	5.8	2.2	Sep	2.0	2.0	Q3	16.1	1.3	2.2		26	1.28	1.6
South Korea	3.4	Q3	3.9	3.5	2.8	Oct	2.7	2.0	Oct§	13.6	-0.6	4.0		73	1,342	8.5
Taiwan	14.4	Q3	13.5	12.0	2.3	Oct	2.1	3.3	Sep	24.9	1.6	1.9		58	33.0	-6.0
Thailand	1.9	Q2	-0.7	2.1	3.9	Oct	1.9	0.9	Sep§	-0.3	-5.5	1.9		20	33.6	-3.9
Argentina	2.0	Q2	-2.3	0.5	33.4	Sep	32.6	7.9	Q2§	0.2	0.1	na		na	1,546	-8.1
Brazil	2.0	Q2	1.9	1.8	4.6	Sep	4.6	5.2	Sep§‡‡	-2.8	-7.3	15.2		152	5.58	-5.2
Chile	-0.2	Q2	-0.1	-0.3	4.5	Oct	3.8	9.8	Sep§‡‡	-0.9	-1.8	5.9		44	984	-4.4
Colombia	3.4	Q2	5.2	2.5	6.3	Oct	6.0	8.0	Sep§	-2.0	-7.3	12.8		107	3,297	14.1
Mexico	3.2	Q3	3.6	1.3	3.8	Oct	3.8	2.6	Sep	-0.4	-4.0	9.1		17	18.6	-1.3
Peru	2.6	Q2	-1.0	2.8	5.3	Oct	3.9	4.0	Sep§	3.3	-2.2	6.5		50	3.42	-1.2
Egypt	4.7	Q2	4.0	5.1	12.7	Oct	14.1	5.8	Q2§	-4.7	-5.3	25.6		50	53.3	-11.4
Israel	7.2	Q2	15.4	4.3	1.6	Sep	1.9	3.0	Sep	1.5	-3.3	4.1		13	3.18	1.6
Saudi Arabia	-3.8	Q3	5.4	-4.8	1.9	Sep	1.9	3.0	Q2	-3.5	-5.9	na		na	3.76	-0.3
South Africa	1.0	Q2	-1.1	1.1	4.4	Sep	4.1	33.7	Q3§	-0.1	-3.9	8.5		-24	16.5	3.8

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 Nov 11th	% change on: one week	Dec 31st 2025
United States S&P 500	7,619.4	-0.9	11.3
United States NAS Comp	25,466.2	-1.1	9.6
China Shanghai Comp	3,680.6	-0.2	-7.3
China Shenzhen Comp	2,184.0	1.6	-13.7
Japan Nikkei 225	61,248.6	-1.5	21.7
Japan Topix	3,929.4	0.9	15.3
Britain FTSE 100	10,835.5	0.1	9.1
Canada S&P TSX	36,411.7	0.2	14.8
Euro area EURO STOXX 50	6,393.4	2.0	10.4
France CAC 40	8,332.9	1.9	2.3
Germany DAX*	26,347.5	-0.3	7.6
Italy FTSE/MIB	51,946.5	1.8	15.6
Netherlands AEX	1,145.1	0.8	20.4
Spain IBEX 35	20,027.9	3.4	15.7
Poland WIG	158,774.8	0.4	35.4
Russia RTS, $ terms	950.8	0.7	-14.2
Switzerland SMI	15,037.9	0.1	13.3
Turkey BIST	11,666.4	1.6	3.6
Australia All Ord.	9,291.3	3.8	3.0
Hong Kong Hang Seng	24,315.9	1.7	-5.1
India BSE	81,879.4	5.9	-3.9
Indonesia IDX	5,115.0	4.0	-40.8
Malaysia KLSE	1,595.2	-1.3	-5.1

	Index Nov 11th	% change on: one week	Dec 31st 2025
Pakistan KSE	179,083.8	4.1	2.9
Singapore STI	5,289.7	0.4	13.8
South Korea KOSPI	5,375.4	-5.4	27.6
Taiwan TWI	44,257.2	3.0	52.8
Thailand SET	1,502.1	nil	19.2
Argentina MERV	2,848,945.3	nil	-6.6
Brazil BVSP*	172,060.4	2.7	6.8
Mexico IPC	72,006.1	1.7	12.0
Egypt EGX 30	52,500.5	3.7	25.5
Israel TA-125	3,952.0	2.7	7.9
Saudi Arabia Tadawul	10,308.4	2.7	-1.7
South Africa JSE AS	113,449.5	3.8	-2.1
World, dev'd MSCI	4,836.0	-1.7	9.2
Emerging markets MSCI	1,548.6	-0.6	10.3

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 31st 2025
Investment grade	100	93
High-yield	375	354

Sources: FactSet; Moscow Exchange; Standard & Poor's Global Fixed Income Research *Total return index

Commodities

***The Economist* commodity-price index, 2020=100**	Nov 3rd	Nov 10th*	% change on month	% change on year
Dollar Index				
All items	144.2	143.9	-5.0	3.8
Food	141.7	139.6	-8.3	-4.5
Industrials				
All	146.2	147.4	-2.3	11.5
Non-food agriculturals	153.9	153.4	-2.1	24.3
Metals	144.3	145.9	-2.3	8.5
Sterling Index				
All items	138.1	138.7	-5.6	2.6
Euro Index				
All items	147.2	147.3	-4.7	7.9
Gold				
$ per oz	3,936.7	4,050.9	-2.8	-1.8
Brent				
$ per barrel	103.6	91.5	-13.4	40.4

Sources: CME Group; FactSet; LME; NOREXECO; NZ Wool Services; S&P; Thompson Lloyd & Ewart; USDA *Provisional. Note: new series for gold, oil and cotton

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

OBITUARY
Jack Preger

The "pavement doctor" to Kolkata's destitute died on October 31st, aged 96



He had gone out to spread manure, that was all. As his tractor bumped over the stony ground of his farm in west Wales, Jack Preger didn't have his mind on much except farming. Though he was a city boy from Manchester, a Jewish grocer's son, he loved working the land. And from his piece of it, right on the coast, you could look across the sea to Ireland.

Then it happened. It was not a voice, exactly. It was more as if his skull had been laid open, and the words put in: "Become a doctor." This was an order he knew he could not ignore. That very night he sat down and applied to a whole list of medical schools. Success was not likely; he had no science qualifications, had read PPE at Oxford and was 34, very old to be starting out. But the Royal College of Surgeons in Dublin took him. He emerged determined to help the poorest of the world.

And so it turned out. By the year 2000, when he was 70, his various clinics in the poorest parts of Kolkata were seeing more than 700 people a day. He had become "Dr Jack", wandering along with his notepad and stethoscope, bending down to examine wounds and burns covered up with filthy blankets, smiling and joking in Bengali. It didn't matter whether you were Hindu or Muslim, Dalit or Brahmin. All treatment was free. While his patients got pills or syrups and precious ID cards, their children were fed and taught in the free schools he had founded. He also treated the homeless where they lived: on railway platforms, in drainage pipes.

Chance had led him to focus on Kolkata. His first spell of doctoring had been in the 1970s in the refugee camps of Bangladesh, in fetid swamps teeming with orphans. He set up a 90-bed clinic there, but for any medical supplies he had to go to Kolkata; so when the Bangladeshi government threw him out in 1979, for exposing its links to a global adoption racket, West Bengal beckoned. He worked briefly with Mother Teresa, but then took off on his own. In 1980 he laid out his medicine bag on the pavement under the flyover to the Howrah bridge, and waited.

Immediately there was interest. The sick came, but so did medical professionals and occasional Westerners. With their help he progressed quickly to the long wall of St Thomas's presbytery, on Middleton Row off Park Street. Still on the pavement, of course, but now his clinic was 30 metres long, shaded by tarpaulins, with a small room in the wall to store medicines and records. Eventually he was joined by scores of unpaid doctors, nurses and volunteers: not least the men who, at dawn, put up the bamboo poles for the tarpaulins, and the women who, at dusk, came with their brooms to brush every trace of the clinic away.

This vanishing was necessary, because he had no licence to practise medicine in India. His clinics were illegal. The government also assumed, because an American mission society had given him money, that he should have come in on a missionary visa. But he was no missionary. He had broken with Mother Teresa because she relied on prayer rather than soap and sterile needles. His enterprise was secular. For a decade he warred tirelessly with the authorities both local and national. It was not until he managed to register his own organisation, Calcutta Rescue, in 1991 that India stopped trying (though always failing) to expel him for good. The issue then became his right to take in foreign donations without handing over a chunk of them, which raged until the Supreme Court of India ruled that he could receive 1.5m rupees ($66,000), rake-off-free, every month. All that settled, he had to fight only local *mafiosi*, extortionists and property developers, one of whom got the Middleton Row clinic shut down. By then, though, finding sites was easier. And the Work had never stopped.

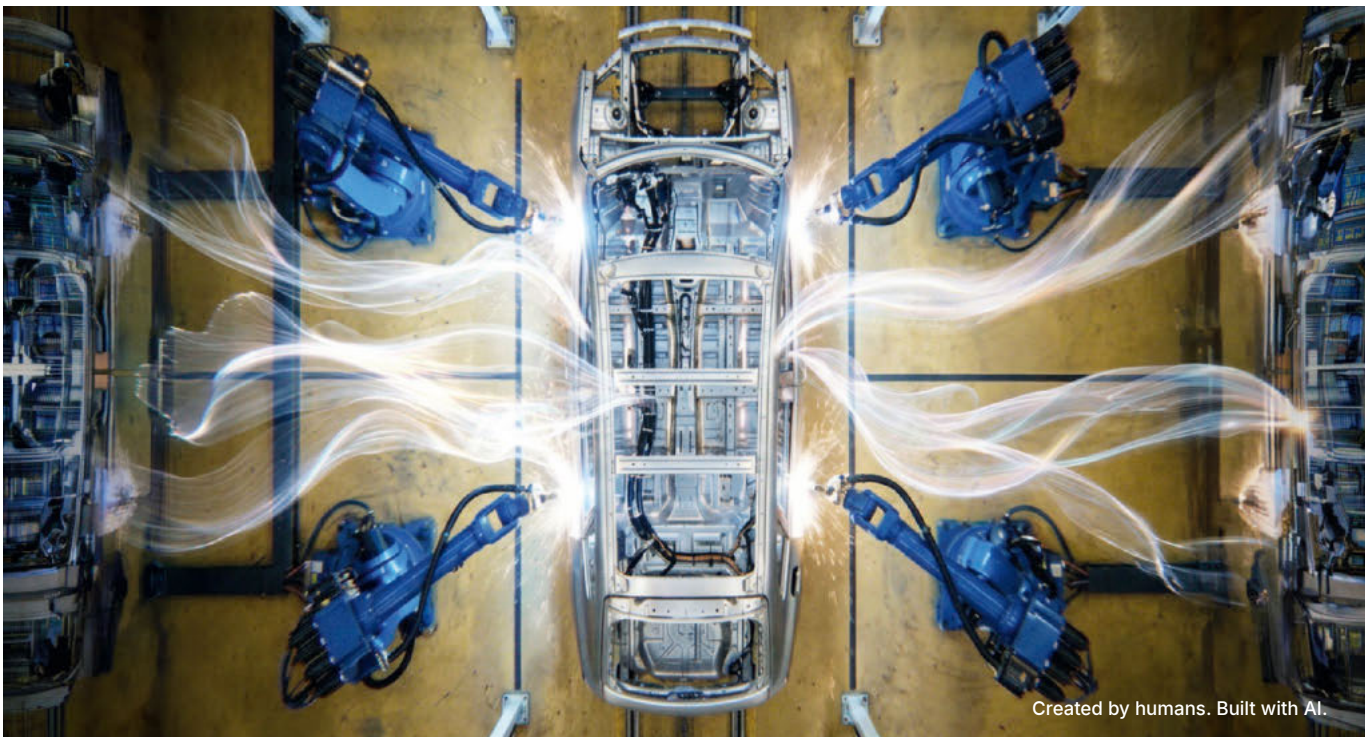
His aim was simple: to eliminate the gaps in care in government hospitals. He was often the first call for accidents caused by traffic, trains, machinery and cooking fires, though the hardest cases, needing operations, had to be sent elsewhere. Lepers, a priority, were given long-term holistic care; eye and skin diseases were quickly diagnosed and treated. TB was the most common serious illness, much of it drug-resistant, though he could seldom afford the new drugs to deal with that. He monitored and hoped.

His greatest success, he felt, was to set up the first free clinic for HIV in West Bengal. The condition was rife in the brothels of Nilmoni Mitra Street, where he lived in a single room hung with washing on the top floor of one of his schools. There was just space to put a chair, a table, a WC, a shower and a bed, and to swing a very small cat. At night he would hear the women screaming over their takings. Time then for a very small nip from a toothmug of his one luxury, Irish whiskey.

It was this room that he left, in 2019, to return to England. At 88, his strength was fading. He had to admit, too, that for all his labours the needs in Kolkata were not much reduced. But it was better to light one candle than to sit and curse the darkness. It was better to install arsenic filters in two village wells, as Calcutta Rescue did in Malda District, than to let the whole region go on drinking poisoned water. It was better, too, to give a handful of people second-line drugs for their TB, rather than give none. The fact that anyone had them at all would give other sufferers hope. It astonished him how much spirit and resilience the poor of Kolkata had.

As for why he had picked this work at all, he was still wondering. Sometimes, he reflected, you didn't choose your life. Life chose you. He had wanted to be an Orthodox rabbi once, but after seeing his father die of a heart attack his faith fell away like an autumn leaf. On the farm he kept a beautiful old Bible on the kitchen table, and became Catholic for a while; but it didn't last. In India he began to believe in karma and reincarnation. From the positive bits in many religions he wove his own. In public, he had none. But alongside "Become a doctor" another phrase had lodged: "Whatsoever you do to the least of my brethren, you do unto me." ■

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Control is speed

Every great industrial leap needs an equally clever way to control it. The steam engine got the governor, so it couldn't run itself to pieces. The power grid got the circuit breaker, so one fault couldn't take down a city. The constraint was never fuel. It was control.

Software has acted on its own for decades: trading stocks, screening for fraud, controlling industrial systems. But it acted on rails we laid in advance. Now, AI agents decide in the moment, and they decide broadly: moving data, spending money, calling services well beyond a company's own walls. Reviewing those decisions afterward isn't oversight. It's archaeology.

Ambition has outrun readiness. Cisco research found 83% of organizations plan to develop or deploy AI agents, and just 31% say they are fully equipped to control and secure them. The gap matters most where machines talk to machines. When a board asks what an agent decided, why, and under whose authority, dashboards have no answer. Some organizations hit the brakes. Others found they never had any.

Both responses miss the point. Oversight grew up at the edge of the network, built for risk that arrived from outside. Agents are already inside, and already reaching out. Just reinforcing the front door won't help. Control has to live in the path itself.

That's what we're building at Cisco. The same infrastructure that scales AI now observes, governs, and protects it. Every agent carries an identity. Every policy is enforced as it runs, not reviewed afterward. Every action leaves a record that survives an audit. None of this slows the agents down. It's what earns the trust to move faster.

Which leaves every chief executive one question for their CIO: when an agent acts, can we see it, stop it, and explain it?

For any organization that wants to move faster: build the control in and the brakes come off.

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