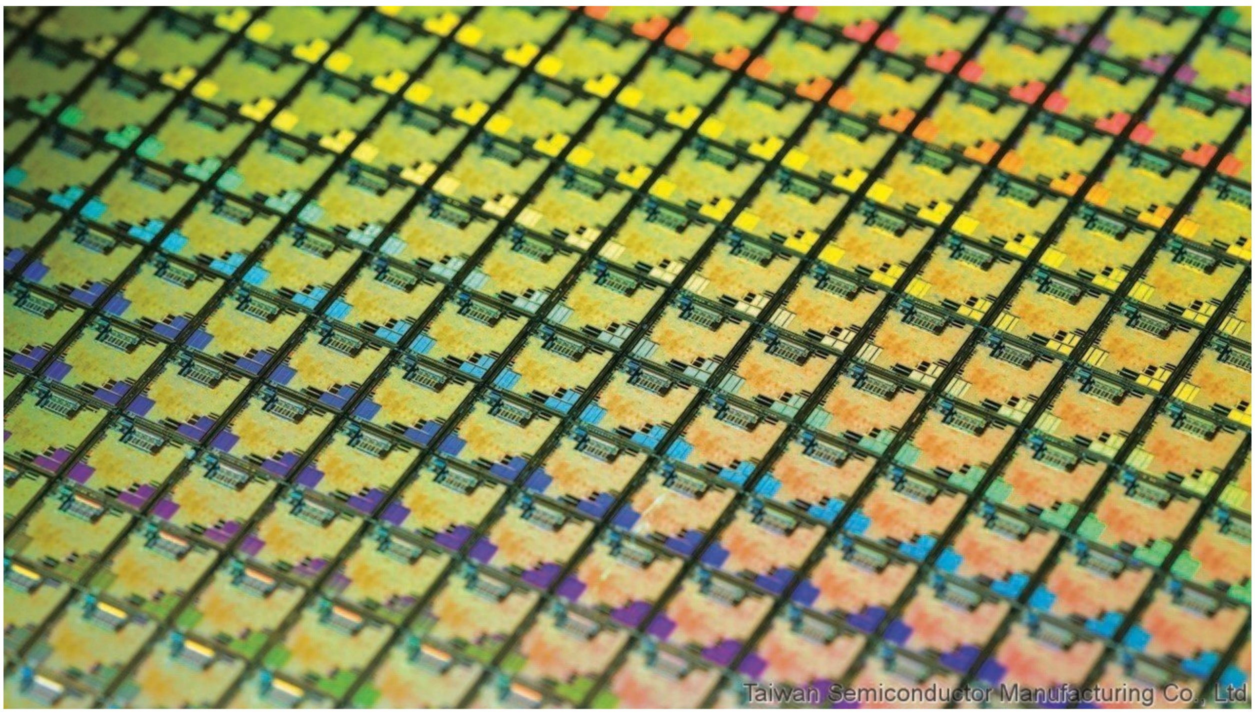
Living on the edge

How TSMC has mastered the geopolitics of chipmaking

Make yourself indispensable to both America and China

Apr 26th 2021



CHIPMAKERS' CRAFT can seem magical. They use light to stamp complex patterns on a dinner-plate-sized disc of crystal silicon, forming arrays of electric circuits. Once stamped and cut out of the disc, each array is called a chip. The chip's job is to shuttle electrons in a mathematical shimmer prescribed by computer code. They do the maths which runs the digital world, from Twitter and TikTok to toys and tanks. Without them, whole industries cannot function properly, as carmakers are discovering as they are forced to pause production owing to shortages of microprocessors.

The most important firm in this critical business is Taiwan Semiconductor Manufacturing Company (TSMC). It controls 84% of the market of chips with the smallest, most efficient circuits on which the world's biggest technology brands, from Apple in America to Alibaba in China, rely to make their snazzy products and services possible. As demand for the most sophisticated chips surges thanks to the expansion of fast communication networks and cloud computing, TSMC is pouring vast additional sums of money into expanding its dominance of the cutting edge.

This has proved to be a successful business model. Last year TSMC made an operating profit of $20bn on revenues of $48bn. It is, in the words of Dan Hutcheson of *VLSIresearch*, a firm of analysts, “the Hope Diamond of the semiconductor industry”—and, with a sparkly market capitalisation of $564bn, the world’s 11th-most-valuable company. It is also an astute geopolitical actor, navigating the rising tensions between the two superpowers, including over the fate of its home country, which China claims as part of its territory and to which America offers military support. In 2020 62% of TSMC’s revenue came from customers with headquarters in North America and 17% from those domiciled in China. It has managed the geopolitical divide by making itself indispensable to the technological ambitions of both America and China.

TSMC was founded in 1987 and for the first quarter-century made mostly unremarkable microprocessors far behind the cutting edge. That changed in 2012, when it negotiated its first contract to make powerful chips for the iPhone. Apple wanted TSMC to push its manufacturing technology as far as it could, as fast as possible, to get an edge over rival gadget-makers. The notoriously secretive Apple appreciated how Morris Chang, TSMC’s founder, made trade-secret protection one of his firm’s priorities; guests to its premises would have their laptops’ USB ports sealed even if they only ever visited a conference room.

Two years later the Taiwanese firm’s chips were powering the iPhone 6, the best-selling smartphone of all time. Revenue from the 220m units sold kick-started TSMC’s ascent. Some of Apple’s competitors also used TSMC as a supplier, and wanted the same thing as the American giant. All paid handsomely for the chipmaker’s efforts.

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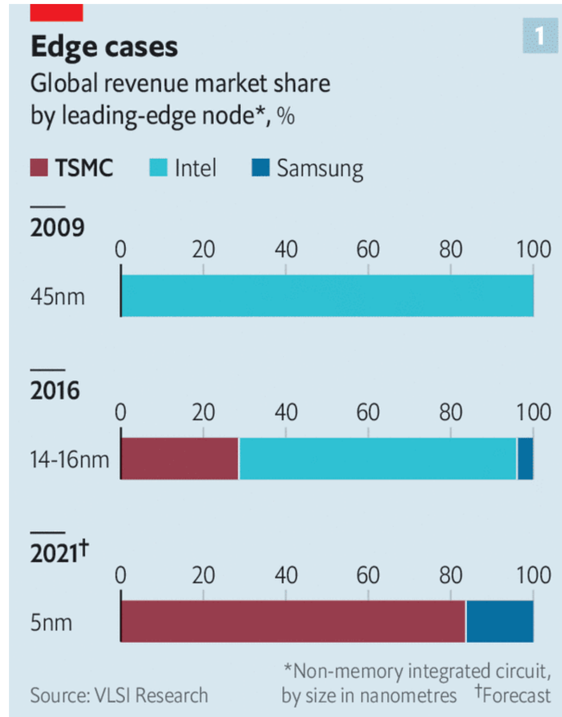
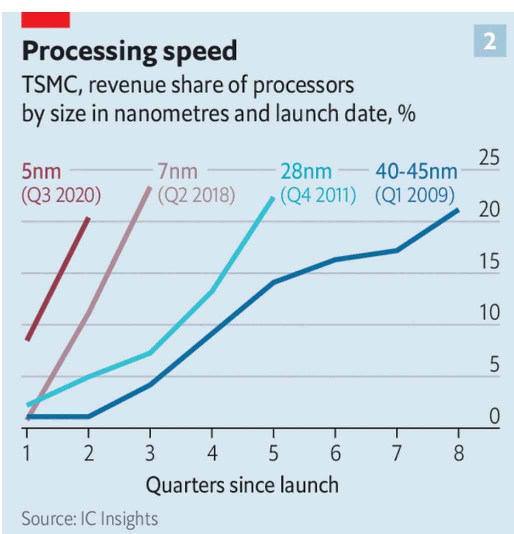
Thanks to this windfall, TSMC started steaming ahead. It overtook Intel, the American giant which once enjoyed a monopoly on the leading edge, then left it in the dust (see chart 1). Its remaining rival in top-flight chips, Samsung of South Korea, is barely able to keep up. Such is TSMC's manufacturing prowess that Peter Hanbury of Bain, a consultancy, reckons it has given Moore's Law, the industry's prediction-cum-benchmark of doubling processing power every two years or so, at least another 8-10 years of life.



The Economist

The distance ahead of rivals is growing. TSMC is pouring cash into cutting-edge "fabs", as chip factories are known, at an unprecedented rate. In January it said it would raise its capital expenditure for 2021 to $25bn-28bn, up from $17bn in 2020. In April it raised the figure again, to $30bn. It plans to spend $100bn over the next three years. Fully 80% of this year's spending will go on advanced technologies.

It has also stopped cutting prices—which in chipmaking, where processing power has only ever got cheaper, is tantamount to raising them. Its chief executive, C.C. Wei, has said it will skip a planned price reduction in December 2021 and keep things that way for a year. IC Insights, a research firm, calculates that TSMC can charge between twice and three times as much per silicon wafer when selling its most advanced processes, compared with what the next-most-advanced technology will fetch.

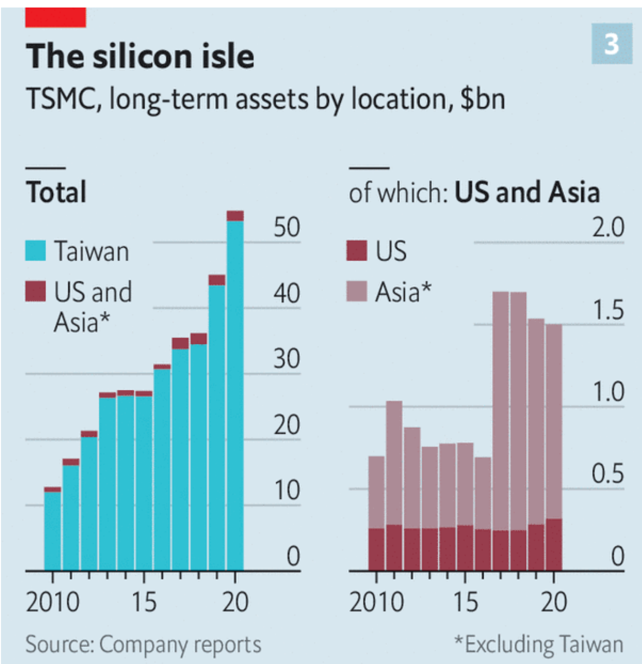


The Economist

This creates a positive feedback loop. Developing the latest technology before anyone else allows TSMC to charge higher prices and earn more profit, which is ploughed back into the next generation of technology to continue the cycle. And the cycle is spinning ever faster. Four technological generations ago it took TSMC two years for those cutting-edge chips to make up 20% of revenues; the latest generation needed just six months to reach the same level (see chart 2). Operating income, which grew at an average rate of 8% year in the decade to 2012, has since risen at an average rate of 15%. Combined with revenues that chip-designers make from semiconductors ultimately forged by TSMC, the company and its customers account for 39% of the global market for microprocessors, according to VLSIresearch, up from 9% in 2000 and a third more than once-dominant Intel.

This is an enviable position to be in. But it is not an unassailable one. The experience of Intel, which has fallen behind in the last two generations of chips owing to technological missteps, shows that even the most masterful manufacturers can trip up. The chip business is also notoriously cyclical. Booms lead to overcapacity, which causes a bust. If demand slackens now that the rich world is emerging from the pandemic having brought forward purchases of gadgets that made it possible to work and relax at home, TSMC's bottom line would suffer. That would strain its balance-sheet, which has $13bn of net cash, a relatively modest rainy-day fund by the standards of big tech firms. To help finance its most advanced fabs, the company has issued $6.5bn-worth of bonds in the past six months alone.

The most serious danger to TSMC comes from the Sino-American ructions. The company's position at the cutting edge offers a buffer against geopolitical turmoil. Chip-industry insiders say that the Taiwanese government encourages all its chipmakers, including TSMC, to keep their cutting-edge production on the island as a form of protection from foreign meddling. Taiwanese contract manufacturers account for two-thirds of global chip sales.



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Reflecting this, 97% of TSMC's $57bn-worth of long-term assets reside in Taiwan (see chart 3). That includes every one of its most advanced fabs. Some 90% of its 56,800 staff, of whom half have doctorates or masters degrees, are based in Taiwan. The firm has made soothing noises to both America and China and offered to invest more in production lines based in the two superpowers. But it is hard not to see this as diplomatic theatre. Its Chinese factory in Nanjing, opened in 2018, produces chips that are two or three generations behind the cutting edge. By the time its first American fab, designed to be more advanced than the one in Nanjing, is up and running in 2024, TSMC will be churning out even fancier circuits at home. By our estimates, based on disclosed investment plans, the net value of TSMC's fabs and associated equipment will roughly double by 2025 but 86% will still be located in Taiwan.

In the past three years the American government has begun to disrupt the delicate balance. It has tightened export controls that prohibit any foreign firm from using American tools to make chips for Huawei, a Chinese technology giant. That applies to TSMC, which in 2019 sold more chips to Huawei than to any other customer bar Apple. Most of these were destined for smartphones and other Chinese handset-makers such as Oppo happily snapped up what Huawei could not. But further American attempts to prevent TSMC from doing business with China could invite meddling by the regime in Beijing, which refuses to rule out taking back Taiwan by force. The Biden administration has also announced a $50bn government plan to revive chipmaking at home: it is doubtful that subsidies will restore Intel's supremacy but the initiative could involve putting more pressure on TSMC to locate cutting-edge production in America, a strategic trap the firm has been keen to resist.

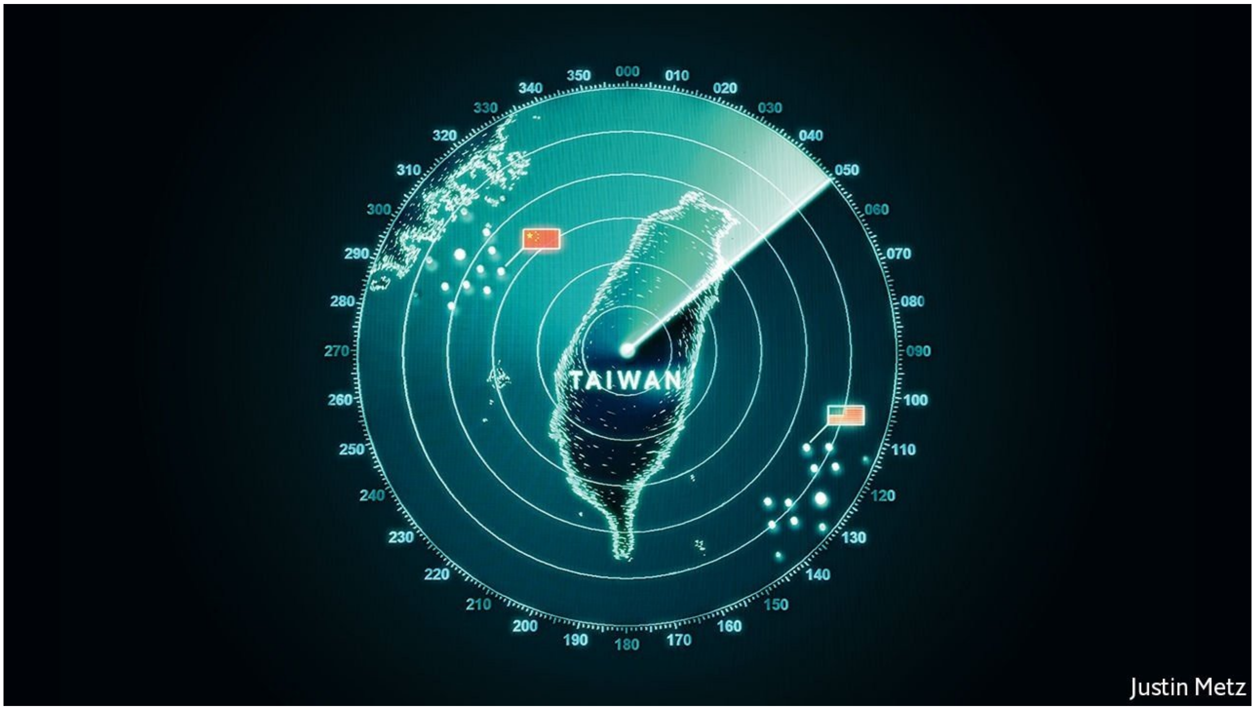
The rival powers have so far refrained from interfering with TSMC directly, perhaps concluding this is the most reliable way of achieving their technological objectives. If the chipmaker's importance keeps growing, one of them may decide that it is too valuable to be left alone.

Superpower politics

The most dangerous place on Earth

America and China must work harder to avoid war over the future of Taiwan

May 1st 2021



The test of a first-rate intelligence, wrote F. Scott Fitzgerald, is the ability to hold two opposing ideas in mind at the same time and still retain the ability to function. For decades just such an exercise of high-calibre ambiguity has kept the peace between America and China over Taiwan, an island of 24m people, 100 miles (160km) off China's coast. Leaders in Beijing say there is only one China, which they run, and that Taiwan is a rebellious part of it. America nods to the one China idea, but has spent 70 years ensuring there are two.

Today, however, this strategic ambiguity is breaking down. The United States is coming to fear that it may no longer be able to deter China from seizing Taiwan by force. Admiral Phil Davidson, who heads the Indo-Pacific Command, told Congress in March that he worried about China attacking Taiwan as soon as 2027.

War would be a catastrophe, and not only because of the bloodshed in Taiwan and the risk of escalation between two nuclear powers. One reason is economic. The island lies at the heart of the semiconductor industry. TSMC, the world's most valuable chipmaker, etches 84% of the most advanced chips. Were production at TSMC to stop, so would the global electronics industry, at incalculable cost. The firm's technology and know-how are perhaps a decade ahead of its rivals', and it will take many years of work before either America or China can hope to catch up.

The bigger reason is that Taiwan is an arena for the rivalry between China and America. Although the United States is not treaty-bound to defend Taiwan, a Chinese assault would be a test of America's military might and its diplomatic and political resolve. If the Seventh Fleet failed to turn up, China would overnight become the dominant power in Asia. America's allies around the world would know that they could not count on it. Pax Americana would collapse.

To understand how to avoid conflict in the Taiwan Strait, start with the contradictions that have kept the peace during the past few decades. The government in Beijing insists it has a duty to bring about unification—even, as a last resort, by means of invasion. The Taiwanese, who used to agree that their island was part of China (albeit a non-Communist one), have taken to electing governments that stress its separateness, while stopping short of declaring independence. And America has protected Taiwan from Chinese aggression, even though it recognises the government in Beijing. These opposing ideas are bundled into what Fitzgerald's diplomatic inheritors blithely call the "status quo". In fact, it is a roiling, seething source of neurosis and doubt.

What has changed of late is America's perception of a tipping-point in China's cross-strait military build-up, 25 years in the making. The Chinese navy has launched 90 major ships and submarines in the past five years, four to five times as many as America has in the western Pacific. China builds over 100 advanced fighter planes each year; it has deployed space weapons and is bristling with precision missiles that can hit Taiwan, US Navy vessels and American bases in Japan, South Korea and Guam. In the war games that simulate a Chinese attack on Taiwan, America has started to lose.

Some American analysts conclude that military superiority will sooner or later tempt China into using force against Taiwan, not as a last resort but because it can. China has talked itself into believing that America wants to keep the Taiwan crisis boiling and may even want a war to contain China's rise. It has trampled the idea that Hong Kong has a separate system of government, devaluing a similar offer designed to win over the people of Taiwan to peaceful unification. In the South China Sea it has been converting barren reefs into military bases.

Although China has clearly become more authoritarian and nationalistic, this analysis is too pessimistic—perhaps because hostility to China is becoming the default in America. Xi Jinping, China's President, has not even begun to prepare his people for a war likely to inflict mass casualties and economic pain on all sides. In its 100th year the Communist Party is building its claim to power on prosperity, stability and China's status in its region and growing role in the world. All that would be jeopardised by an attack whose result, whatever the US Navy says, comes with lots of uncertainty attached, not least over how to govern a rebellious Taiwan. Why would Mr Xi risk it all now, when China could wait until the odds are even better?

Yet that brings only some comfort. Nobody in America can really know what Mr Xi intends today, let alone what he or his successor may want in the future. China's impatience is likely to grow. Mr Xi's appetite for risk may sharpen, especially if he wants unification with Taiwan to crown his legacy.

If they are to ensure that war remains too much of a gamble for China, America and Taiwan need to think ahead. Work to re-establish an equilibrium across the Taiwan Strait will take years. Taiwan must start to devote fewer resources to big, expensive weapons systems that are vulnerable to Chinese missiles and more to tactics and technologies that would frustrate an invasion.

America requires weapons to deter China from launching an amphibious invasion; it must prepare its allies, including Japan and South Korea; and it needs to communicate to China that its battle plans are credible. This will be a tricky balance to strike. Deterrence usually strives to be crystal-clear about retaliation. The message here is more subtle. China must be discouraged from trying to change Taiwan's status by force even as it is reassured that America will not support a dash for formal independence by Taiwan. The risk of a superpower arms race is high.

Be under no illusions how hard it is to sustain ambiguity. Hawks in Washington and Beijing will always be able to portray it as weakness. And yet, seemingly useful shows of support for Taiwan, such as American warships making port calls on the island, could be misread as a dangerous shift in intentions.

Most disputes are best put to rest. Those that can be resolved only in war can often be put off and, as China's late leader Deng Xiaoping said, left to wiser generations. Nowhere presents such a test of statesmanship as the most dangerous place on Earth.

A shockingly possible war

China's growing military confidence puts Taiwan at risk

All-out conflict may not feel imminent, but America is deeply concerned

May 1st 2021 edition

On June 29th 1950 the USS *Valley Forge*, flagship of America's Seventh Fleet, passed through the Taiwan Strait. A battle group defended her flanks, America's first naval jets sat in her hangar, and a new vision of American-dominated Asian security unfurled in her wake.

Only a few months before, America's secretary of state, Dean Acheson, had declared that "The Asian peoples are on their own, and know it." But on June 25th Stalinist North Korea launched an invasion of its southern neighbour, and a country confronting communism could no longer leave Asia alone. America would fight with South Korea. It was to join in that defence that the *Valley Forge* was steaming north from Subic Bay.

Her route had added purpose. Containing Asian communism meant more than fighting North Korea. It also required making sure that Mao Zedong—mainland China's ruler since the previous year—did not take the island of Taiwan from the Nationalist regime led by Chiang Kai-shek, who had been forced to retreat there. On June 27th President Harry Truman announced a new Taiwan policy: America would defend the island from attack; the Nationalists must, for their part, cease air and sea operations against the mainland. "The

Seventh Fleet will see that this is done," the president declared, with nicely laconic menace. Hence the *Valley Forge*'s show of strength.

From that week on, to the relief of some and the frustration of others, Asian peoples were no longer on their own. The Korean War transformed the region into a theatre of ideological struggle just as fraught as divided cold-war Europe. For nearly three decades the Taiwan Strait saw ships of the Seventh Fleet acting as a tripwire between the two Chinas. There were early battles over outlying islands, including a crisis in 1958 in which Mao's brinkmanship nearly started a nuclear war. But over time the rivals to the west and east of the strait settled into an uneasy half-peace, both adamant that they were the one true China, neither able to act on the conviction.

Over time Taiwan became the prosperous, pro-Western democracy of 24m people which it is today. While the mainland saw traditions and social codes destroyed by Maoist fanaticism, Taiwan has a rich religious and cultural life. It has come to enjoy raucous free speech and a marked liberal streak: it was the first Asian country to legalise gay marriage.

A generation ago, it could matter greatly whether someone's grandparents had arrived from the mainland in 1949 or had deeper roots on the island. That has now changed, especially among the young. In 2020 a poll by the Pew Research Centre, a Washington-based research outfit, found that about two-thirds of adults on the island now identified as purely Taiwanese. About three in ten called themselves both Taiwanese and Chinese. Just 4% called themselves simply Chinese.

Leaders in Beijing differ; they consider them all Chinese. They tell their own people that most citizens of Taiwan agree, and that the historical necessity of national unification is being thwarted by secessionist troublemakers egged on by America.

Once, Taiwan was a point of compromise between the two powers. On January 1st 1979, the day that America recognised the People's Republic of China, the economic reformers running the mainland changed their Taiwan policy from armed liberation to "peaceful reunification", soon afterwards adding a promise of considerable autonomy: "one country, two systems". But for the past 25 years that conciliatory offer has been accompanied by an unprecedented military buildup.

In recent years China's rhetoric towards Taiwan has sounded new notes of impatience. And the crushing abnegation of its promise to observe "one country, two systems" in Hong Kong over the past two years has deepened Taiwanese distrust. Last year the issue helped Tsai Ing-wen of the Democratic Progressive Party (DPP) to be re-elected president.

In principle the DPP favours the creation of a Taiwan that is formally its own nation; but to declare independence in that way would trigger massive Chinese reprisals. To keep that crisis at bay, Ms Tsai, a moderate, cat-loving academic, relies on an artful diplomatic dodge: that she governs a country which, while proudly Taiwanese, uses the legal name of the Republic of China which it inherited from the Nationalists who arrived in 1949. China's leaders detest her.

The passage of time poses a dilemma for China. Every year, China's ability to coerce Taiwan economically and militarily grows greater. And every year it loses more hearts and minds on Taiwan. Should rulers in Beijing ever conclude that peaceful unification is a hopeless cause, Chinese law instructs them to use force.

Present fears

This dynamic alarms the heirs to Acheson. Though the accord of 1979 cast Taiwan into non-state limbo, the island's security remained—as a matter of American law—a question of "grave concern". When in 1996 China sought to intimidate the Taiwanese, about to vote in their first free presidential election, by means of missile tests, President Bill Clinton ordered the USS *Nimitz*, a nuclear-powered aircraft-carrier, and her attendant battle group to pass through the strait. The missile tests stopped.


AP

A man with a PLAN

American military commanders are increasingly open about their concerns that, in the context of Taiwan, the balance of military power between China and America has swung in China's direction. A 25-year campaign of shipbuilding and weapons procurement, begun in direct response to the humiliation of 1996, has provided the People's Liberation Army Navy (plan) a fleet of 360 ships, according to American naval intelligence, compared with America's 297. On April 23rd state media hailed the symbolism of a ceremony in which China's supreme leader, President Xi Jinping, commissioned three large warships on the same day: a destroyer, a helicopter-carrier and a ballistic-missile submarine. The second of these is ideal for airlifting troops to a mountainous island, the media noted with glee. The third is a way of deterring superpowers.

Disequilibrium

Military balance across the Taiwan Strait

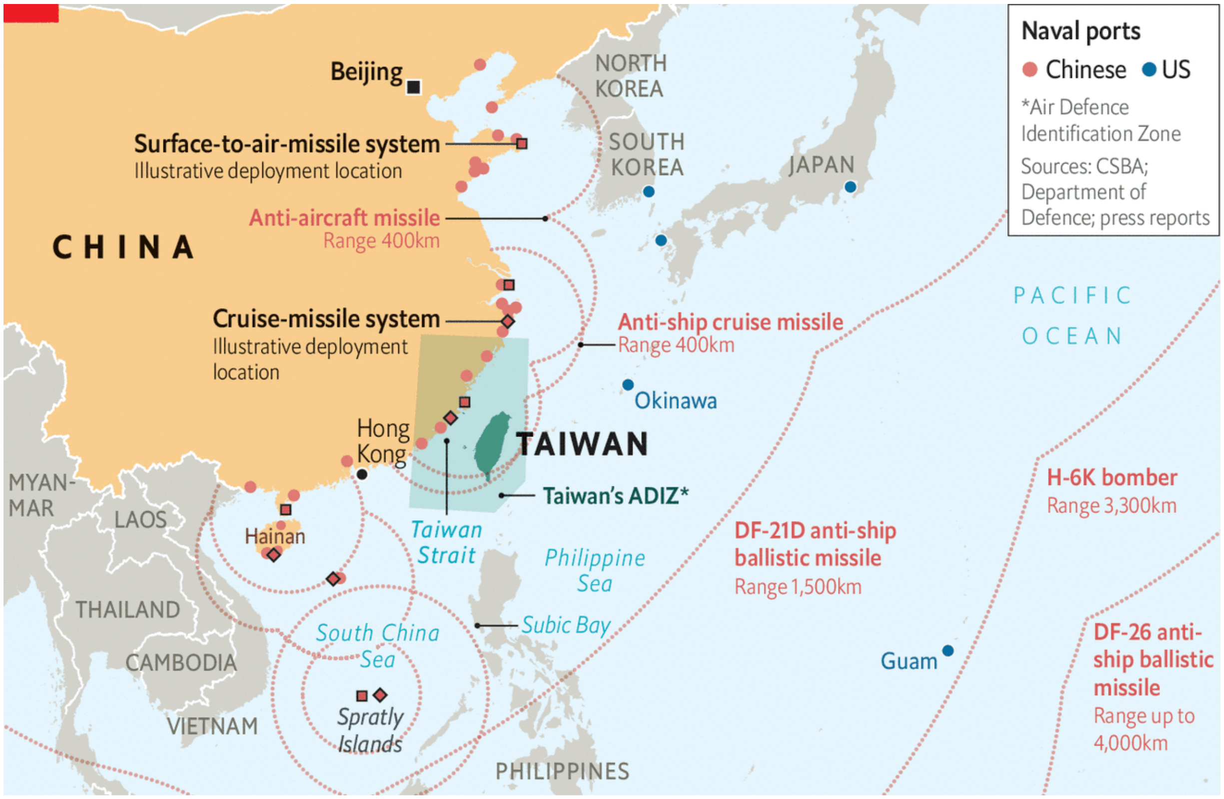
2020

	China	Taiwan
Defence spending, $bn	252.3	12.2
as % of GDP	1.7	1.9
Ground-force personnel	1,030,000	88,000
Tanks	6,300	800
Submarines	52	2
Aircraft-carriers	2	*nil*
Warships	131	26
Military aircraft	2,500	460

Sources: US Department of Defence; SIPRI

The Economist

America still boasts more, better carriers and nuclear submarines. It has much more experience of far-flung operations, and it has allies, too. But America's forces have global duties. China would be fighting close to home and thus enjoying the benefit of the PLA's land-based aircraft and missiles. Lonnie Henley, who was until 2019 the chief Pentagon intelligence analyst for East Asia, sees the radars and missiles of the integrated air-defence system along China's coast as the "centre of gravity" of any war over Taiwan (see map). Unless those defences are destroyed, American forces would be limited to long-range weapons or attacks by the stealthiest warplanes, Mr Henley told a congressional panel in February. But destroying those defences would mean one nuclear power launching direct attacks on the territory of another.



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And the Chinese build-up continues apace. History is an imperfect guide, but offers precedents to ponder, says a senior American defence official. "The world has never seen a military expansion of this scale not associated with conflict."

It is not just a matter of numbers. China has carefully focused its efforts on the ability to defeat American forces that might trouble it. It has missiles designed expressly for killing carriers, and others that would allow precision strikes on the American base on Guam. The defence official lists other fields in which China has worked to neutralise areas of American strength, whether that means investment in anti-submarine weapons and sensors or systems to jam or destroy the satellites on which American forces rely. Copying an American method, China has set up a training centre with a professional opposing force that mimics enemy (in this case American) doctrines and tactics.

Horrible imaginings

The head of Indo-Pacific Command, Admiral Phil Davidson, told a Senate hearing in March that China's fielding of new warships, planes and rockets, when considered alongside the regime's unblushing readiness to crush dissent from Hong Kong to Tibet, makes him worry that China is accelerating its apparent ambitions to supplant America and its allies from their position atop what he called the rules-based international order—a phrase that China sees as code for Western hegemony. Pondering the specific risks of a Chinese attack on Taiwan, the admiral told senators that "the threat is manifest during this decade, in fact in the next six years."

Admiral John Aquilino, nominated to be Admiral Davidson's successor as head of Indo-Pacific Command, told a confirmation hearing in March that work to shore up America's ability to deter a Chinese attack on Taiwan is urgent. While he stopped short of endorsing his predecessor's timeline of six years, he called the prospect of a Chinese use of force "much closer to us than most think". Anxiety has been raised further by war games involving Taiwan scenarios, both secret and unclassified, that were won by officers, spooks or scholars playing the role of China.

The admirals' worries mix judgments about China's capabilities with hunches about its intent. Bonnie Glaser of the German Marshall Fund, a public-policy outfit, notes that their mission is to make plans, in this case to win a war over Taiwan. Once they realise that victory may elude them, or may only be possible at great cost, panic is understandable. That does not mean they are correctly assessing China's incentives to act soon. Strikingly, some of the intelligence officers paid to analyse the world for admirals and generals are noticeably calmer. "The trends are not ideal from a Chinese perspective," says Mr Henley. "But are they intolerable? I just don't see them being in that grim a mindset."

When the battle's lost and won

A broader American angst is driven by the knowledge of what defeat would mean. Niall Ferguson, a historian, recently wrote that the fall of Taiwan to China would be seen around Asia as the end of American predominance and even as "America's Suez", a reference to the humbling of Britain when it overreached during the Suez crisis of 1956. Asked about this idea in early April Matt Pottinger, who was head of Asia policy in the Trump White House, agreed and added another reason for Asian allies to fear such a public loss of American credibility. When Britain stumbled at Suez, America had already taken its place as the leader of the Western world, Mr Pottinger told a Hoover Institution podcast. Today, he observed, "There's not another United States waiting in the wings."

For all its newfound strength China faces daunting odds. A full-scale amphibious invasion of Taiwan, a mountainous island that lies across at least 130km of water, would be the most ambitious such venture since the second world war. America has spent years nagging its Taiwanese allies to capitalise on their natural insular advantages, for instance by buying lots of naval mines, drones and coastal-defence cruise missiles on mobile launchers to sink Chinese troop ships, rather than continuing to splurge on tanks and f-16 fighters. Randall Schriver, the assistant secretary of defence for Indo-Pacific Security Affairs in 2018-19, promoted efforts to help Taiwan disable Chinese radar and other sensors: "If we are able to just blind the PLA, that would be a huge contribution to the fight."

If a Chinese amphibious invasion of Taiwan were to fail, or military conflict to reach a stalemate, would it fight on? Outsiders offer no consensus. Mr Henley suggests that a failed invasion might evolve into a long-term blockade—a strategy to which Western defence planners are paying increasing attention. There is a much-heard view that once China starts fighting anything short of victory would mean regime-toppling humiliation. But Mr Schriver is sceptical. "This is part of Beijing's win-without-fighting strategy. To make everyone believe that they climb the escalation ladder all the way to nukes if they have to."

The risks and costs of war, even a successful one, bring home the point that capabilities in themselves are never the determining factor. Intentions matter too, and are far more opaque—especially when, as in China, they reside largely in the mind of one man. It is common to hear Western analysts state that Mr Xi has staked his legacy and legitimacy on

Taiwan's return. Hard evidence for this alarming belief is in short supply. The most cited is that, in a new-year speech in 2019, he linked union with Taiwan to the ambition that he has placed at the core of his leadership, namely the "great rejuvenation of the Chinese nation". He also repeated what he had said to a Taiwanese envoy in 2013: that cross-strait differences should not be passed from generation to generation.

Having abolished the term limit on his role as president in 2018, 67-year-old Mr Xi can hardly expect to be succeeded by another member of his generation. Following his own logic, it thus falls to him to make sure that the task is not passed on. In an October 2019 meeting in Beijing, Chinese scholars and military experts shared with Oriana Skylar Mastro of Stanford University their understanding that it is imperative for Taiwan to be recovered during Mr Xi's time as leader.

Though some semi-official Chinese commentators already say that they see no hope for unification without some use of violence, there is no agreement among foreign governments as to whether that is the settled view of China's rulers. China continues to try to shape Taiwanese opinion with a mix of sticks and carrots, which suggests that negotiation has not been abandoned. The biggest carrot, access to its vast markets, continues to be dangled in front of Taiwanese business interests. Ms Glaser notes that Mr Xi sounded a patient note in March when he visited Fujian, the coastal province nearest to Taiwan, urging officials to explore new paths of cross-strait integration and economic development.

To the sticking place

But China's carrots and sticks can clash. To punish the Taiwanese for electing a DPP government China has reduced official and semi-official cross-strait contacts to "nearly zero", says Andrew Nien-Dzu Yang, a former Taiwanese deputy defence minister, now at the Chinese Council of Advanced Policy Studies, a think-tank in Taipei. That raises the danger of misunderstandings.

So does China's increased military activity around the island. Psychological operations and "grey-zone" warfare have been intensifying. In 2020, according to Taiwan's government, Chinese warplanes made 380 sorties into Taiwan's Air Defence Identification Zone (adiz), a buffer zone of international airspace where foreign planes face questioning by controllers and potential interception by Taiwanese fighters. Such a tempo of operations has not been seen since 1996. On April 5th the Chinese navy promised patrols by its aircraft-carriers around Taiwan on a regular basis. On April 12th 25 Chinese planes entered the adiz, a record for a single day.

This may be a test of the new Biden administration, says a senior Taiwanese diplomat, or a bid to create a "new normal" in which Chinese forces are routinely present in a zone formerly controlled by Taiwan. China knows that Taiwan will not fire first, so "the Chinese will continue to push," the diplomat says. The constant incursions wear down Taiwanese defences, raise the chances of accidental collisions and would make it harder to spot a rush to real war. Beyond the constant drumbeat of military pressure, China is "trying to divide society, trying to sow the seeds of chaos," says the diplomat. "They also conduct cyber-activities and disinformation campaigns."

Wang Zaixi, a former deputy head of the Association for Relations Across the Taiwan Straits, a semi-official Chinese body, advocates a "third way" between all-out war and political negotiations, one in which a massive display of firepower cows Taiwan into submission. In Chinese media interviews he has cited the (not wholly reassuring) precedent of Red Army troops surrounding Beijing in 1949 in such intimidating numbers that the city fell with rather few casualties, an approach he calls "using war to force peace".

In some polls less than half of Taiwanese say they would fight in a war with China, or want relatives to do so (compulsory military service was sharply reduced in 2013, by a government keen on closer ties with China). If the island loses more than half of its defences in the first waves of an attack, the public's will to fight might collapse, frets Mr Yang. A swift collapse would make America's position yet harder. If American reinforcements arrive to find China's troops already on the island, asks Ms Skylar Mastro, can they start firing if no Chinese unit has shot at Americans? "I think that would be a very hard call for a us president to make."

If the Taiwanese appetite for a fight is unclear, so too is America's. Taiwan's government is painfully aware that preserving their friendly, successful democracy is not in itself a vital national interest for anyone else. Instead, Taiwanese officials stress the extraordinary importance of the island's semiconductor industry to global supply chains. They also emphasise how grim and frightening the Asia-Pacific would feel if America ever broke its commitments and ducked a fight with China. Japan's prime minister, Suga Yoshihide, recently went further than any recent predecessor, when he mentioned the importance of stability in the Taiwan Strait in a joint statement with Mr Biden. Japan fears Taiwan becoming a Chinese bastion just to its south, explains Michishita Narushige of the National Graduate Institute for Policy Studies in Tokyo. But it also has much to lose if America is chased out of the Pacific: "If the fall of Taiwan means the disengagement of the us from this region, that would be a vital interest."

Some in America want to make clear that maintaining its Asian role is central to America's interests, too. Senator Chris Coons of Delaware, a Democrat close to Mr Biden, is co-sponsor of the Strategic Competition Act, a bill with strong bipartisan support that would deepen ties with Taiwan—whether by offering the island trade deals, weapons sales, expanded contacts with American officials or support in its attempts to take part in international forums—as one of several measures to push back against what he calls China's growing global aggression. To explain the island's importance to voters he talks of how dependent modern life is on the chips it makes. He also cites the importance of America being seen to keep its word and linking arms with allies to counter China, rather than trying to lead the world through "bluster".

The seeds of time

It may sound a bit narcissistic for Americans to assume that China's plans for Taiwan turn on how strong America looks to China. But Chinese experts and officials are sincerely convinced that America is delighted to be Taiwan's security guarantor and thus gain a chance to meddle in China's internal affairs. Without America to help, Taiwan will surrender in an instant, they argue, rather as Mr Yang fears. Their disdain for the idea that China might try to win over Taiwanese hearts and minds can be chilling. Unification will not be decided by Taiwan's "playhouse politics" but by geopolitical power struggles, Zhu

Feng of Nanjing University told an annual forum run by the *Global Times*, a jingoistic party newspaper.

The fangs of history

Ni Lexiong, a Taiwan expert at Shanghai University of Political Science and Law, says that bellicose commentaries in the state media must, in some limited sense, enjoy official sanction. Such commentators "would be too scared to write about such things without approval", he says. But he scoffs at Westerners who worry that Chinese leaders may feel compelled by the nationalism which such screeds stoke in the public. The views of the masses will not decide what happens, he says: "The key is military power."

There is much to be said for America's decades-long policy of strategic ambiguity. Though some American scholars believe it would usefully deter China to hear the Biden administration say it would join any war over Taiwan, it could also provoke China to rash acts or embolden some future leader on Taiwan to declare independence. Logic also supports the Pentagon's desire to spend the next ten years arming Taiwan, buying new weapons and thus increasing the uncertainty of Chinese commanders and their political masters.

The challenge of such an approach is to generate enough anxiety to stay China's hand, but not so much that Mr Xi sees Taiwan slipping permanently from his grasp. For all the alarm in Washington, China does not feel like a country on a war footing, or particularly close to one. Several sources briefed on a recent meeting in Alaska between China's top foreign-policy officials, Yang Jiechi and Wang Yi, and the secretary of state, Antony Blinken, and national security adviser, Jake Sullivan, report that the Chinese delivered shrill and inflexible talking points on Taiwan, but used no new language that showed unprecedented urgency.

China's public stance involves much sabre-rattling, to be sure. Viewers of state television are never far from their next sight of an aircraft-carrier, or gleaming jets screaming through azure skies. But calls for sacrifice to prepare the public for full-on hostilities are missing. The party's claims to legitimacy in this, its centenary year, are overwhelmingly domestic and based on order and material prosperity: they are buttressed by images of gorge-spanning bridges and high-speed trains, villagers raised from poverty and heroic doctors beating back covid-19 even as it rages around the outside world.

Nevertheless, China's visible capabilities and veiled intent are grounds for alarm. Its scorn for Western opinion, as over Hong Kong, is a bad sign. War over Taiwan may not appear imminent in Beijing. But nor, shockingly, is it unthinkable.