

► der de facto house arrest, and then set about dismantling his party. Thousands of PTI activists have been arrested and most of the party's senior leaders leant on to renounce Mr Khan. Whether the generals will even let the election go ahead is unclear.

Pakistan's woeful governance is a direct consequence of such military meddling. The country's political parties, as the PTI is now demonstrating, are shifting bands of opportunists, their members united by little more than an appetite to capitalise on whatever brief opportunity to get rich the generals afford them. Its governments, formed at the army's behest and in the knowledge that they are unlikely to last a full term, have little incentive to take tough political decisions. No wonder the current administration of Shehbaz Sharif has balked at the eye-watering tax rises and subsidy cuts that the IMF is demanding for its latest bail-out of Pakistan, which would be the 23rd. The courts, an instrument of army control, are often intimidated and corrupted by the generals' fixer-spies. Ditto the media.

The cost of the dysfunction is incalculable. Dominated by the agriculturally rich state of Punjab, Pakistan was for a long time a match for its much bigger Indian rival. Its army arguably lost

four wars against India, but narrowly. Its cricketers were better than their neighbour's. In 1990 the two countries' average income per head was almost the same. Now Indians are, on average, 50% richer than Pakistanis. And whereas India is fast becoming a global power, Pakistan, beset by economic, environmental and social crises that its governments scarcely seem to comprehend, has become a global menace. It is abysmally governed, violent, unstable and nuclear-armed. Owing to the public anger Mr Khan is whipping up, it is now also at risk of civil strife. All this in a country whose population is projected to be more than 100m bigger in 2050 than it is today.

This mess has only one solution. The generals must, once and for all, get out of politics. Pakistan otherwise has no chance of getting the better governments it needs and deserves. The time for this is now. The election should be held to schedule and Mr Khan and his party—unimpressive though they are—be free to contest it. It is for Pakistani voters to choose who should govern them. They could scarcely choose worse than their turkey-cocking generals. Those self-appointed guardians of Pakistan have done little except lower, weaken and immiserate it. ■

Artificial intelligence Nvincible?

The AI boom has turbocharged Nvidia's fortunes. Can it hold its position?

WAVES OF INNOVATION often create giants. Microsoft rode the upsurge in desktop computers, as Apple did with the smartphone. Artificial intelligence (AI) may well be the next big technological shift, transforming the way businesses are run and society functions. If so, plenty of firms selling the software and hardware that underpin AI stand to gain (see Business section). But none is better positioned than Nvidia, an American firm that makes specialist AI chips. Its market value briefly passed \$1trn this week. Will AI sweep Nvidia to big tech-dom?

The hype around AI makes the question hard to answer. Excitement about Nvidia began to mount in November, after the release of ChatGPT, an AI-powered chatbot. Since then all manner of firms have launched AI-infused products, adding to the fervour. Jensen Huang, Nvidia's boss, is unsurprisingly bullish, talking of a "new computing era". Investors seem just as jubilant. Nvidia's share price has more than doubled since the start of the year.

Much of the excitement is justified. Nvidia is in an enviable position. Its core business is designing high-performance chips. At first it sold these to video-game enthusiasts. The chips were also highly efficient at training AI models, and a new, booming market emerged. But the firm has not just been lucky. With each generation of new chips, it has improved performance many times over. Today it holds over 80% of the market in specialist AI chips.

Nvidia also had the forethought to invest in two areas that helped cement its supremacy. One is advanced networking. Because training AI models requires vast amounts of processing power, many chips—sometimes thousands—are used simultaneously. These chips exchange data along a high-performance, AI-tailored network. Today Nvidia controls 78% of that market, thanks to its purchase of Mellanox, a specialist, in 2019.

Nvidia's other strength is its software. CUDA, its AI platform, is popular with programmers and runs only on the company's chips. By, for instance, giving free access to its chips and software to some AI researchers, the firm focused on encouraging developers to use its software long before its competitors set out to woo them.

Despite all these advantages, however, Nvidia's lasting dominance is not assured. For a start, some of the frenzy around AI may die down. The juicier the firm's prospects, the more competitors it will attract. Startups and big chipmakers, such as AMD and Intel, want a share of Nvidia's network and chip businesses. Others are working on open-source and proprietary software that may weaken CUDA's hold. The biggest challenge, though, may come from Nvidia's own customers. The cloud-computing arms of both Amazon and Alphabet are designing their own AI-tailored chips. Both have the scale and the deep pockets to become fearsome rivals.

Governments also pose a risk. Regulators worried about the dangers AI poses to society and national security are searching for ways to control the technology. Last year America restricted the sale of high-performance chips and chipmaking tools to some Chinese firms, which dented Nvidia's sales in the third quarter. If Nvidia is dominant, politicians will find it easier to act.

Still, for now the future looks bright. Even if AI mania cools, the technology is bound to be more useful than crypto, another craze that Nvidia cashed in on. Regulation may crimp growth, but is unlikely to kill it. And none of Nvidia's rivals is yet offering AI products that bundle together software, chips and networking. Nvidia's chief advantage lies in its ability to package these up and create an attractive ecosystem. That sounds a lot like Microsoft and Apple. ■

