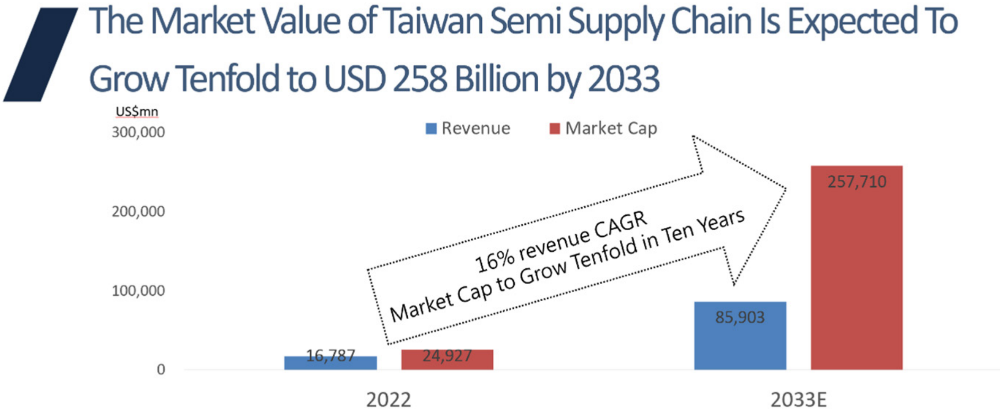


	2022 Revenue (USD)	2022-33 Revenue CAGR	2033E Revenue (USD)	Market Cap/Revenue (P/S ratio)	2033E Market Cap (USD)	Current Market Cap (USD)
Taiwan Semi Supply Chain	17bn	16%	86bn	3x	258bn	25bn

Source: Bloomberg / QIC Research

(Figure 1)

QIC Expects the Taiwan Semiconductor Supply Chain Market Value to grow tenfold to US$258 billion by 2033

By Jason Ho

Driven by TSMC's strategy to support the Taiwan semiconductor supply chain, the QIC research team forecasts that the total market value of QIC-tracked Taiwan semiconductor supply chain companies is expected to grow tenfold to USD 258 billion by 2033. This marks one of the significant investment highlights for the Taiwan stock market in the next decade. Based on QIC's research on 49 Taiwanese semiconductor supply chain companies (the supply chain) with a 2022 total revenue of US$17 billion, we assume TSMC's 2022-33 revenue compound annual growth rate (CAGR) remains at the market consensus estimate 2024-26 CAGR of 15%, and the supply chain's 2022-33 revenue CAGR maintains at the 2019-22 revenue CAGR of 16%. By multiplying the 2033 supply chain revenue of US$86 billion by a 3x price-to-sales ratio (P/S), which is the upper end of the supply chain's 2019-22 median P/S, we estimate the market value of the supply chain to grow tenfold to US$258 billion by 2033 (Figure 1). This highlights the long-term contribution of the supply chain to TSMC's operations.

Echoing TSMC's commitment to nurturing the supply chain with an industry localization upgrade target by 2030 (Figure 2), we've designed a financial indicator to track the supply chain's contribution to TSMC's operation. Assuming that 30% of the 2022 revenue of the 49 QIC-tracked supply chain companies is related to TSMC, we use this figure as the numerator. The denominator is TSMC's 2022 cost of goods sold (excluding depreciation) and capex. Dividing these two values, we obtain 10% as a reference indicator to measure the supply chain's contribution to TSMC's operations in 2022.

To estimate the supply chain contribution indicator by 2033, we make the following assumptions: 1) the supply chain's 2022-33 revenue CAGR maintains the 2019-22 revenue CAGR of 16%. 2) By 2033, 80% of the semiconductor supply chain's revenue is related to TSMC. 3) TSMC's 2022-33 revenue CAGR remains at the market consensus 2024-26 revenue CAGR of 15%. 4) TSMC maintains a long-term gross margin target of 53%, and the cost of goods sold excludes 50% depreciation while maintaining an annual capex growth rate of 5%. As a result, we forecast that the supply chain contribution indicator will increase from 10% in 2022 to 49% in 2033 (Figure 3).

On the other hand, we discovered market phenomena in the Taiwanese semiconductor supply chain that are worth noting:

1. During the semiconductor industry upswing cycle from 2019 to 2022, TSMC's return on equity (ROE) increased from 21% to 40%, while the median ROE of the Taiwanese semiconductor supply chain increased from 13% to 18% over the same period. This indicates TSMC's success in enhancing the shareholder return of its partners (Figure 4).

2. The median foreign ownership percentage in the current Taiwanese semiconductor supply chain is only 7%, which is less than one-tenth of TSMC's 73%.

Coming Right Up:

Previous CEO Conversations Vol.

QIC CEO Conversations Vol. 46: Jeff Kuo, CEO of Gogolook(6902 TT)

QIC CEO Conversations Vol. 45: Bobby Sheng, Chairman of Bora Pharmaceutical (6472 TT)

QIC CEO Conversations Vol. 44: Owen Lin, Author of 'Chip Island"

More can be found at

www.qtumic.com/insight/conversations

Upcoming Events

QIC Semiconductor Corporate Day
March 6-7, 2024
@ Virtual

Scan the QR Code for Registration!

15th QIC Taiwan CEO Week
April 16-17, 2024
@ Singapore

QIC Healthcare Corporate Day
June 12-13, 2024
@ Virtual

2nd QIC Renewable Energy Corporate Day
August 27-28, 2024
@ Virtual

16th QIC Taiwan CEO Week
October 22-23, 2024
@ Hong Kong

TSMC Is Committed to Nurturing Taiwan Semi Supply Chain

TSMC's Industry Localization Upgrade Target by 2030

	2030 Target
No. of counseling local suppliers in production enhancement and yield rate improvement	**38** Companies
Percentage of local suppliers join National Quality Control Circle Competition	**80%**
Localization % for raw materials	**50%**
Localization % for spare parts	**68%**
Localization % for backend tools	**38%**

Source: TSMC ESG Website

(Figure 2)

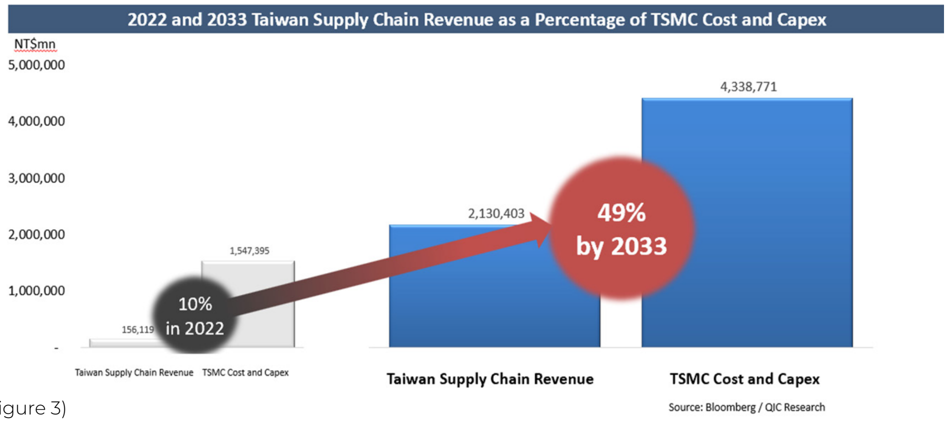
3. Foreign institutional investors currently hold approximately $343 billion in TSMC, with holdings in the Taiwanese semiconductor supply chain totaling only about $4.7 billion, equivalent to about 1.4% of TSMC's holdings.

4. Currently, there are 21 foreign brokerage firms covering TSMC. In contrast, there is no foreign research coverage for supply chain companies with a market value of less than US$1 billion.

Therefore, based on the supply chain's ten-year tenfold market cap growth, TSMC's long-term supply chain localization strategy, increasing supply chain contribution to TSMC's operation, and the supply chain remaining an uncharted territory for FINI, we firmly believe that international investments and understanding of the Taiwanese semiconductor supply chain will increase over the next ten years.
With the anticipated recovery of the semiconductor industry set to unfold towards the end of 1Q24, we believe it's the opportune moment for international investors to gain deeper insights into the key drivers behind TSMC's global leadership. We sincerely invite you to participate in the QIC Semiconductor Corporate Day from March 6th to 7th, 2024. This free virtual event provides an excellent opportunity for investors to meet the decision-makers of listed and private supply chain companies with valuations between USD 100 million to USD 5 billion.

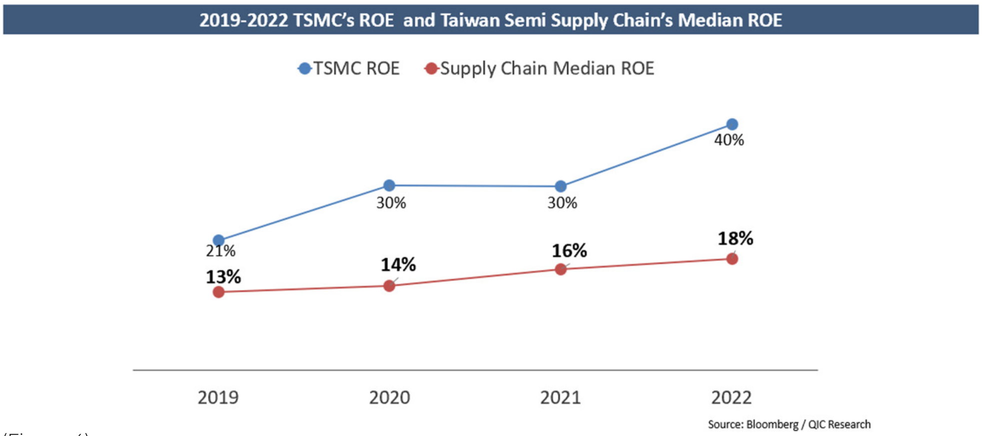
Currently, there are 20 Taiwanese semiconductor and upstream/downstream supply chain companies participating, namely: Acter (5536 TT), UVAT (3580 TT), C Sun (2467 TT), GMM (6640 TT), GPM (5443 TT), Contrel (8064 TT), PSI (8028 TT), Skytech (6937 TT), Wah Lee (3010 TT), Solar Applied Materials (1785 TT), Silicon Motion (SIMO US), MPI (6223 TT), Winsemi (3105 TT), ZDT (4958 TT), Macronix (2337 TT), CWTC(6548 TT), Attopsemi (private), Rehear (private), YeSiang (private), and Taisic Materials (private).

Taiwan Supply Chain Revenue Accounted For 49% of TSMC Cost and Capex by 2033



(Figure 3)

Taiwan Semi Supply Chain's ROE Continued to Increase



(Figure 4)

For event details and the registration process, please contact us before February 15th. You can reach out to Yvonne Huang (**yvonnehuang@qtumic.com; +886-2325-3565 #218**) or scan the QR Code for registration.

QIC Research Tracked 49 Companies in Taiwan Semi Supply Chain: PSI (8028 TT), Kink (1560 TT), Calitech (6532 TT), Marketech (6196 TT), GreenFiltec (6823 TT), UIS (2404 TT), Acter (5536 TT), Axis (6292 TT), Mirle (2464 TT), Brillian (6788 TT), SHT (3551 TT), Asia Neo Tech (4542 TT), FITI (3413 TT), Allied Supreme (4770 TT), Highlight Tech (6208 TT), Eternal Materials (1717 TT), Taiwan Mask (2338 TT), Gudeng (3680 TT), Gudeng Precision (6953 TT), Yeedex (7556 TT), Grand Process (3131 TT), Scientech (3583 TT), UVAT (3580 TT), MA-tek (3587 TT), MSS (6830 TT), iST (3289 TT), Finetek (4549 TT), Value Valves (4580 TT), Favite (3535 TT), Zen Voce (3581 TT), E&R Engineering (8027 TT), All Ring (6187 TT), Chroma (2360 TT), Visera (6789 TT), Xintec (3374 TT), Topco (5434 TT), Wah Lee (3010 TT), Feedback (8091 TT), Solar Applied (1785 TT), Everlight Chemical (1711 TT), Chung Hua Chemical (1727 TT), San Fu Chemical (4755 TT), Daxin Materials (5234 TT), Shiny Chemical (1773 TT), Lien Hwa (1229 TT), Trusval Tech (6667 TT), Csun (2467 TT), GMM (6640 TT) and GPM (5443 TT).

Top 10 Stock Gainers

Company	Ticker	Price	Change
CTI	8059	30.25	97%
CoAsia	8096	23.9	68%
Lumosa	6535	107	62%
FULL WANG	6219	35.5	49%
Alcor Micro	8054	136	43%
RDC	3228	382	43%
iCatchtek	6695	82.7	42%
EGIS	6462	174	42%
Brightek	5244	52.2	41%
M31	6643	1,375	39%

Top 10 Stock Losers

Company	Ticker	Price	Change
APEX	5210	51.9	-25%
VPEC	2455	123.5	-23%
AMAX-KY	6933	232.5	-21%
PDK	6716	114	-21%
Redwood	8426	65.6	-20%
LuxNet	4979	139	-19%
CMT	2612	44.5	-19%
Soft-World	5478	155	-18%
Chung Hung	2014	23.2	-18%
Voltronic	6409	1,360	-18%

Top 10 FINI Net Buyers

Company	Ticker	Holding(%)	Change
Loop	3025	9.2	7.8
AVC	3017	25.1	6.7
ShunSin	6451	11.8	6.0
Faraday	3035	33.0	5.9
Chenbro	8210	16.9	5.1
CIAS	9958	21.1	4.5
PGC	8227	7.3	4.5
FULL WANG	6219	8.0	4.3
FRMSL	4746	11.1	4.2
EASTECH	5225	60.3	4.1

Top 10 FINI Net Sellers

Company	Ticker	Holding(%)	Change
Brave Screen	6538	15.4	-7.8
Optimax	3051	2.8	-6.8
Green River	8444	54.1	-6.5
AEC	1514	15.3	-5.9
Anpec	6138	11.1	-5.6
TNP	6593	0.6	-5.0
ADATA	3260	12.7	-4.9
GSEO	3406	19.0	-4.9
GORDON	1524	2.7	-4.7
Trusval	6667	3.5	-4.7

Top Performers of the Month

Here are the top 10 small-cap (US$100mn-10bn) performers of the month.

CTI (8059 TT) +97%
30D avg. volume increased by 177% vs 90D
CastleNet is an OEM/ODM of networking equipment that focuses on the development and sales of cable modems, ADSL, and mesh WiFi. As the US kept investing in broadband infrastructure, CastleNet is expected to experience significant growth in FY24. Monthly revenue for December 2023 has increased 113% MoM. In addition, CastleNet has started to differentiate itself from Chinese players in recent years by targeting mid-to-high-end products.

CoAsia (8096 TT) +68%
30D avg. volume increased by 144% vs 90D
CoAsia is the main distributor of Samsung Electronics' CIS, memory, and AMOLED panels in Taiwan. CoAsia recently mentioned that Samsung has initiated a price increase for CIS (CMOS Image Sensor) by around 15% to 20%. The expected price hike has driven customer pull-ins, boosting the company's revenue in 4Q23. According to the current outlook, CoAsia expects that the overall performance will turn around in FY24.

Lumosa (6535 TT) +62%
30D avg. volume increased by 81% vs 90D
Lumosa Therapeutics is a clinical-stage biotech company focusing on neurological and oncological diseases. Its core product LT3001 targeting acute ischemic stroke is expected to extend the treatment window for stroke patients from within 4.5 hours to 24 hours without the risk of bleeding. Three Phase 2b trials are now ongoing in US, CN, TW and the enrollment is targeted to complete in the end of 2Q23. Phase 2b data is estimated to read out in 4Q24. The market expected that LT3001 will become a blockbuster in the field of ischemic stroke and be out license to global top 10 pharma company.

FULL WANG (6219 TT) +49%
30D avg. volume increased by 90% vs 90D
FULL WANG engages in the real estate business in Taiwan. It is involved in the construction, development, and trade of real estate properties; Driven by the completion of several new projects, they excelled last year with impressive financial results. Management also sees continued growth opportunities because of the

anticipated U.S. interest rate.

Alcor Micro (8054 TT) +43%
30D avg. volume decreased by 53% vs 90D
Alcor Micro, Corp. designs and markets integrated semiconductors and software solutions for personal computer peripherals and consumer electronics internationally. The company plans to undergo a strategic transformation towards a specialized Application-Specific Integrated Circuit (ASIC) and Silicon Intellectual Property (IP) licensing firm.

RDC (3228 TT) +43%
30D avg. volume decreased by 2% vs 90D
RDC Semiconductor Co., Ltd. designs and develops ICs for high-end and low-power bit microprocessors internationally. Leveraging the strategic focus of Intel and AMD on high-performance, power-intensive sectors, the management anticipates a robust acceleration in the market expansion of the corresponding product lines.

iCatchtek (6695 TT) +42%
30D avg. volume increased by 111% vs 90D
iCatchtek is a fabless IC design house. The company has obtained ISO/SAE 21434 certification recently. This enables the company to provide global automotive customers with intelligent image processing SoC products. As the products entering volume production, the company expects robust growth in the automotive sector.

EGIS (6462 TT) +42%
30D avg. volume increased by 97% vs 90D
EGIS, a leading sensor provider of fingerprint biometrics, has announced plans to acquire InPsytech for NT$4.7 billion. The acquisition is expected to help the company establish an end-to-end IP/ASIC platform.

Brightek (5244 TT) +41%
30D avg. volume increased by 76% vs 90D
Brightek is a semiconductor package supplier and solution provider. With the rising penetration rate of ambient lighting in passenger cars, the company expects robust revenue growth and higher margin contribution from its automobile business.

M31 (6643 TT) +39%
30D avg. volume decreased by 4% vs 90D
M31 is a professional silicon intellectual property (IP) provider. The company announced a record-high revenue for both December and the full year of 2023. M31 is targeting a 20% revenue growth this year, driven by the contribution from advanced nodes.

Server Industry: Driven by the strength in both AI and general servers, the server industry will be back on a growth trajectory in 2024.

https://reurl.cc/qrV8aq

The server industry in 2024 will have two key growth drivers: 1) general servers will resume growth after the inventory adjustments in 2023, and 2) AI servers will take off in 2H24 after the ease of supply constraints. DIGITIMES Research has recently revised up 2024 global server shipment growth rate to 5-7% from 3.5% previously, given the better-than-expected recovery of general servers and the strong momentum of AI servers. In response to the growing demand, ODMs (including Inventec, Wiwynn, Wistron and Quanta) continue expanding production capacities.

QIC Comment: *Our supply chain check suggests that the recent recovery of general servers may be inventory pull-ins ahead of Chinese New Year, and the supply chain is unsure if the momentum could sustain through the whole year. However, for AI servers, the supply chain is more confident on the growth momentum this year. Among AI server plays, we believe ITEQ (6213 TT) will grow its AI server revenue quarter by quarter in 2024.*

Global Expansion: Bora Pharmaceutical Acquires Iconic U.S. Drug Manufacturer for Up to $210 Million

https://reurl.cc/v0vnEL

On January 16th, Bora Pharmaceuticals (6472 TT) announced to acquire Upsher-Smith Laboratories, Inc., a pharmaceutical company headquartered in Minnesota, for a total consideration not exceeding $210 million. This strategic move involves a 100% acquisition from Sawai Group Holdings Co., Ltd., and Sumitomo Corporation of Americas.

Founded in 1919, Upsher-Smith has been under the majority ownership and operational management of Sawai Group Holdings since 2017. The company boasts a portfolio of 48 commercially available pharmaceutical products and operates two manufacturing facilities in Plymouth and Maple Grove, Minnesota. These facilities are equipped for the production of oral solids, powders (for both oral and topical applications), and liquids formulation, with packaging lines in place. The combined production capacity reaches 3.5 billion doses per year. Notably, the Maple Grove production site stands out as the largest single facility among U.S. pharmaceutical manufacturers specializing in oral solid dosage forms, covering an internal floor area exceeding 600,000 square feet and housing its own warehouse and logistics center.

QIC Comment: *Upsher-Smith reported annual revenue of $138 million in 1H2023. Following this acquisition, Bora stands to achieve a remarkable 50% inorganic revenue growth, elevating its existing figure from $470 million to over $700 million. This strategic move goes beyond revenue enhancement; by integrating Upsher-Smith's robust warehousing and logistics capabilities, along with exclusive generic drug distribution channels, the integration is set to synergize seamlessly with Bora's established U.S. sales and marketing operations since the acquisition of TWi in September 2022. However, investors should be vigilant about potential margin changes post-transaction. Bora recorded a 37% Operating Profit Margin (OPM) in the first 9 months of 2023, while Upsher-Smith's OPM in 1H2023 was a modest 5%.*

J&V Energy (6869 TT) is expanding its pipeline and portfolio, aiming for revenue growth from green energy to sustainability, consistently achieving new highs.

https://reurl.cc/prvYZZ

J&V Energy began as a solar EPC in 2016 and gradually expanded its operational scope in 2021. It invested in projects such as energy storage, wind energy, energy trading, biomass power, and water treatment, transforming into a comprehensive renewable energy service provider (SI, not an asset owner).

This year, it has taken the lead in the industry by pioneering initiatives in the circular economy and recycling applications, expanding its sustainable energy capabilities. Johnny Zhang stated that the company has evolved from following policies to aligning with international trends and transitioning into sustainable investments.

QIC Comment: *QIC continues to see long-term opportunities in the renewable energy sector as Taiwan aims to improve the share of the renewable energy mix of the total energy consumption from 10% to 30% by 2030. Moreover, as TSMC, the* *largest buyer of green energy in Taiwan, and the Semi supply chain continue to grow rapidly in Taiwan, the country undoubtedly needs more investment in this sector.*

J&V is the market leader in Taiwan and is entering the SEA market due to a very solid pipeline and portfolio built-up process, as the news mentioned. Hence, J&V efficiently allocates its capital in both deals and talents and achieves a superb ROE (ROE LTM 29%).

Why did World Gym stock fall below the offering price on the first day of listing?

https://reurl.cc/OGrDa3

World Gym - KY (2762) listed on the 24th at a price of NT$132 per share, becoming a heavyweight force in the sports and leisure category. However, investors were not pleased, and the stock opened low, closing at NT$119.5, a decrease of 9.47%. The trading volume was 3,129k shares, marking a rare occurrence of the stock falling below the offering price on the first day, resulting in lottery-winning investors facing an immediate loss of NT$12,500 per share.

On the first day of World Gym's listing, foreign investors had a cumulative net selling position of 848k shares, contributing to the substantial drop in World Gym's stock price. World Gym emphasized that on the first day of listing, a small portion of early foreign original shareholders sold their holdings for financial planning reasons, creating selling pressure. However, the company underscored its optimistic outlook regarding its financial fundamentals and future operational prospects.

Industry analysts suggest that besides a small number of early subscribers liquidating their stocks for profit on the first day, another potential reason is that the fitness industry belongs to the domestic demand market, exhibiting a stable growth trend in its operations. Unlike export-oriented manufacturers that often benefit from significant orders, resulting in revenue surges, the fitness industry tends to be viewed as a stable investment, rather than one to be hastily sold on the first day of listing.

World Gym's trademark, introduced by Chairman John Caraccio from the US, is exclusively licensed in Taiwan, mainland China, Hong Kong, and Macau, with priority licensing rights in Japan, Thailand, the Philippines, and other locations. In the future, the company plans to seek suitable opportunities to replicate its successful experience in Taiwan, expand its presence overseas, and further scale its operations.

QIC comment: *We are long-term positive about World Gym's growth story and believe it could replicate the retail expansion success of Poya and Great Tree Pharmacy. Besides the favorable post-COVID recovery runway it will enjoy, we continue to see plenty of untapped opportunities in Taiwan. Its strong execution track record and best-in-class store economics will contribute to the acceleration of profitability growth in the coming years.*

Bitcoin Decrypted by Peter Kurz, CSO of QIC

After a little over 10 years of trading history, consistent trading patterns of bitcoin have become detectable which could allow for more thoughtful trading strategies rather than relying on outright speculation. I've found that the best metric against which to measure bitcoin's value is gold, a financial asset which, like bitcoin, has uniquely limited annual supply increase limitations. Indeed, since 2020 both assets have undergone very similar rates of annual supply increase of about 1.5%. The same, of course, can't be said about the US dollar or most any other tradable financial assets. Other commodities with limited supply, such as oil, are not easily stored nor traded.

But bitcoin has an additional feature insofar as the reward for verifying block transactions, in the form of newly issued bitcoins, halves roughly every four years – a process known as halving. There have been three Bitcoin halvings so far: the first one occurred in November 2012, when the block reward was decreased from 50 bitcoins per block to 25 bitcoins per block; the second halving dates back to July 2016, when the reward per block was reduced again, from 25 bitcoins per block to 12.5 per block; the third halving happened in May 2020, when block rewards decreased from 12.5 bitcoins per block to 6.25 bitcoins per block. The next halving is expected to take place in March 2024 with a block reward of 3.125 bitcoins. The pace of supply increases of bitcoin will continue to decline gradually until the year 2140 when it is expected that the 21 million bitcoin limit will be reached.

So here's the key point, with every halving, the pace of bitcoin supply expansion declines while bitcoin demand continues to gradually rise. There are currently well over 200mn Bitcoin holders worldwide with transaction volume increasing consistently. Historically, each halving has coincided with a surge in bitcoin prices. The 2012 halving was followed by 15x surge in the price of bitcoin relative to gold; a six-fold increase after the 2016 halving; and in the prelude to the expected March 2024 halving, the price relative to gold has already risen by 50%.

Every asset price is ultimately determined by supply and demand. In the case of Bitcoin, the supply increases are transparent, stable, and diminishing. For demand, the biggest factor is global money supply, which appears to be entering a new period of expansion. Here in Taiwan, whether it is because of legacy capital controls or because of the strength of our semiconductor industry, or perhaps because of our subsidized cost of electricity, cryptocurrency investment per capita is – as best as we can estimate in this opaque industry – among the highest in the world. We were disproportionately hurt during the FTX collapse. In this new year, we may find ourselves to become disproportionately advantaged.

The Chinese version of this article was published in 'Business Today Taiwan.'

Disclaimer