

# The Economist

Why many blue states are poorly run

Graduates' grim prospects

AI upends the ad business

Can men and women just be friends?

JUNE 21ST-27TH 2025

## How will this end?



## Business



Photograph: Reuters

Oil prices jumped in reaction to the war between Israel and Iran, with Brent crude rising to \$77 a barrel, its highest price since early February. Prices tapered off after the International Energy Agency said that global production is expected to outstrip demand this year, which will cause oil inventories to increase. Markets were also jittery about disruption to shipping in the Strait of Hormuz. The jamming of ship transponders caused two oil tankers to collide near the strait. Around 1,000 vessels in the area experienced interference with their global-positioning systems from June 12th to 15th, according to Windward, a shipping-technology firm. Persistent GPS jamming is a rising maritime threat, it said.

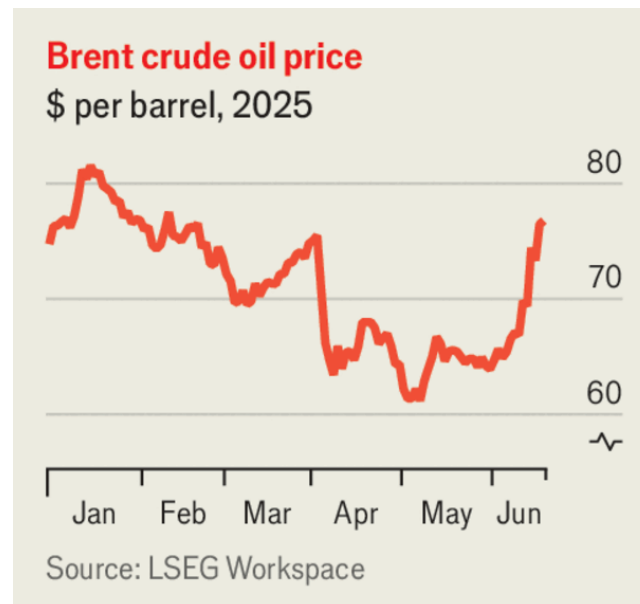


Chart: The Economist

The state-owned Abu Dhabi National Oil Company, better known as ADNOC, led a consortium offering \$19bn to take over Santos, an energy exploration company in Australia and a large supplier of natural gas in that country. Santos's board said it was inclined to accept the bid, which if completed will be the biggest-ever takeover of an Australian Company.

The Federal Reserve maintained its benchmark interest rate at a range of 4.25% to 4.5%. The Fed lowered its estimate of growth in the American economy this year, to 1.4%, and raised its forecast for unemployment. Its "dot plot" still suggests there will be two more rate cuts this year.

Responding to a spike in the yields on long-dated Japanese government debt, the Bank of Japan decided to slow the pace of reductions in its bond-purchase programme. This would "allow yields to move more freely under market forces", explained the bank's governor, Ueda Kazuo. The central bank left its key interest rate on hold at 0.5%.

The Bank of England also kept its main interest rate unchanged, at 4.25%. Figures released a day before the bank's decision showed Britain's annual rate of inflation remained stubbornly high in May, at 3.4%.

## The president's metal

Donald Trump approved Nippon Steel's takeover of US Steel, closing a deal that had faced uncertainty ever since it was first announced in December 2023. Joe Biden had blocked the acquisition in the last



days of his presidency citing national-security concerns, and Mr Trump also initially opposed it. Mr Trump's order says that those risks will be "adequately mitigated" in the agreement, which gives the American government a "golden share" in US Steel that allows it to veto unfavourable decisions, such as transferring jobs outside America. US Steel will keep its headquarters in Pittsburgh.

The Paris Air Show, the biggest such event in the aviation industry, took place against the backdrop of the Air India crash. Rafael, an Israeli defence company, said it would sue the French government, after its booth at the show along with those of other Israeli defence firms were walled off for displaying what the government described as "offensive" weaponry. Rafael's systems form part of Israel's Iron Dome missile shield.

Kering, a French luxury-goods company that includes the Gucci, Saint Laurent and McQueen brands in its assets, appointed Luca de Meo to be its new chief executive in the hope of turning round its struggling business. Mr de Meo currently runs Renault. The French carmaker's share price plunged after the announcement of his departure, which comes amid uncertainty in the car industry over the effects of tariffs. At Kering Mr de Meo will replace François-Henri Pinault as CEO. A member of the controlling family, Mr Pinault had held the job for 20 years.

Meta took a 49% stake in Scale AI, a startup that specialises in data annotation for artificial intelligence, labelling and tagging data to improve the accuracy of AI. Alexandr Wang, Scale's founder, will join Meta to help develop its AI efforts. In its race to secure a dominant position in AI, Meta is also offering \$100m to top staff at OpenAI to switch companies, according to Sam Altman, OpenAI's boss. None of his "best people" had taken the offer, said Mr Altman.

The Pentagon gave a \$200m contract to OpenAI to "develop prototype frontier AI capabilities to address critical national-security challenges in both warfighting and enterprise domains". At the same time OpenAI launched an initiative to provide its services to America's federal, state and local governments under one umbrella, which includes customising its models for national security.

## **The sword of Damocles**

Andy Jassy, Amazon's chief executive, wrote a memo to his employees expounding its advances in AI, but also warning staff that some of their jobs would be at risk during the next few years as the technology is rolled out across the company. As Amazon builds ever more AI agents "We'll be able to focus less on rote work and more on thinking strategically," he said, comparing agents to "teammates". He urged his workers to "use and experiment with AI whenever you can".

Leaders | Conflict in the Middle East

## Where will the Iran-Israel war end?

In a worse place if Donald Trump rushes in

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Illustration: Doug Chayka

IN THE 20 months since Hamas massacred almost 1,200 people, Israel has fought in Gaza, Lebanon, Syria and Yemen. On June 13th, when Israeli aircraft struck Iran, it became clear that these campaigns waged against Iranian clients and proxies have all been leading to today's momentous confrontation between the Jewish state and the Islamic Republic.

The Iran-Israel war will reshape the Middle East, just as Arab-Israeli wars did between 1948 and 1973. As President Donald Trump teeters between talking to Iran and sending American aircraft and missiles to bomb it, the question is whether this first Iran-Israel war will also be the last, thereby creating space for a new regional realignment built on economic development. Or will it lead to a series of Iran-Israel wars that mire the Middle East in years, if not decades, of further violence?

Israeli minds are focused on the looming threat of a nuclear-armed Iran. Israel claims that it acted now because Iran has been racing towards a bomb, under the cover of arms talks with America. Western intelligence agencies are less sure. Either way, a nuclear Iran could abuse its neighbours with impunity, much as Vladimir Putin has Ukraine. It could also spark an atomic arms race in the Middle East and beyond.

A nuclear-armed Iran would therefore be a disaster for Israel and the world. Mr Trump's desire to stop it is a welcome signal to would-be proliferators across the planet that they should abandon their ambitions.

However, Binyamin Netanyahu, Israel's prime minister, faces a grave problem. To remove the threat, he must destroy Iran's wherewithal to make a bomb or he must eliminate its desire to acquire one. War with Iran is unlikely to achieve either of those things. Even if Israel wrecks Iran's infrastructure, thereby postponing the day when it might complete a weapon, it cannot eradicate the know-how accumulated over decades. And far from eliminating the Iranian regime's desire to go nuclear, Israeli strikes are likely to redouble it.

Mr Netanyahu's solution is to encourage Iranians to rise up and topple the Islamic Republic. He calculates that a new regime is likely to be less tyrannical, less bellicose and less wedded to a nuclear programme. But Israel can only create conditions that favour a change of regime; it cannot impose a coup from the skies. Besides, nobody knows how willing a new government would actually be to make peace with Israel or to abandon nuclear dreams which, after all, began with the shah.

The conclusion is that the only thing under Israel's direct control is to buy time, by setting back Iran's technical capacity to get a bomb. If, in a few years, Iran renewed its nuclear programme, Israel would have to mount another operation all over again. The barriers to success would surely grow.

What is to be done? The G7, meeting in Canada, called for de-escalation and there are reports that Iran wants to negotiate. Diplomacy, if it worked, would indeed be the best way to solve this problem. In contrast to war, it could both lead to the dismantling of the programme and also, by building confidence, reduce Iran's incentive to dash for a bomb. That is why Mr Trump's decision in 2018 to walk out of an imperfect arms agreement with Iran was a terrible blunder.

In practice, however, a deal will be very hard to reach. For it to be credible, Iran must agree to give up every ounce of highly enriched uranium, submit to intrusive inspections and forgo all but a token enrichment capacity. Would the regime in Tehran ever accept such humiliating terms as a precondition? Only, if at all, if it fears for its survival. Perhaps sensing that, Mr Trump has demanded Iran's "unconditional surrender", issuing threats that have caused residents to flee Tehran.

The best way to apply pressure to Iran, hawks suggest, would be to leave negotiations for later—and for America instead to shift from merely defending Israel and deterring Iran to joining the attack on Iran's programme. This has advantages, too. America's bunker-busting bombs are much more likely than Israel's to penetrate key nuclear facilities such as Fordow, in central Iran. Iran might talk sooner, because it would know that America has the resources to strike it long after Israel's stocks of guided munitions start to run out.

Yet for Mr Trump to enter the fray would be a huge gamble. He was elected to keep America out of wars in the Middle East. Even if he intends to hit nuclear targets and nothing else, America could be

sucked in. So far Iran has focused all its strike-power on Israel, but it may be saving missiles for a regional assault. It may also have terror cells around the world. Imagine that it now starts to kill American troops and civilians, or that it sends energy prices soaring by blasting Saudi Arabia's oil industry or blocking the Strait of Hormuz, a vital waterway for oil and gas tankers. Or perhaps it will hit tower blocks in Dubai or Qatar, beginning a stampede of the expatriates who power their economies. Mr Trump would have to retaliate.

Where does that leave America? Fordow is important, but even if it is destroyed Mr Trump cannot be sure of eradicating Iran's programme once and for all. Secret facilities and stocks of uranium might survive; know-how definitely would. If Iran is not to go nuclear, America might therefore have to go to war in the Middle East repeatedly—forcing it to choose between non-proliferation and giving full attention to its rivalry with China. Sooner or later, America will come to realise that talks offer the least bad path and that the refusal of Mr Netanyahu to countenance them is an obstacle.

## **Centrifugal forces**

So Mr Trump faces a trade-off. By doing more damage than Israel could alone, America could set the clock back further. Its participation might also increase the chances that the regime enters talks in earnest or collapses. But those gains are uncertain and must be weighed against the risk of a regional conflagration. In a shifting landscape, better for the king of ambiguity to wait to see how far Israel's campaign gets, whether the Iranian regime is willing to talk and to gauge whether American intervention could tip the balance.



# Israel's blitz on Iran is fraught with uncertainty

Much hinges on the stubborn supreme leader and America's mercurial president



Photograph: AFP

JUST OVER a month ago, Donald Trump was in Saudi Arabia denouncing “interventionists” who tried to reshape the Middle East. The president decided not to stop in Israel on his way back home, a sign of his strained relationship with the Israeli prime minister, Binyamin Netanyahu, who was also facing a series of political crises at home. Instead Mr Trump was eager to negotiate with Iran, which he hoped would become a “really successful” country. He shared a video of a top adviser to Ali Khamenei, Iran’s supreme leader, proposing a deal over its nuclear-weapons programme.

Those feel like scenes from a different world. Israel went to war with Iran on June 13th, a decision that will reshape the Middle East. A week later Mr Netanyahu is riding high, overseeing a campaign that he has dreamed of for decades. Mr Trump seems to have forgotten his qualms about intervention. He



may send American troops to join the fighting; he has called for Iran's "unconditional surrender". As for Mr Khamenei, he is in hiding. The adviser in the video, Ali Shamkhani, was the target of an Israeli assassination attempt and is either dead or grievously wounded.

Israel said it decided on war after it picked up intelligence that Iran had "accelerated significantly" towards building a nuclear weapon. It has not substantiated that claim in public. It has shared intelligence with allies, not all of whom are convinced. There is no doubt that Iran had enriched 400kg of uranium to 60% purity, a short hop from weapons-grade, a figure reported by the International Atomic Energy Agency (IAEA), the UN's nuclear watchdog. America's spies also believe that Iran was researching other aspects of bomb-making. But they are sceptical that Iran was as close to building one as Israel posits.

The debate now feels almost academic. The die is cast. Israel is halfway through what Mr Netanyahu has described as a two-week campaign. But the war may expand before it ends and it may not end on schedule. Three factors will shape what happens next: how long Israel and Iran can keep up a costly long-range war; whether Mr Trump orders America into the fray; and if Mr Khamenei will agree to concessions to save his imperilled regime.

## Rapid ascent

Since the war began before dawn on June 13th Israel has assassinated Iran's top generals and nuclear scientists, obliterated air defences in the west of the country and bombed various nuclear sites. It has not yet damaged Iran's main nuclear facility at Fordow, however, which is dug into the side of a mountain, too deep for Israeli ordnance to reach. That is where it hopes to enlist American help.

More than 500 people have been killed in Israeli strikes, authorities say, many of them civilians. Motorways out of Tehran have been clogged with traffic as residents flee. Petrol stations are rationing fuel.

Iran has retaliated with daily barrages of ballistic missiles aimed mostly at Tel Aviv and Haifa, two of Israel's biggest cities. The projectiles have sent Israelis running to bomb shelters every few hours. Most have been shot down by Israeli and American air defences, or missed their targets and landed in deserted spots. A few dozen have got through, however; at least 24 Israelis have been killed.

## Cruising

Still, Israeli officials say the first week has gone largely to plan. The attacks on nuclear sites and assassinations of scientists make it impossible for Iran to build a bomb quickly. At home, the damage from Iranian missile strikes has been less than anticipated. The second week of fighting will probably see Israel attack Fordow, with or without America.

At some point, both Israel and Iran will need to look for a way to stop. Theirs is a curious sort of war: their capitals are 1,500km apart and they do not share a border. A jet that takes off from Israel crosses two other countries before it reaches Iran's airspace. Neither side can sustain a long-distance air war indefinitely. "It's almost impossible to decisively win," says Amos Yadlin, a former Israeli general.

Before the conflict began, Iran was thought to have around 2,000 ballistic missiles with the range to hit Israel. It has fired around 400 of those; the Israel Defence Forces (IDF) reckons it has destroyed a roughly equal number in air strikes. That still leaves Iran with a sizeable stockpile, stashed underground in deep tunnels. But its salvoes have been shrinking, from more than 150 on the night of June 13th to just 30 six days later.

It may be rationing missiles for fear of a long conflict. More likely, though, is that it is struggling to launch them. Its missile bases are under constant threat from Israeli jets and drones. As a mobile launcher prepares to fire, it is vulnerable. The IDF says it has already hit around 120 of them, a third of the total. "The total collapse of Iranian air defences means Iran cannot manoeuvre effectively," says Decker Eveleth of CNA, an American think-tank. Iran does have other weapons in its arsenal. But Israel has so far shot down all of the drones launched from Iran. Cruise missiles, which fly lower and slower than their ballistic brethren, are easier to parry as well.

Ballistic missiles have wrecked lots of buildings in Tel Aviv, knocked out an oil refinery in Haifa and damaged army bases. They have not caused anywhere near the sort of destruction that might hinder Israel's war effort or compel it to stop fighting. Still, every night is a test of nerves.

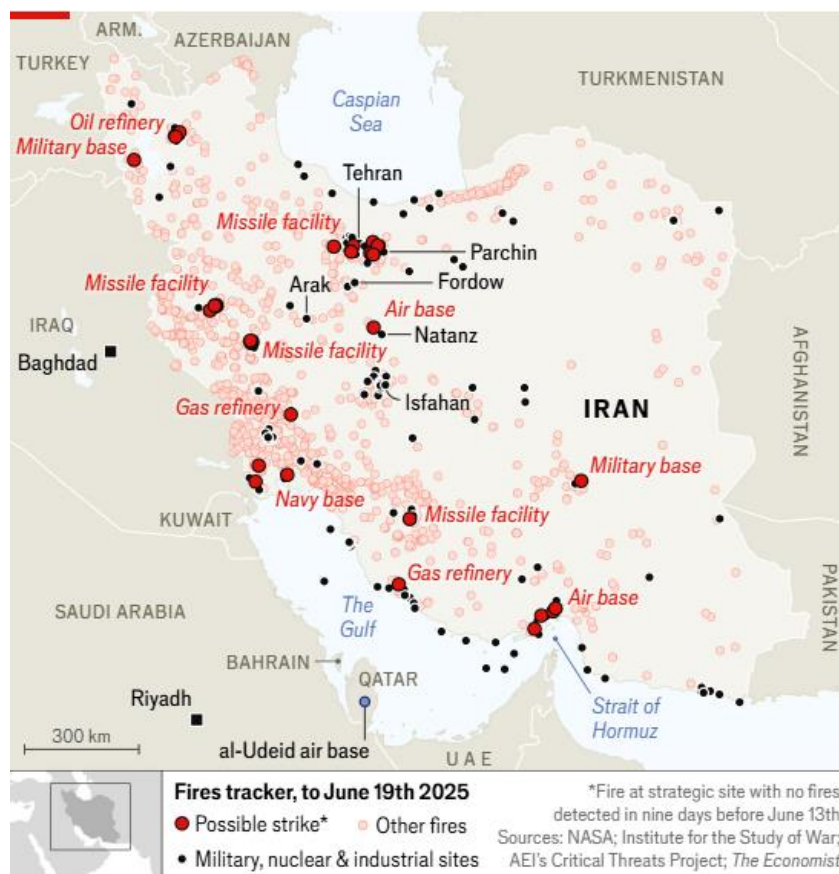
The war is also a fiscal millstone. Since October 7th 2023, when Hamas, a Palestinian militant group, massacred nearly 1,200 people, Israel has spent an estimated 300bn shekels (\$85bn) fighting various wars. That was before the campaign against Iran. An Israeli economist who advises the government estimates that the jet fuel and munitions being used to attack Iran cost 1bn shekels a day. Each interceptor launched by Arrow, Israel's ballistic-missile-defence system, costs around \$3m, and the IDF usually fires more than one for every approaching missile. Israel's stockpiles of such interceptors are also limited, although hundreds more have been manufactured in recent months.

Concern about a long war is one reason why Israel is so eager for American help. Until last November, it was hard to imagine an American president even giving Israel the green light for a war against Iran—let alone joining it. Barack Obama barred an Israeli strike in his first term. He went on to negotiate a nuclear deal with Iran during his second, which made it impossible for Israel to act unilaterally. Joe Biden urged restraint after two rounds of Iranian ballistic-missile attacks on Israel last year.

At first it seemed as if Mr Trump would do the same. He campaigned on a promise to end America's "endless wars" in the Middle East. In April he dispatched Steve Witkoff, his personal envoy, for the first of what would be five rounds of negotiations with Iran. The president sounded optimistic as recently as late May, when he hailed a "very, very good" round of talks with Abbas Araghchi, Iran's foreign minister.

By early June, though, Mr Trump's tone had changed. He started to suspect that Iran was stalling for time and unwilling to make concessions. Still, Mr Witkoff had scheduled a sixth round of talks for June 15th. But behind the scenes, Mr Netanyahu and hawks in America were urging Mr Trump to give Israel a green light. He did so days before the war began, although he seemed to have reservations about it.

Mr Trump's concerns seem to have evaporated on the morning of June 13th, however, when he woke up to the news that Israel's first round of strikes had been a success. He quickly embraced the war plan as his own. For a president enamoured of quick wins, the idea of joining Israel and striking Fordow no doubt looks appealing.



But it may be more complicated than Mr Trump thinks. For a start, America may have to do more than conduct a handful of sorties. Iran has spent decades anticipating a war in the Persian Gulf. It has air-defence batteries and missile bases along its southern coast, many of which remain unscathed, since Israel has concentrated its efforts in western Iran. Iran's naval forces have trained to use fast-attack boats, anti-ship missiles and mines to target both American warships and commercial vessels. America would probably need to destroy some of this, to protect both its own aircraft and its allies in the region.

Then there is the question of how Iran might retaliate. It would almost certainly tap its proxies. Militias in Iraq have already threatened to attack the American embassy in Baghdad and American troops elsewhere in the country. The Houthis, a Shia militia in Yemen, could resume attacks on commercial shipping in the Red Sea.

A more serious escalation would be for Iran itself to attack its neighbours across the Gulf. It could fire at the American naval base in Bahrain, home to its Fifth Fleet, or at al-Udeid air base in Qatar. Or it could attack the Gulf states directly, firing missiles and drones at Saudi oilfields, for example, as it did in 2019. It could also blockade the Strait of Hormuz, through which 20% of the world's oil supply passes.

Some of this would be self-defeating. Attacks on Gulf countries would poison Iran's relations with its neighbours and might prompt them to retaliate. Blockading the strait would upset China, which imports almost all of Iran's crude oil. It would also disrupt Iranian imports, particularly of petrol: though it is a big oil producer, its ageing refineries struggle to meet domestic demand. Still, the regime could try it anyway, hoping that mayhem in the Gulf would force countries like Saudi Arabia and the United Arab Emirates (UAE) to beg Mr Trump for a ceasefire.





Iran has no answerPhotograph: Getty Images

Arab diplomats have already urged an end to the war. European diplomats were quick to call for “de-escalation” too. That would satisfy Iran: Mr Araghchi has told foreign diplomats that his country is willing to accept an immediate ceasefire.

But it is a non-starter for Israel, which spent years planning for war and refuses to stop prematurely. It is working its way through a so-called “target bank”: after bombing Iran’s air defences and some of its nuclear sites, it has moved on to factories that produce centrifuges, which are used to enrich uranium, and missiles. The question is what happens when Israel runs out of targets. “Israel can achieve tangible results within a few days,” says Mr Yadlin. “But for that we need also a diplomatic exit strategy, and Mr Netanyahu hasn’t been adept at devising one of those.”

## Target lost

Mr Trump’s intentions are uncertain. On June 18th he told reporters, “Nobody knows what I’m going to do.” The day before, he said he was after something “better than a ceasefire”. As ever, his comments are Delphic: do they suggest America plans to join the war? Or that it wants a more comprehensive effort at diplomacy?

His supporters would prefer the latter. A poll from The Economist and YouGov released on June 17th found that 60% of Americans were opposed to joining the conflict between Israel and Iran, with just 16% in favour. The figures were similarly lopsided among respondents who voted for Mr Trump last year: 53% no, 19% yes.

If Mr Trump opts for diplomacy, he will want something more restrictive than the Joint Comprehensive Plan of Action (JCPOA), the deal Mr Obama struck with Iran to curb its nuclear programme. At a minimum, Israel and America would expect Iran to forswear domestic enrichment of uranium. Before the war Mr Witkoff proposed establishing a regional consortium to refine the stuff. It might have included Saudi Arabia, which is keen to build nuclear reactors; the UAE, which already has four; and Iran. But Iran balked at the idea, insisting that it would keep its own enrichment facilities. The proposal will be back on the table in any future negotiations.

This is not the first time America has sought a zero-enrichment deal. Mr Obama called for one too, early in his presidency, but Iran refused to even discuss the idea. He eventually settled on a deal that allowed Iran to enrich uranium to 3.67%, the level needed for nuclear power, with limits on its stockpiles of both uranium and centrifuges. Iran may now have to be more flexible. Faced with a military threat, the regime has two goals. It wants to preserve some semblance of a nuclear programme, which it views as a long-term insurance policy. It also wants to survive—to end the war before it is too weak to retain power.

Eventually those goals could come into conflict. At the end of the Iran-Iraq war in 1988 Ruhollah Khomeini, Iran's first supreme leader, likened accepting the ceasefire agreement to drinking from a poisoned chalice. His successor may have to choose between two cups: "one that risks the regime's collapse in the short term, and another that could endanger it in the longer term", argues Raz Zimmt of Israel's Institute for National Security Studies.

What if the regime refuses to concede? Mr Khamenei is stubborn at the best of times and many Iranians question the 86-year-old's decision-making prowess, especially now that he has lost some of his closest advisers. One possibility is that Israel, and perhaps America, try to overthrow him. Toppling the regime is not an official aim of the war. But some of the targets Israel has struck, like the state broadcaster, seem intended to destabilise. The regime is tenacious, however, and what would follow it is uncertain.

"There's no endgame for Israel unless it draws in the US or unless the regime falls," says a Western diplomat. "Both are big gambles." Then again, perhaps Mr Netanyahu does not feel he needs an endgame. If the war ends after two weeks, and with no nuclear pact, Iran will still be at its weakest in almost 40 years. Its missile programme and air defences are in tatters. Its nuclear project has already been set back five to six months, even if Fordow remains intact.

Perhaps more important, the legitimacy of the Islamic Republic is shot: even conservatives are furious that the regime has failed so badly to protect the homeland. It may survive the war, but it will hardly be stable in the weeks and months that follow. And what happens next may not be Israel's immediate concern. Being 1,500km away has its advantages.

Countries closer to Iran are more nervous. Officials in the Gulf fret about a range of bad outcomes. Iran could splinter, with ethnic separatists causing trouble near its borders with Iraq, Pakistan and Turkey. Or the clerical regime could give way to a military one, which might be tempted to make a clandestine dash for a nuclear bomb in order to deter future attacks. In the first scenario, Iran would come to resemble Libya; in the second it would be North Korea. Neither is an appealing choice for its neighbours.

There are more optimistic scenarios, too. Mr Khamenei is old and unpopular; one way or another, he will not be in power for long. His decades-long effort to bring Iran to the nuclear threshold, protected by a ring of proxies, has ended in disaster. His successor might sensibly decide to chart a different, less confrontational and ideological course. But as with so much else in this conflict, there are no guarantees.

## **Finance & economics**

# **Japan is obsessed with rice. And prices have gone ballistic**

**Politicians are reaching for increasingly extreme measures**



Photograph: Getty Images

A little more than a century ago, in July 1918, the wives of fishermen in Toyama began to protest against the export of rice from their prefecture. The unrest, which was triggered by the staple grain's surging price, then spread across Japan. Ultimately, the so-called rice riots were violently extinguished by 100,000 troops; an action that would in time bring down the government.

Japan is not often considered to be a nation of unrest. But it takes rice seriously. Eto Taku, the country's agriculture minister, discovered as much in May, when he was forced to resign after a ham-fisted joke. Mr Eto said that he did not have to worry about the price of rice, because his supporters made sure to



buy it for him. That was quite a statement, given prices have now risen by more than 100% since the beginning of 2024. He resigned in the uproar that followed.

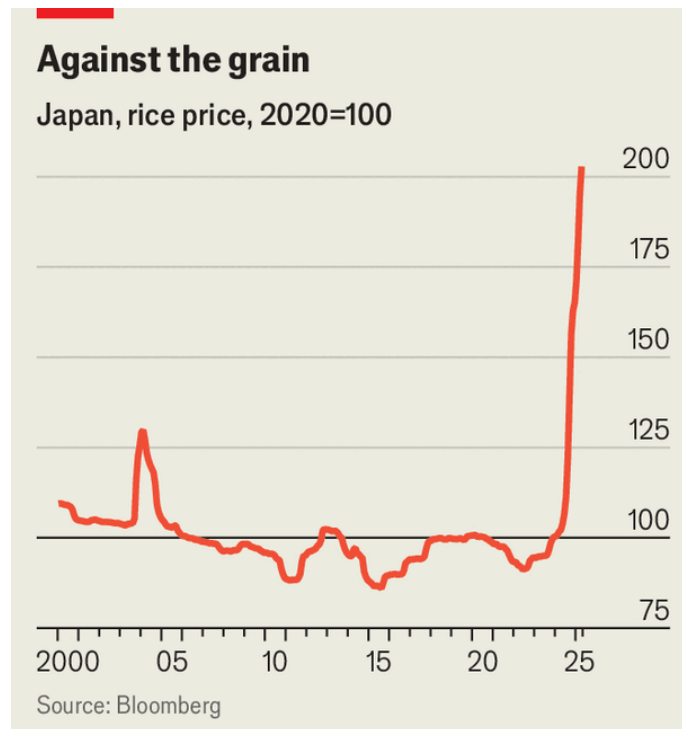


Chart: The Economist

Some residents grumble that tourists, who are arriving in Japan in record numbers, are snaffling the fluffy carbohydrates. In reality, the country's state-directed agriculture industry, a clubbish relationship between farmers and ministers, and protectionist measures against overseas growers have created the mighty squeeze. Japan grows 99% of the rice it consumes, approaching autarky. Production is therefore highly vulnerable to shocks. A poor harvest in 2023 is still hurting the market.

The government has all but emptied its vast reserves in an attempt to bring prices back to Earth. The Ministry of Agriculture, Forestry and Fisheries ordinarily stores around 910,000 tonnes of rice, equivalent to one or two months of demand. After repeated sales this year, the reserve has only 100,000-odd tonnes left. The Japanese language reflects this development. *Komai* (old rice) describes last year's harvest. So much rice has been released that the terms *kokomai* (old, old rice) and *kokokomai* (old, old, old rice) have soared in popularity. They are used to describe the two- and three-year-old vintages now being sold in stores.

Things are getting desperate for the government. Earlier this month Koizumi Shinjiro, the agriculture minister who replaced Mr Eto, announced measures intended to prevent the purchase of rice for resale. From June 23rd selling grains for more than their original retail price will carry a prison sentence of one year, or a fine of up to ¥1m (\$6,900).

With a median age of almost 50, Japan is the world's oldest big country. Citizens are probably too long in the tooth to repeat the riots of a century ago. But that is not to say the government will escape unscathed. Elections for the upper house of parliament are scheduled for July. Ishiba Shigeru's government must hope it does not have to dust off the kokokokomai to prevent defeat.

# What the Israel-Iran war means for oil prices

We investigate possible scenarios



Photograph: Getty Images

FOR THE past two years, the Middle East has been an even more tense place than usual. Houthis bombed commercial vessels; Israel began extensive military campaigns in Gaza and Lebanon; Iran and Israel exchanged rockets. Yet oil markets remained calm, since the worst-case scenario—a full-blown war between Israel and Iran—was avoided.

On June 13th, when Israel launched its first strikes on Iranian military and nuclear sites, that scenario became more vivid. Since then, the foes have traded drones and missiles. The list of targets has grown to include energy infrastructure on both sides. As we went to press, America's president, Donald Trump, was weighing up whether to bomb Iran's Fordow underground-enrichment plant; he and Ali Khamenei, Iran's supreme leader, are already waging a war of words. A wider conflict could inflame

the Gulf, which pumps a third of the world's oil. Since Israel's first strikes the price of Brent crude, the global benchmark, has risen by 10%, to \$77 a barrel (see chart). How high might it go?

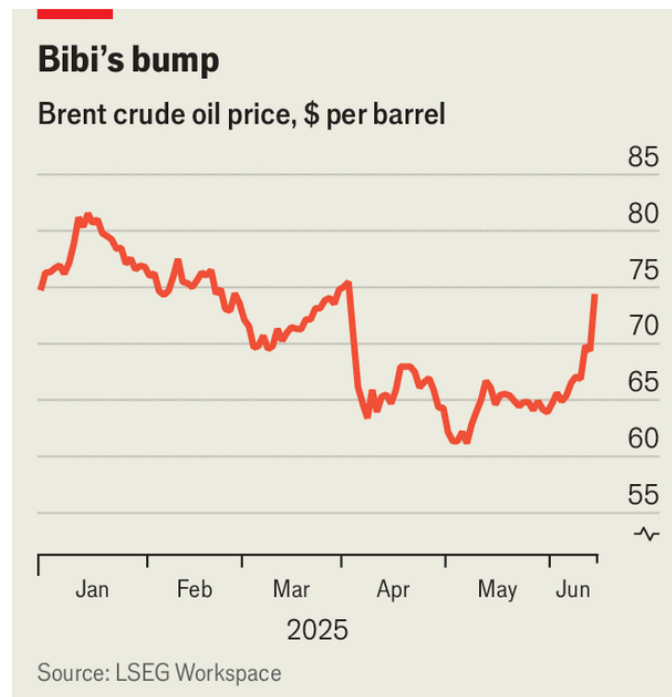


Chart: The Economist

Oil markets are experiencing friction. Transponder jamming, first limited to waters around an Iranian port, is now complicating shipping across the Gulf. On June 16th it caused two tankers to collide off the Emirati coast. Both buyers and sellers of Iranian crude seem to have paused large shipments. Satellite imagery suggests the waters around Kharg Island, from where 90% of the country's crude shipments typically depart, are eerily quiet, notes Antoine Halff of Kayrros, a data firm.

Yet, so far at least, the damage has not been too profound. Israel has attacked oil and gas facilities that serve Iran's domestic needs, rather than export facilities, meaning little global supply has been lost. If that remains the case, prices should continue to hover around today's levels. If the intensity of fighting were to ebb, they might even fall by \$5-10 a barrel.

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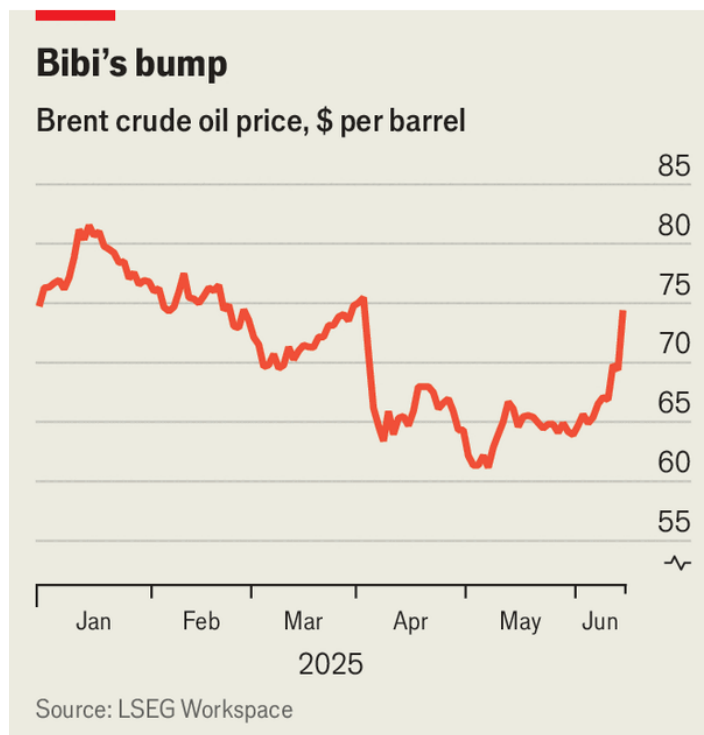


Chart: The Economist

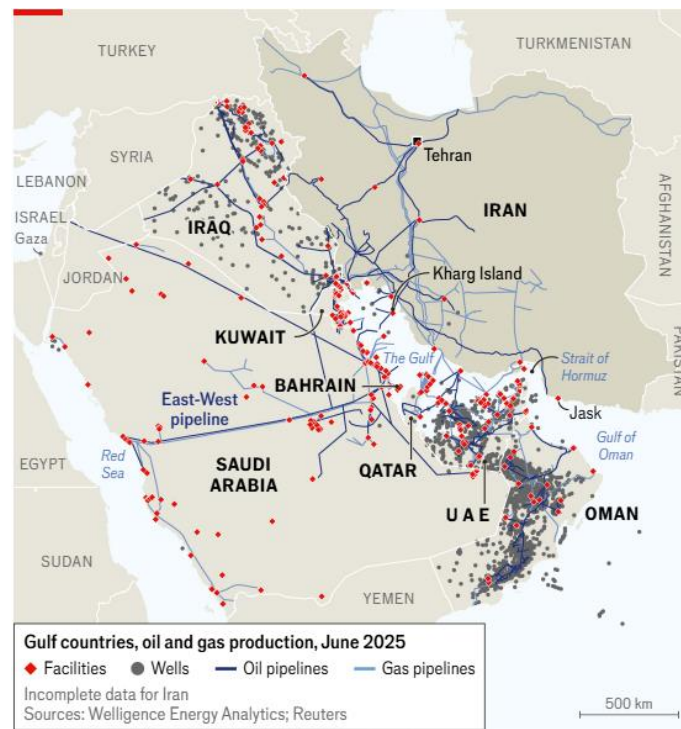
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Yet, so far at least, the damage has not been too profound. Israel has attacked oil and gas facilities that serve Iran's domestic needs, rather than export facilities, meaning little global supply has been lost. If that remains the case, prices should continue to hover around today's levels. If the intensity of fighting were to ebb, they might even fall by \$5-10 a barrel.

An Israeli strike on Iran's oilfields or export facilities would send them in the opposite direction. Last month the Islamic Republic exported 1.8m barrels a day (b/d) of crude, equivalent to nearly 2% of global demand, according to Kpler, another data firm. A strike on Kharg could hinder lots of deliveries. Last year Iran began exporting crude from Jask, on the Gulf of Oman, in the hope of developing an alternative to Kharg, but volumes remain small and the terminal is also vulnerable to attacks.

In such a scenario, countervailing forces would play a role. Iran's Gulf neighbours, who represent the core of the Organisation of the Petroleum Exporting Countries (OPEC), have lots of idle wells. Saudi Arabia and the United Arab Emirates alone have 3-4m b/d of spare capacity, which they could use in a crunch. It is not a given that they would do so quickly, since that might be seen by Iran as collaboration with Israel, inviting retaliation, and they would also not mind prices rising, having tried (and failed) to push them up over much of the past two years. But they might still impose a ceiling below \$90 a barrel.

The more aggressively Israel behaves, and the more likely it is America steps in, the greater the chance that Iran resorts to desperate measures. Among the most desperate would be to try to close the Strait of Hormuz, through which more than a third of the world's seaborne crude and a fifth of its liquid natural gas travel. Even in the "tanker war" of the 1980s, when Iran and Iraq fought and 239 oil tankers were bombed, shipments did not slow and prices stabilised after an initial spike. Iran would have to blockade the whole route. That would be rash, not least because the narrow waterway, which links the Persian Gulf to the Indian Ocean, is vital to Iran itself. Moreover, both America (whose president wants oil prices to stay low and who has a fleet stationed in Bahrain, across the Gulf from Iran) and China (which relies on oil imports from the Gulf) would probably send their navies in. There is a reason why, despite threatening such action several times, Iran has never taken the risk.



Pushed to the brink, however, it might. Analysts say the risk premium currently factored into the Brent price suggests that traders believe there is a 15-20% probability of such an intervention. If Iran were to go for the jugular, Saudi Arabia could divert some exports through its east-west pipeline, which has a capacity of 5m b/d, equivalent to about half the crude the kingdom produces. But 85% of Iraq's exports, and all those of Bahrain, Kuwait and Qatar, have no other route to market, meaning Brent might then rush past \$100 a barrel. Many other commodities normally shipped en masse through the strait, from fertilisers and food to minerals and petrochemicals, would also become more expensive. And there is an even worse scenario. Many of the Gulf's largest oil-production sites are within reach of Iranian missiles (see map). Protecting them all is just about impossible, especially in Saudi Arabia, where they are spread over enormous distances. Were Iran to bomb such sites, prices might exceed \$120 a barrel. Would the fall of the Iranian leadership bring them back to earth? History suggests not. Since 1979, eight regime changes have occurred in big oil-producing nations. JPMorgan Chase, a bank, estimates that oil prices, on average, ended up stabilising at levels about 30% higher than before the unrest. In most cases, it took months for them to fall again. All this means that global oil markets have just become a lot more flammable.

# Who are the world's best investors?

The answer is not hedge funds or quant shops or short-sellers



Illustration: Álvaro Bernis

If finance has a single rule, it is that arbitrage should keep prices in line. If they do stray from fundamentals, so the argument goes, savvy investors should step in to correct them.

All good in theory. In practice, less so. Markets can be swept by sentiment, detaching valuations from fundamentals. Economists have surgically documented persistent distortions. Purely mechanical flows, for instance, move markets even when they are known to investors in advance and unrelated to earnings prospects. When a stock is added to an index, its price inflates. Predictable dividend reinvestments also push up prices. Why does this happen? And who, in time, might correct the market?

Ask on Wall Street for the identity of such arbitrageurs, and you get the usual suspects. Hedge funds and quant shops, armed with analysts and algorithms, are the most natural candidates. The industry has ballooned from overseeing \$1.4trn to \$4.5trn in assets over the past decade, and is well positioned to



spot mispricings. Others suggest short-sellers, ever alert to signs of froth, or retail investors, now keen dip-buyers. One candidate gets mentioned rather less often: staid corporates.

Such businesses are normally seen as passive capital-raisers, not active market participants and certainly not market disciplinarians. Even though they can act on perceived mispricings, firms typically focus more on expanding their own business than on searching for alpha. Bosses have operational backgrounds. They are more fluent in capital spending than capital markets. And when financial officers do wade into the market—to issue or buy back shares, for example—valuation is just one of many considerations, alongside avoiding taxes, ensuring a healthy credit rating and making sure the firm does not take on too much leverage.

And yet a growing body of work suggests that corporations, far from being passive observers, are some of the market's most effective arbitrageurs. In 2000 Malcolm Baker of Harvard University and Jeffrey Wurgler, then of Yale University, found a tight connection between firms' net equity issuance and subsequent stockmarket returns. Years in which companies issued relatively more stock were typically followed by weaker market performance. More tellingly, companies seemed to issue precisely when valuations were rich, and especially when other frothy signals, such as buoyant consumer sentiment, were drawing attention.

Timing the market is impressive; out-trading the professionals is even more so. Yet firms that issue or retire their own shares routinely do exactly that. In 2022 David McLean of Georgetown University and co-authors showed that corporate-share sales and buy-backs forecast future returns more accurately than the trades of banks, hedge funds, mutual funds and wealth managers.

What explains this prowess? Part of the answer lies in firms' access to private information. Few are better placed to forecast a company's future cashflows than insiders. When a company begins buying back its own shares—or employees convert their options into stockholdings—investors should pay attention.

But informational advantages go only so far. They do not explain why firm-level issuance predicts aggregate stockmarket returns. And firms' decisions are publicly disclosed: if they were merely signals of private insight, copycat investors quickly ought to arbitrage away any return. Instead, the success of companies may reflect not just what they know, but what they are able to do. They are unusually well placed to act on mispricings.

Start with short-selling. Firms have a natural way to take a contrarian view: when they believe their shares are overpriced, they can issue more of them. For a hedge fund to express a similar view, it must

sell short the stock or purchase more complex products, such as put options. These strategies are not only expensive, requiring the payment of borrowing fees or option premiums, but also expose the investor to large losses and margin calls if the stock price rises. Risks become particularly acute during bouts of volatility, such as in January 2021, when retail investors sent GameStop's share price to astonishing heights. Hedge funds hesitated to short-sell for fear of making losses as investors piled in. GameStop's boss, by contrast, simply issued new shares.

Companies also operate across markets. Almost every business finances itself with some combination of debt and equity. If one becomes unusually expensive, it can easily switch to the other. Yueran Ma of the University of Chicago finds that firms routinely move towards whichever market looks cheap. Such flexibility is rarely available to institutional investors, which are constrained by benchmarks and mandates. Only 28 of Vanguard's 267 funds can trade both bonds and stocks, for instance.

Last, businesses benefit from insulation. They may face unhappy shareholders, but they do not face redemptions. When institutional investors mess up, their own investors pull out, forcing them to sell at just the wrong time.

## **Firm hand**

The agility this engenders makes companies valuable providers of liquidity, too. As passive investing has grown to make up a fifth of the market, so has demand for stocks in the big indices. Who meets that demand, helping anchor prices? Marco Sammon of Harvard and John Shim of the University of Notre Dame suggest it is, once again, companies. Intermediaries such as active managers and pension funds buy alongside their passive peers. Firms step in to take the other side of the trade by issuing new shares. Similarly, when governments flood the market with short-term debt, firms respond by issuing longer-dated bonds.

As asset managers become more passive, specialised or tied up by mandates, it is the firms they invest in that keep the market ticking. So thank your nearest chief financial officer.

# Investors ignore world-changing news. Rightly

The Nothing Ever Happens Market



Illustration: Satoshi Kambayashi

Missile warfare has erupted in the Middle East. On June 13th, as the bombs began to fly, S&P 500 futures fell by 1.6%. But as the hours passed, the stockmarket steadily climbed. The index has now recovered to around 6,000, a hair's breadth from an all-time high.

Such movements reflect a new market mantra: “Nothing ever happens.” The phrase emerged from the depths of 4chan, an online forum, more than a decade ago, and has become a popular meme among youngish investors. On the face of it, the saying seems wildly out of place in an era of both trade war and conventional conflict. But consider the long list of recent events that at first seemed to have epoch-making potential, only to fizzle out, and it appears more reasonable. Examples include China’s anti-

lockdown protests, the Wagner Group's rebellion in Russia and skirmishes between India and Pakistan. Xi Jinping and Vladimir Putin are still in charge. Nuclear war has been avoided.

And so cynicism prevails, dips are bought and markets continue to climb. Retail investors are getting in on the act, too. They have piled into stocks, buying \$20bn-worth, net, over the past three months. Crisis, what crisis?

The head-in-the-sand approach is a more sophisticated strategy than it first appears, and not just because headlines tend to go over the top. As far back as 1988, a paper by David Cutler and James Poterba, then both of the Massachusetts Institute of Technology, and Larry Summers, then of Harvard University, sought to establish what really moves stock prices. The trio looked at almost five decades of world-changing events, from Japan's attack on Pearl Harbour in 1941 and the Cuban missile crisis of 1962 to the Chernobyl nuclear meltdown in 1986. They were surprised to discover that the volatility of returns (as measured by the standard deviation) on the day of an important news event was less than three times as large as on an ordinary day. Several of the biggest one-day falls identified by the authors occurred on days without an obvious news-related spark.

Geopolitical threats are often pregnant with all-or-nothing outcomes that are difficult to price. This is especially true of the most potentially devastating events, which involve the risk of nuclear war. Take the example of South Korea, which has a stockmarket worth \$2trn that could be reduced to rubble by its belligerent northern neighbour. How should an investor price the threat? For South Koreans, hedging against such an outcome is all but impossible. Many prefer to ignore the prospect. Even the so-called Korea discount—the persistent cheapness of South Korean stocks relative to their international peers—is explained by poor corporate governance rather than geopolitical risk, according to Sohyun Kang of the Korea Capital Markets Institute.

Moreover, changes in the global economy are blunting events that once would have prompted turmoil. The oil shock of 1973 and the start of the Gulf war in 1990 both had a sustained impact on stockmarkets. Today, however, America is an exporter of energy owing to the shale revolution. This keeps its economy insulated from global affairs. Indeed, climbing global oil prices incentivise more exploration and production in America, boosting spending. And what happens in America matters, above all else, for global stockmarkets.

The momentum of markets can be relentless. Shares tend to grind higher over time as consumers spend, entrepreneurs innovate and companies grow. Earnings per share for American firms have risen by 250% or so over the past 15 years. For any event to have a meaningful impact, at least for longer than a few days, it must harm such dynamism.



Even President Donald Trump's tariffs—which, unlike lots of geopolitical risks, have a direct and material impact on the bottom line of many firms—have not been enough to break the growth engine that has powered the American stockmarket beyond all competition. Expected earnings of firms in the S&P 500 index over the next 12 months are, at \$263 per share, very narrowly above where they were before Mr Trump's "Liberation Day" announcement.

Of course, an event of sufficient scale to rattle markets may be on the way. That would upset the dip-buyers. But what appears to be a witless stampede into stocks, even in moments of international tension and conflict, is really an appreciation of the power of capitalism. The news that matters tends to come from the real economy or financial system—not the world's battlefields.

## Technology

# How to find the smartest AI

Developers are building fiendish tests only the best models can pass

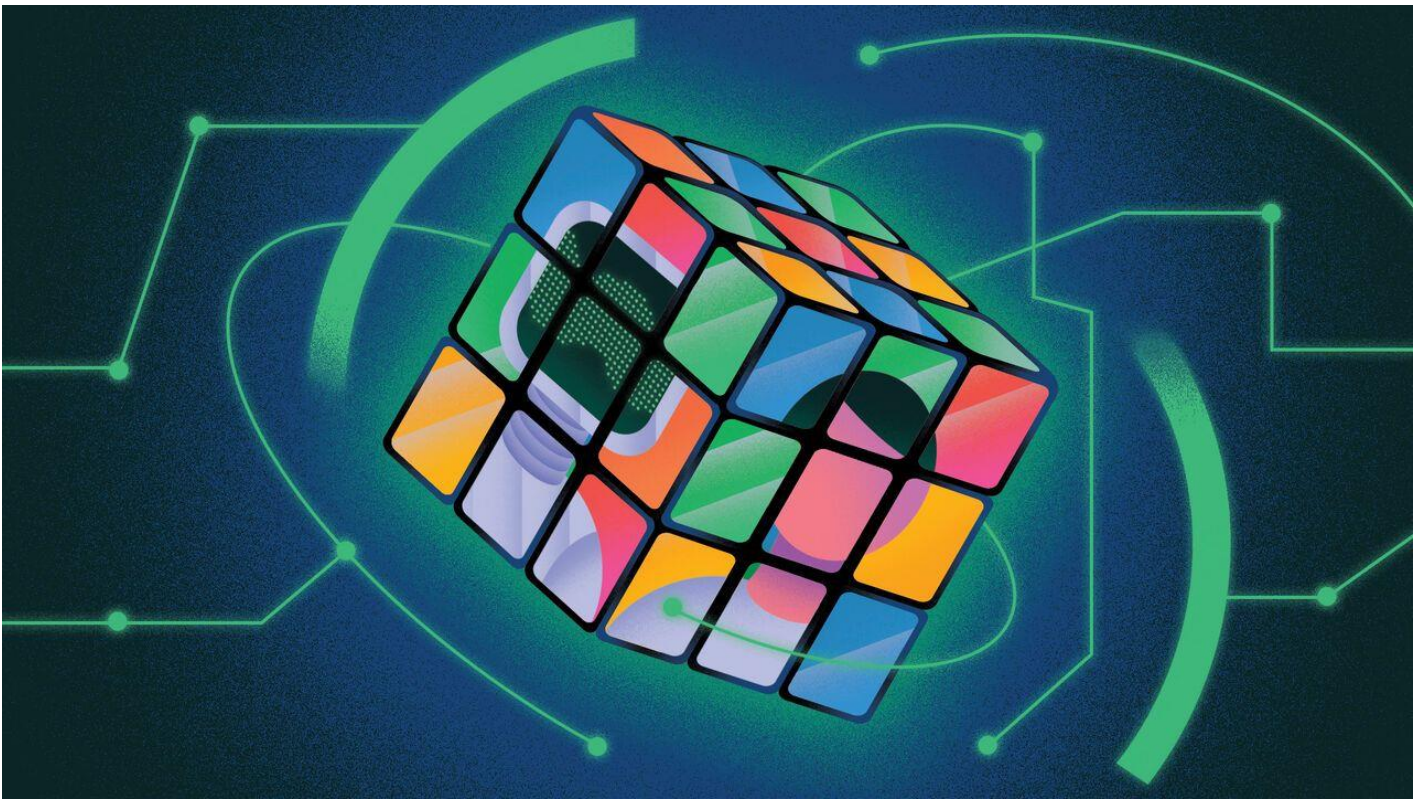


Illustration: Ariel Davis

THE DIZZYING array of letters splattered across the page of one of Jonathan Roberts's visual-reasoning questions resembles a word search assembled by a sadist. Test-takers aren't merely tasked with finding the hidden words in the image, but with spotting a question written in the shape of a star and then answering that in turn (see below).

The intention of Mr Roberts's anthology of a hundred questions is not to help people pass the time on the train. Instead, it is to provide cutting-edge artificial-intelligence (AI) models like o3-pro, June's top-tier release from OpenAI, with a test worthy of their skills.

There is no shortage of tests for AI models. Some seek to measure general knowledge, others are subject-specific. There are those that aim to assess everything from puzzle-solving and creativity to conversational ability. But not all of these so-called benchmarking tests do what they claim to. Many were hurriedly assembled, with flaws and omissions; were too easy to cheat on, having filtered into the training data of AI models; or were just too easy for today's "frontier" systems.

ZeroBench, the challenge launched by Mr Roberts and his colleagues at the University of Cambridge, is one prominent alternative. It is targeted at large multimodal models—AI systems that can take images as well as text as input—and aims to present a test that is easy(ish) for the typical person and impossible for state-of-the-art models. For now, no large language model (LLM) can score a single point. Should some upstart one day do better, it would be quite an achievement.

ZeroBench isn't alone. EnigmaEval is a collection of more than a thousand multimodal puzzles assembled by Scale AI, an AI data startup. Unlike ZeroBench, EnigmaEval doesn't try to be easy for anyone. The puzzles, curated from a variety of pre-existing online quizzing resources, start at the difficulty of a fiendish cryptic crossword and get harder from there. When advanced AI systems are pitted against the hardest of these problems, their median score is zero. A frontier model from Anthropic, an AI lab, is the only model to have got a single one of these questions right.

Other question sets attempt to track more specific abilities. METR, an AI-safety group, for instance, tracks the length of time it would take people to perform individual tasks that AI models are now capable of (Anthropic is the first to break the hour mark). Another benchmark, the brashly named "Humanity's Last Exam", tests knowledge, rather than intelligence, with questions from the front line of human knowledge garnered from nearly a thousand academic experts.

One of the reasons for the glut of new tests is a desire to avoid the mistakes of the past. Older benchmarks abound with sloppy phrasings, bad markschemes or unfair questions. ImageNet, an early image-recognition data set, is an infamous example: a model that describes a photograph of a mirror in which fruit is reflected is penalised for saying the picture is of a mirror, but rewarded for identifying a banana.

It is impossible to ask models to solve corrected versions of these tests without compromising researchers' ability to compare them with models that took the flawed versions. Newer tests—produced in an era when AI research is flush with resources—can be laboriously vetted to spot such errors ahead of production.

The second reason for the rush to build new tests is that models have learned the old ones. It has proved hard to keep any common benchmark out of the training data used by labs to train their models, resulting in systems that perform better on the exams than they do in normal tasks.

The third, and most pressing, issue motivating the creation of new tests is saturation—AI models coming close to getting full marks. On a selection of 500 high-school maths problems, for example, o3-pro is likely to get a near-perfect score. But as o1-mini, released nine months earlier, scored 98.9%, the results do not offer observers a real sense of progress in the field.

This is where ZeroBench and its peers come in. Each tries to measure a particular way AI capabilities are approaching—or exceeding—those of humans. Humanity’s Last Exam, for instance, sought to devise intimidating general-knowledge questions (its name derives from its status as the most fiendish such test it is possible to set), asking for anything from the number of tendons supported by a particular hummingbird bone to a translation of a stretch of Palmyrene script found on a Roman tombstone. In a future where many AI models can score full marks on such a test, benchmark-setters may have to move away from knowledge-based questions entirely.

But even evaluations which are supposed to stand the test of time get toppled overnight. ARC-AGI, a non-verbal reasoning quiz, was introduced in 2024 with the intention of being hard for AI models. Within six months, OpenAI announced a model, o3, capable of scoring 91.5%.

For some AI developers, existing benchmarks miss the point. OpenAI’s boss Sam Altman hinted at the difficulties of quantifying the unquantifiable when the firm released its GPT-4.5 in February. The system “won’t crush benchmarks”, he tweeted. Instead, he added, before publishing a short story the model had written, “There’s a magic to it I haven’t felt before.”

Some are trying to quantify that magic. Chatbot Arena, for example, allows users to have blind chats with pairs of LLMs before being asked to pick which is “better”—however they define the term. Models that win the most matchups float to the top of the leaderboard. This less rigid approach appears to capture some of that ineffable “magic” that other ranking systems cannot. They too, however, can be gamed, with more ingratiating models scoring higher with seducible human users.

Others, borrowing an argument familiar to anyone with school-age children, question what any test can reveal about an AI model beyond how good it is at passing that test. Simon Willison, an independent AI researcher in California, encourages users to keep track of the queries that existing AI systems fail to fulfil before posing them to their successors. That way users can select models that do well at the tasks that matter to them, rather than high-scoring systems ill-suited to their needs.

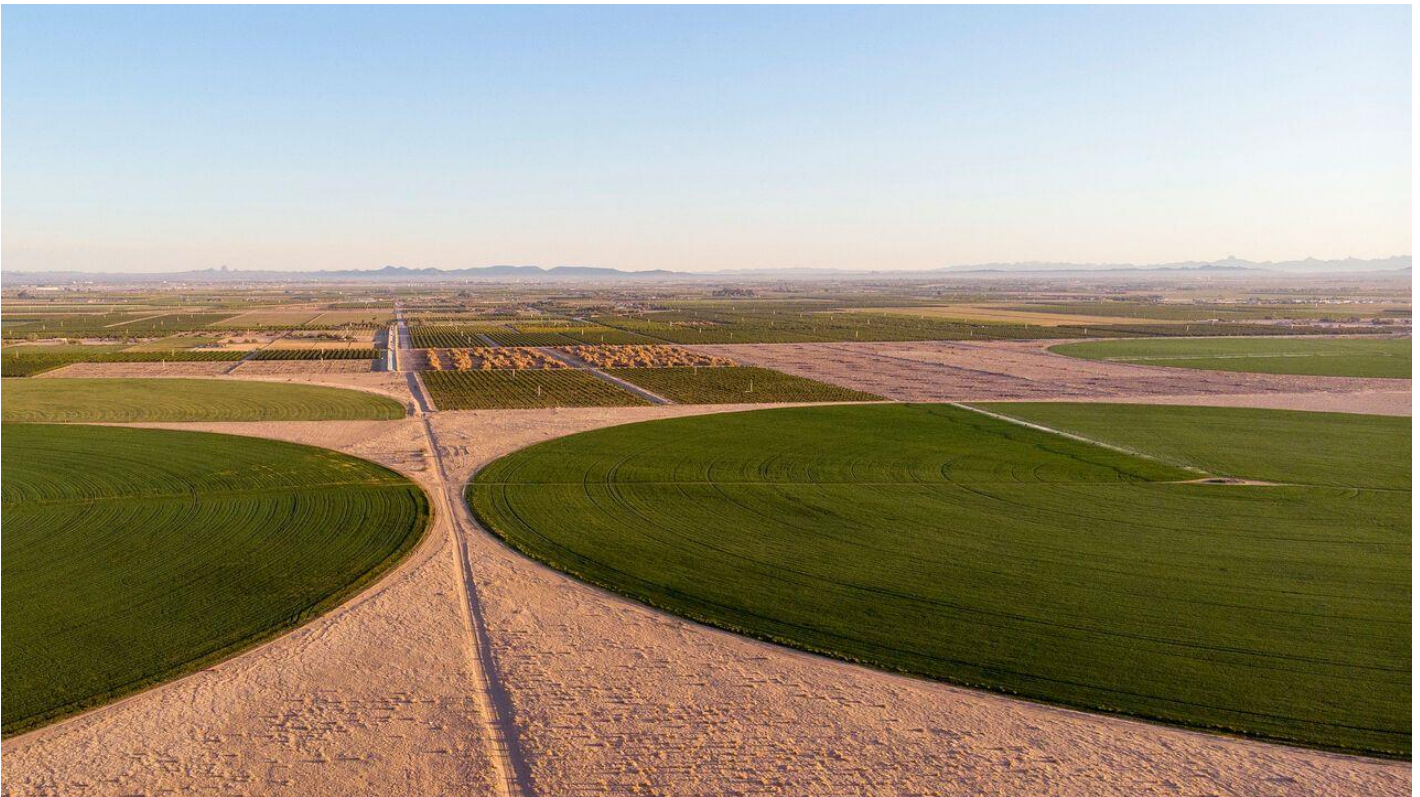


All this assumes that AI models are giving the tests facing them their best shot. Sandbagging, in which models deliberately fail tests in order to hide their true capabilities (in order to, for example, prevent themselves from being deleted), has been observed in a growing number of models. In a report published in May from researchers at MATS, an AI-safety group, top LLMs were able to identify when they were being tested almost as well as the researchers themselves. This too complicates the quest for reliable benchmarks.

That being said, the value to AI companies of simple leaderboards which their products can top means the race to build better benchmarks will continue. ARC-AGI 2 was released in March, and still eludes today's top systems. But, aware of how quickly that might change, work on ARC-AGI 3 has already begun.

# Climate change will hurt the richest farmers—and the poorest

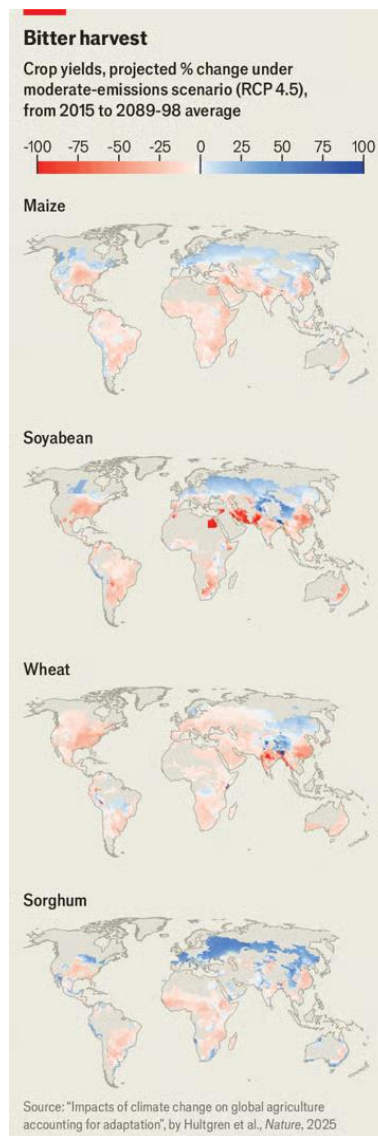
Even with realistic adaptation, crop yields will fall as temperatures rise



Photograph: Panos

JUST HOW agriculture will fare on a heating planet has been an active area of research ever since the problem of global warming was first widely recognised in the 1980s. A new paper, published this week in *Nature*, paints an especially comprehensive picture. It is also a dispiriting one. In the first project to predict how farmers will adapt to climate change based on how they are doing so at present, the authors find that food production in the world's existing breadbaskets, such as the American Midwest, will be among the hardest hit, although it may improve in currently less productive northerly regions such as Canada, China and Russia. And whereas adaptation will help offset some global losses, it will not be nearly enough to avoid them overall.

The project is the result of eight years of work by the Climate Impact Lab, a group of mostly American researchers. Its focus was the six staple crops responsible for two-thirds of the world's calories: cassava, maize, rice, sorghum, soyabeans and wheat. Except for rice—which is expected to benefit from increases in precipitation across the regions it is grown in, and seems to respond best to adaptive measures—it found that rising temperatures and more frequent extreme weather will lead to diminishing yields in all staple crops between now and the end of the century. The authors conclude that, for every additional degree that the global average temperature rises, the food available for consumption will fall by 120 calories per person per day (roughly 4.4% of recommended daily intake).



Map: The Economist

“This stuff is hard to estimate,” says Timothy Searchinger, an expert on agriculture and economics at Princeton University who was not involved with the study. He is impressed by the team’s analysis, but points out that significant uncertainties remain. It is an improvement on previous efforts, which often assumed that farmers would either fail to adapt or would adapt perfectly, adopting new technologies and strategies with ease, irrespective of cost and availability. Neither scenario is realistic. In reality, farmers do the best they can with the means available, switching crop varieties or increasing artificial irrigation when possible.

The researchers at the Climate Impact Lab attempted to capture this reality. Because farmers face drastically different limitations according to location and economic standing, trying to model individual responses would be “nearly impossible”, says Andrew Hultgren, the study’s lead author and an economist at the University of Illinois Urbana-Champaign. Instead, they produced a statistical model of existing adaptation, based on how yields from more than 12,000 regions across 54 countries have already changed in response to rising temperatures. They projected this model forward for an even hotter climate.

They estimate that, in a scenario in which the world cuts its emissions slightly faster than their current trajectory, global adaptation efforts will only marginally alleviate reductions in yields. In a future without adaptation, overall yields would be expected to fall by 8.3% by 2050 and 12.7% by 2098 (compared to a hypothetical baseline where the climate does not change). With adaptation, they become 7.8% and 11.2% respectively.

The authors predict that the consequences will be felt most keenly at the extremes of the income spectrum. For the poorest 10% of regions (measured by GDP per capita), the overall reduction in food-production capacity by the end of the century was predicted to be roughly 13% under a reduced-emissions scenario (and up to 28% under a high-emissions one). The richest 10%, meanwhile, are predicted to see reductions of more than 19% and 41%, respectively.

The drop in the poorest regions is likely to be because farmers are already growing crops with relatively low yields, and meaningful adaptation is likely to be unaffordable. The authors reckon that adaptation may well be even more difficult in rich regions. Much of the farming in places like America’s corn belt relies on vast expanses of land devoted to a single crop. This simultaneously makes adaptation extremely difficult and failure very costly. (The expensive insurance policies which have helped protect such farmers from sudden failures, such as after droughts or heatwaves, may well become unaffordable as the world warms.)



Even if farmers on both ends of the income distribution suffer, it will ultimately be the poorest who will be left hungry. The best way to minimise that harm is to keep the flow of food as open as possible, says Solomon Hsiang, the director of the Global Policy Lab at Stanford's Doerr School of Sustainability (and a senior author of the recent study). "We don't see as many famines as we used to and, in many cases, that has been attributed to the globalisation of the food trade and removal of a lot of political barriers," he says. "Increasing openness to trade is one of the best adaptation strategies."

***The Economist:*** <https://www.economist.com>