Taiwan Semiconductor Company Ltd.

NYSE: TSM | TSE: 2230

August 7th, 2024

Business Overview

Taiwan Semiconductor Manufacturing Company (TSMC) is a global leader in semiconductor manufacturing and a pioneer of the dedicated semiconductor foundry model. Founded in 1987 by Morris Chang, TSMC was the first company to operate exclusively as a pure-play semiconductor foundry, setting the standard for the industry. Headquartered in Hsinchu City, Taiwan, TSMC specializes in the manufacturing, packaging, testing, and sale of integrated circuits and devices. Its products are integral to various industries, including computer, communication, consumer electronics, automotive, and industrial equipment.

With a robust global presence, TSMC operates in key markets, including Taiwan, China, Europe, the Middle East, Africa, the United States, and other international regions. As of 2024, TSMC dominates the semiconductor foundry market with a commanding 61.7% market share. TSMC is at the forefront of technology with its advanced 2 nm process technology, expected to begin mass production by 2025, maintaining its leadership in cutting-edge semiconductor manufacturing processes.

TSMC is also focused on geographical expansion as a way to mitigate geopolitical risks from Chinese-Taiwan tensions and to further their production and reach. TSMC is on track for volume production of N4 technology on the same level of fabs in Taiwan in the first half of 2025 in their recently opened Arizona, US fab. Moreover, TSMC also opened a 12-inch specialty technology fab in Kumamoto, Japan on track for volume production in A4 of 2024. Finally, TSMC is also expanding to Dresden, Germany with an automotive industrial specialty fab that is estimated to have a production capacity of around 40,000 12-inch wafers monthly.

The semiconductor industry chain can be categorized into three main sectors: (1) upstream, which involves integrated circuit (IC) design and intellectual property (IP) design, (2) midstream, encompassing IC manufacturing, wafer fabrication, related production process testing equipment, masks, and chemicals, and (3) downstream, which includes IC packaging and testing, IC modules, and IC channels. TSMC leverages professional division of labour between the upstream, midstream, and downstream sectors of the semiconductor industry chain in order to mitigate competition and create partnerships with other businesses.

TSMC's unique business model is centered on non-competition with its customers, ensuring that it does not design, manufacture, or market products under its own name. This commitment guarantees its customers that TSMC will never become a competitor, fostering trust, and enabling their success. TSMC remains long relations with large companies, with a notable example being TSMC's contractual supply to NVIDIA over the past 5 years with 90% of NVIDIA's advanced packing capacity owed to TSMC.

As a pure-play foundry, TSMC manufactures semiconductors based on proprietary integrated circuit designs provided by its clients. In 2023, TSMC manufactured 11,895 products using 288 distinct technologies for 528 different customers. This breadth of capability underscores TSMC's role in driving technological advancement and supporting a diverse range of customer needs.

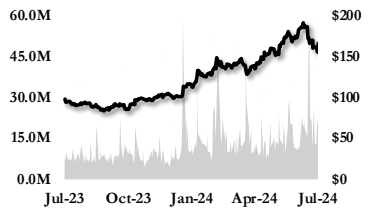
Key Metrics

Sector	Semiconductor
Share Price	$154.54
52-Week Range	63.33%
Market Capitalization	$880.7B
Enterprise Value	$698.53B
Debt to Equity	25.9%
Return on Equity %	26.2%
Forward P/E	31.23

Earnings Summary (LTM)

Total Revenues	$11.51B
EBITDA	$2.528B
Operating Income	$2.28B
Net Income	$1.73B

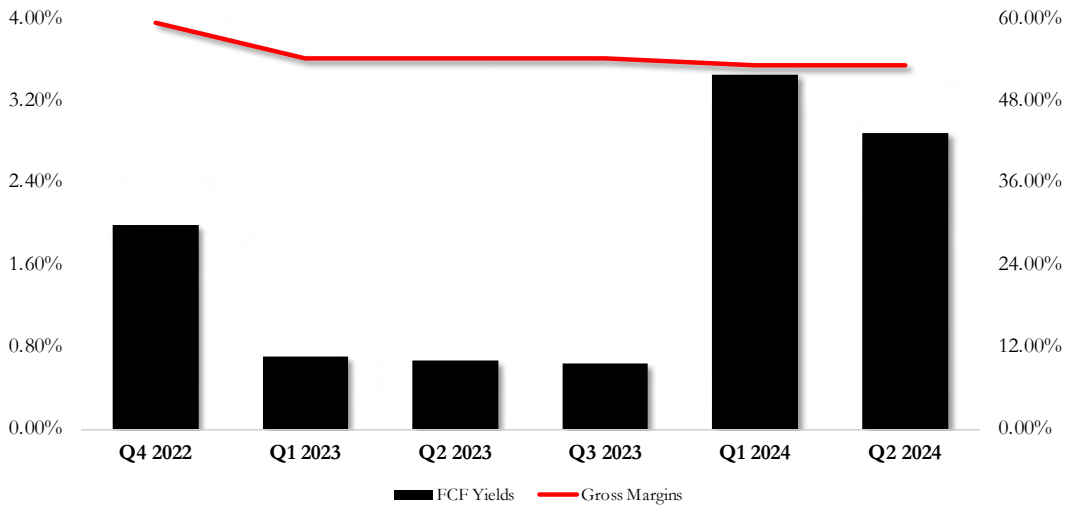
52-Week Stock Performance



Internal Analysis

TSMC runs an ironclad capitalistic monopoly in the semiconductor industry. Amidst surging global demand for semiconductors, TSMC has continued to leverage its market leadership to flex its pricing power. The company has maintained impressive gross margins exceeding 55.2% across the last 12 quarters. TSMC's relationships with major tech giants, such as Apple, AMD, and NVIDIA—who are actively expanding into the AI sector—have secured long-term contracts that ensure consistent, high-demand revenue streams. Because TSMC doesn't design their own chips and instead outsource this production to the world's largest companies, they do not have to compete with them while still maintaining pricing power because they are so far advanced in the actual manufacturing process that all the competitors don't have the technology to do the same. None of the current design players would willingly switch over all their production to competitors such as Intel or Samsung because they would suffer in suit. With these multi-year contracts, TSMC has actually formed symbiotic relationships akin to that between a fashion designer and their manufacturer.

TSMC's competitive advantage is also underscored by its formidable management team, which has been pivotal in steering the company through the rapidly evolving tech landscape. The company's founder, Morris Chang, provided stable leadership as CEO for over 35 years before retiring at the age of 86. Leadership has since passed to Dr. C.C. Wei has been the Chairman of TSMC 2024 and the CEO since 2018, previously serving as Vice Chairman from 2018 to 2024. He held roles as Co-Chief Executive Officer and President from 2013 to 2018 and has been an Additional Director since 2017. Before 2018, Dr. Wei held countless earlier positions at TSMC including Vice Chairman, Co-Chief Executive Officer, Chief Operating Officer, Executive Vice President, and more since 1997 onwards. Before joining TSMC, he held senior roles at Chartered Semiconductor Manufacturing, ST Microelectronics USA, Texas Instruments, and Vanguard Semiconductor Corp. Dr. Wei holds a Ph.D. in Electrical Engineering from Yale University, and both a B.S. and Master's degree in electrical engineering from National Chiao Tung University. Most of the TSMC upper management actually have significant skin in the game with over 3.5 million restricted stock units (RSU) issued in 2023, aligning staff interests with company performance and shareholder value, further fortifying its internal ecosystem



Free Cash Flow Yields and Gross Margins

External Analysis

Over the past two years, artificial intelligence has taken over the globe, permeating every industry and fueling one of the most significant bull runs and macroeconomic events of the decade. The AI market is poised for robust growth, with an anticipated compound annual growth rate (CAGR) of 28.46% from 2024 to 2030. Amongst this landscape of unprecedented demand for high-performance semiconductors, TSMC has positioned itself as the market leader, commanding 61.7% of the semiconductor foundry market share. Over the last 4 years, TSMC has been gaining market share every year, jumping from nearly 27% to 57% between 2022 and 2023.

Despite strong tailwinds, recent geopolitical tensions involving the US, China, and Taiwan have shifted market sentiment within the semiconductor industry and prompted a strategic shift towards diversifying manufacturing footprints. After comments from former President Trump, the establishment of new fabs in the US. are leading to supply chain re-evaluations and accelerated Chinese efforts towards semiconductor independence.

However, among its competitors, TSMC sits comfortably above the crowd on its throne. It maintains a significant technological edge and industry relationships with its contracts, enhancing its market leadership. In contrast, Samsung, the second-largest player in the semiconductor foundry market, holds approximately a 10% market share and generates only one-fourth of TSMC's revenue. Moreover, Intel, who was considered the potential domestic successor to TSMC should geopolitical issues escalate, has recently faced severe challenges leading to a 34% decline in share price. Intel's Q2 earnings report revealed a steep fall short of expectations, with an 80% miss on EPS projections and disappointing revenue results, leading to a dividend suspension, a 15% workforce reduction, and a forced internal restructuring process.

Dipping a bit into the valuation arena, TSMC trades at a substantial discount compared to its industry peers. A comparable companies' analysis reveals that TSMC's P/E ratio is marked 55.7% below the market median. Taking a look at TSMC's adjusted EBITDA multiple of 12.7x, while it is at a premium above its 10-year average of 8.6x, it still trades at nearly 20% lower than the industry average.

Company Name	P/E
In Millions of USD (except per share values)	
Semiconductor Manufacturing	
Intel Corporation	32.32x
NVIDIA Corporation	66.16x
Qualcomm Inc.	24.00x
Advanced Micro Devices	202.88x
Broadcom Inc.	65.35x
ASML Holding	47.88x
Median	56.62x
Average	73.10x
Taiwan Semiconductor Manufacturing Co.	31.59x

Investment Thesis

Thesis 1: Conviction on Continued Top-Line Growth

The second thesis takes a long-term view, grounded in our belief in TSMC's continued growth due to its strong positioning. To understand this, it's crucial to consider the entire semiconductor value chain—from raw materials and design to device manufacturing and assembly—where TSMC stands as a central pillar. While NVIDIA is often the first name that comes to mind in semiconductors, they are not the nucleus of the industry. Should NVIDIA falter, other industry giants like AMD, Apple, and Qualcomm could eventually fill the gap in chip design. However, if TSMC, the world's leading foundry, were to collapse, the entire semiconductor industry would likely crumble under the weight of its absence. No other company can easily replicate TSMC's ability to meet global demand or support the advanced development of new nodes. Despite Intel and Samsung's efforts as formidable foundry players, they remain behind because TSMC is exceptional. Chip manufacturing is incredibly capital-intensive and demands years of accumulated expertise. TSMC, as the first dedicated chip manufacturer with nearly 40 years of experience, boasts outstanding financial metrics and continues to grow impressively, with a 15% revenue increase over the past five years, showing no signs of slowing down. Even conservative estimates from sell-side analysts suggest TSMC's strategic planning, partnerships, and global positioning will drive double-digit EPS growth over the next five years. The icing on the cake is TSMC's net debt to EBITDA ratio—it carries no debt, with one year of EBIT sufficient to cover all obligations. In an industry known for its capital intensity and high barriers to entry, TSMC's financial and operational strength is unmatched.

This machine is an Extreme Ultraviolet Lithography (EUV) system, essential for placing ultra-small transistors onto silicon wafers. Comprised of 100,000 parts, it requires 30 freight containers just for shipping, with a production cost of $200 million—an investment that escalates significantly when considering the purchase and operational expenses. TSMC, which allocates up to 30% of its annual revenue to capital expenditures, exemplifies its commitment to staying at the forefront of semiconductor manufacturing. Furthermore, TSMC's focus as one of the few pure-play foundries, allows it to concentrate exclusively on manufacturing, unlike competitors like Samsung and Intel, which also design and sell their own chips. While Samsung spends 18.7% of its revenue on capital expenditures and R&D, and GlobalFoundries around 12.5%, Intel's investment approaches 44%, yet they continue to be plagued with the aforementioned problems in the external analysis.

A quick dive into the recent Q2 earnings also revealed that demand from the HPC segment continues to grow at high rates. Revenue here amounted to $10.8 bn (+57% YoY and +25% QoQ), equivalent to 52% of the company's revenue (+6 p.p. QoQ). TSMC announced plans to increase prices for 3nm tech by more than 5% and for CoWoS by 10-20%. Demand is projected to grow really fast. Year-over-year, second quarter revenue increased 40.1% while net income and diluted EPS both increased 36.3%. Compared to first quarter 2024, second quarter results represented a 13.6% increase in revenue and a 9.9% increase in net income. This is just a condensed summary recap of their report but the standout thing is even with a 33% top line growth, the earnings call received a completely muted stock reaction. As a matter of fact, TSMC actually saw a (1.3%) decline following that information because of intensified market concerns. In the next section, quick relative valuation will show that TSMC is trading extremely cheap as mentioned in the external analysis to its peers. Although there is a high premium on almost all semiconductor/technology companies, this recent situation allows you to buy TSMC at a discounted price and hold for a few years as the AI gold rush continues.

A minor thesis to add onto this information is the paralleled smartphone industry. This market has faced significant challenges over the past few years, marked by a notable decline in 2020 due to the COVID-19 pandemic and hitting a decade-low in sales during 2023 following a (12%) decline in the first quarter.. Factors such as supply chain disruptions, economic uncertainties, and fluctuating consumer demand contributed to this downturn. However, in 2024, the market has started to recover, growing by 6% in the second quarter of 2024 and analysts have upgraded CAGR projections from 1.79% to 3.57% in the next 5 years due to the proliferation of advanced features like high-megapixel cameras and 5G, and the introduction of GenAI smartphones.

Thesis 2: Geopolitical Tensions: Risk, Catalyst, and Investment Opportunity

The second point that we want to cover is the geopolitical tensions, which serve as a risk, catalyst, and investment opportunity simultaneously. TSMC, along with many other semiconductor companies, has seen its share price decline over (17%) since its all-time high on July 10. This drop followed Trump's comments on the semiconductor industry and Taiwan's defense system. Trump stated that he wanted Taiwan to compensate the United States for its continued military support and defensive protection and hinted that he would welcome China's invasion should a new policy not be enacted. Additionally, an unconfirmed Bloomberg report suggested that Biden was considering severe restrictions on companies that continue to provide China access to semiconductor technology.

The prevailing street view is that these geopolitical tensions, along with potential tariffs and quotas on Chinese imports, pose a significant threat to TSMC's high demand/supply business model, which heavily relies on global supply chains. Many believe this could mark the end of a short-lived AI bull run. Skepticism over the longevity of this run, coupled concerns of an overdue rate cut from the US Federal Reserve have led to a massive sell-off in recent weeks with the S&P 500 index dropping over (2.5%) in the last eleven trading days, MAG7 falling (47.07%) and the VanEck Semiconductor ETF dropping (16.15%).

Our event-driven buying opportunity arises from this news for two reasons. First, we believe a near-future invasion is unrealistic. Following the recent collapse of its infrastructure market, it has become increasingly difficult for China to launch a full-scale assault on Taiwan, especially considering prevailing opposition from Canada, Japan, Australia, and others if the US withdraws support. To gain a better understanding of the situation, we conducted primary research by chatting with a real estate investment analyst in China.

The interviewee is a director at Longfor Properties, a Chinese real estate development firm with contracted sales of 33.3 Billion CAD. They expressed that the Chinese government is acutely aware of its significant economic downturn and reassures that they are actively implementing measures to restore the country's economic stability. These measures include a $42 billion credit program for commercial banks to buy unsold homes and convert them into social housing. Additionally, China is very focused on expanding into emerging markets such as AI, aerospace, biomedicine, electric vehicles, and solar energies. The Chinese Communist Party has been promoting Taiwan war propaganda with promises of minimal economic and human losses for years, appealing to a largely indoctrinated population. However, the government has recently emphasized prioritizing the national economy and public health. Despite this, younger generations are increasingly skeptical of government information, and nationwide sentiment that seeks to prioritize financial health and public health has led to a split in national opinion.

However likely and rational the decision may be, only Xi Jinping truly knows the outcome. The real opportunity lies in TSMC's proactive approach to mitigating this potential risk by diversifying and consolidating its supply chain across other regions, including Japan and Germany. TSMC's management has been strategically reducing its reliance on Taiwan for years, independent of political developments like those under Trump's administration. TSMC is the posterchild of an agile supply chain network. Operationally, TSMC also exemplifies an agile and adaptable supply chain network. In the most recent Q2 earnings call, management highlighted that they have evaluated, qualified, and initiated conversations with multiple alternative manufacturers to mitigate risks associated with heightened geopolitical tensions. This underscores the strength of TSMC's leadership and their preparedness for future challenges. Although the new fabs may initially lag behind TSMC's cutting-edge facilities in Taiwan and they have face some delays in sourcing skilled labor, the Arizona projects are now ahead of schedule, with the first fab expected to be operational soon. Over time, and as needed, TSMC can scale these operations, and the anticipated return on investment is expected to align with TSMC's historical performance once these fabs are fully integrated into the global supply chain.

Lastly, if China were to invade Taiwan amidst the current geopolitical climate, many analysts predict it could trigger World War 3. In such an event, every stock worldwide would be affected, and equity research would become a secondary concern. This is all assuming Trump manages to defeat Kamala Harris in the upcoming election.

Valuation

Intrinsic Valuation

DCF	2024E	2025E	2026E	2027E	2028E	2029E
Revenue	88,197	110,027	131,580	150,912	173,083	192,155
% growth	*25%*	*25%*	*20%*	*15%*	*15%*	*11%*
Conservative Case	*19%*	*22%*	*14%*	*10%*	*10%*	*8%*
Base Case	*21%*	*24%*	*17%*	*13%*	*13%*	*10%*
Optimistic Case	*25%*	*25%*	*20%*	*15%*	*15%*	*11%*
EBIT	40,150	52,246	63,671	72,250	85,851	105,297
% of sales	*46%*	*47%*	*48%*	*48%*	*50%*	*55%*
Conservative Case	*43%*	*45%*	*45%*	*44%*	*46%*	*51%*
Base Case	*46%*	*47%*	*48%*	*48%*	*50%*	*55%*
Optimistic Case	*47%*	*49%*	*51%*	*50%*	*52%*	*58%*
Taxes	4,416	5,747	7,004	7,947	9,444	11,583
Tax rate	*11%*	*11%*	*11%*	*11%*	*11%*	*11%*
EBIAT	35,733	46,499	56,668	64,302	76,408	93,714
D&A	20,353	23,506	25,771	25,421	30,039	35,174
% of sales	23%	21%	20%	17%	17%	18%
CapEx	30,161	34,207	37,412	45,558	52,439	56,625
% of sales	34%	31%	28%	30%	30%	29%
Change in NWC	*(1,764)*	*(2,201)*	*(2,632)*	*(3,018)*	*(3,462)*	*(3,843)*
% of sales	(2%)	(2%)	(2%)	(2%)	(2%)	(2%)
Unlevered FCF	27,689	37,998	47,658	47,184	57,469	76,106
PV of Unlevered FCF	27,158	34,963	40,120	36,341	40,497	49,067

Enterprise Value Bridge						
Period	0.22	0.94	1.94	2.94	3.94	4.94
Discount Period	0.44					
Terminal Value						1,147,187
Present Value of Terminal Value						739,607
Enterprise Value						940,595
(+) Cash						47,859
(-) Debt						30,293
Equity Value						958,161
Fully Diluted Shares Outstanding						5,185
Implied Price per Share						$184.79
Implied Price Per Share						$184.79
Current Share Price						$154.54
Implied Upside / (Downside)						19.58%

WACC	
Market Cap	787,600
% Equity	96.3%
Cost of Equity	10.6%
Risk Free Rate	4.29%
Beta	1.59
Market Risk Premium	3.97%
Debt	30,293
% Debt	3.7%
Cost of Debt	2.0%
Tax Rate	14.4%
Total	817,893
WACC	**10.27%**

We sourced our data from Capital IQ and Factset analyst projections, including insights from independent brokers and sell-side research firms such as Deutsche Bank and Moelis. One key observation from these projections is the significant fluctuation in TSMC's revenue growth. According to their predictions, TSMC's revenue is anticipated to decline at an annual rate of approximately 5% until 2027, followed by a substantial increase to 22% in 2029. This anticipated growth spike is attributed to the cyclical nature of tech product revamps, with TSMC expected to receive approval for high-NA EUV lithography equipment for producing 1.4nm chips in 2028. The speed of this processing chip is expected to create major disruptions in the semiconductor market demand. Additionally, the US CHIPS and Science Act will provide TSMC with a $6.6 billion subsidy, enhancing its capabilities for mass production of its new 3D Stacked SoIC packing, ultra-dense chips in the United States starting 2028.

Projections over the following 2 years are mostly unadjusted as street analysts have a lot more visibility on the overall situation. However, since the growth rebounds is projected so high, we adjusted the projections in the later years with switches. For the new cycle rebound, we adjusted projections to a very conservative factor of (25%) of the previous year's growth to assume maturity and account for the final year of FCF in the terminal value calculation. I also created extremely conservative estimates for TSMC in the event of severely heightened geopolitical tensions in the coming few years.

Projections for the next two years remain largely unchanged as street analysts have better visibility into the near-term outlook. However, given the projected high rebound in growth, I have made conservative adjustments for the later years. For the new cycle rebound, projections have been adjusted to a factor of (25%) of the previous year's growth to account for market maturity and the terminal value calculation. Extremely conservative estimates have also been created to account for potential severe geopolitical tensions in the near future.

Conservative		
Assumptions	**Year**	**Metric**
Revenue	24-'25	(7.5%)
Revenue	26-'29	(20.0%)
EBIT	24-'25	(5.0%)
EBIT	26-'29	(7.5%)
WACC		11.3%
TGR		2.0%

Base		
Assumptions	**Year**	**Metric**
Revenue	27-'29	(25.0%)
EBIT	24-'25	5.0%
EBIT	26-'29	2.5%
WACC		10.3%
TGR		2.5%

Optimistic		
Assumptions	**Year**	**Metric**
Revenue	24-'25	5.0%
Revenue	26-'29	15.0%
EBIT	24-'25	2.5%
EBIT	26-'29	5.0%
WACC		9.3%
TGR		3.0%

This intrinsic valuation highlights that Capital Expenditure represents an exceptionally high percentage of sales for TSMC and is the main figure driving down its free cash flow. Compared to industry peers like NVIDIA with an average of 4%. This increase in spending reflects TSMC's response to the burgeoning demand in the semiconductor sector. The company is making substantial investments to align with the demand-supply cycle. I believe these investments are expected to yield considerable long-term benefits.

Our final analysis indicates an implied upside of approximately 20%, assuming best case conditions for revenue and WACC. With base case assumptions across all metrics, the projected upside is around 3%, while the extremely pessimistic worst-case scenario could result in a (22%) downside.

Relative Valuation

After the DCF, we also compiled a comparable company's analysis to validate our valuation. In almost every major financial metric in EV/EBITDA, EV/Revenue, EV/EBIT, and P/E, TSMC is trading at below the median of its comparable companies.

							LTM Valuation Multiples				Growth & Profitability			
											LTM FY1 Growth		EBITDA	
Company Name	Ticker	Exchange	Price	% 52-Week High	Market Capitalization	Enterprise Value	EV/EBITDA	EV/Revenue	EV/EBIT	P/E	Revenue	EBITDA	Margin	Total Debt/EBITDA
In Millions of USD (except per share values)														
Semiconductor Manufacturing														
Intel Corporation	INTC	NASDAQ	31.35	61.13%	133,460	167,903	13.80x	2.98x	235.16x	32.32x	1.99%	17.41%	19.01%	4.80x
NVIDIA Corporation	NVDA	NASDAQ	113.06	97.30%	2,780,000	2,758,287	54.48x	34.61x	58.35x	66.16x	208.27%	709.11%	61.77%	0.20x
Qualcomm Inc.	QCOM	NASDAQ	180.05	99.31%	201,300	202,541	18.21x	5.56x	22.39x	24.00x	-3.20%	-2.66%	29.77%	1.20x
Advanced Micro Devices	AMD	NASDAQ	139.99	99.08%	226,270	223,230	53.87x	9.79x	383.56x	202.88x	6.40%	30.52%	16.83%	0.50x
Broadcom Inc.	AVGO	NASDAQ	151.63	98.73%	705,820	770,027	37.73x	18.07x	52.50x	65.35x	21.62%	5.45%	49.96%	3.50x
ASML Holding	ASML	AMS	888.39	80.09%	349,852	349,708	36.51x	12.66x	44.83x	47.88x	-1.60%	-6.25%	33.70%	0.50x
Realtek Semiconductor Corporation	2379	TPE	15.26	80.36%	7,827	6,432	26.60x	2.10x	16.40x	15.97x	-0.47%	-28.41%	9.60%	0.60x
Raydium Semiconductor Corporation	3592	TPE	11.31	72.97%	861	558	10.40x	0.90x	9.30x	12.46x	10.28%	-21.84%	9.50%	0.30x
Novatek Microelectronics Corporation	3034	TPE	16.14	81.56%	9,805	7,306	9.40x	2.30x	9.90x	19.36x	9.77%	6.09%	23.90%	0.70x
MediaTek Inc.	2454	TPE	38.14	82.99%	60,000	49,909	13.70x	3.30x	16.40x	19.36x	12.66%	23.14%	23.60%	0.10x
Median			75.6	82.27%	167,380	185,222	22.41x	4.43x	33.61x	28.16x	8.09%	5.77%	23.75%	0.55x
Average			158.532	85.35%	447,520	453,590	27.47x	9.23x	84.88x	50.57x	26.57%	73.26%	27.76%	1.24x
Taiwan Semiconductor Manufacturing Company	TSM	NYSE	161.94	83.70%	729,963	698,539	14.43x	10.25x	22.40x	31.59x	9.44%	8.99%	67.45%	0.60x

Comparable Universe						
Median	**18.42x**	**7.34x**	**28.00x**	**29.88x**		**45.60%**	**0.58x**
Average	**20.95x**	**9.74x**	**53.64x**	**41.08x**		**47.61%**	**0.92x**

Despite the current premium on tech stocks, TSMC stands out as the most affordable semiconductor company, with revenue growth projected to exceed the median. From a research analyst's perspective, this presents a compelling buying opportunity.

Risks & Catalysts

Risks

China-Taiwan Geopolitical Tensions arising after US 2024 Election

A potential second Trump administration could impose heavy tariffs or quotas on semiconductor imports, particularly from Taiwan, which could significantly impact TSMC's business operations and profitability. A real invasion of Taiwan by China may be a low possibility but also a subsequent, severe risk, potentially disrupting TSMC's operations, supply chains, and the overall market stability.

As we have already mentioned, to mitigate the risk of geopolitical tensions and potential tariffs, TSMC has strategically planned to expand its production facilities in the United States. By doing so, TSMC not only secures a significant portion of its manufacturing capacity outside of Taiwan but also aligns with U.S. economic policies favoring local production. This move can help TSMC maintain its market share and reduce the impact of import restrictions.We also discussed in detail why China is unlikely to pursue a full-scale invasion of Taiwan (economic instability, international backlash/sanctions, etc.), however, even if if it happens, Taiwan has taken several pre-emptive measures.. .

Collapse of the Artificial Intelligence Industry

The possibility of an AI market collapse, while currently speculative, stems from the massive investments being funneled into AI R&D without immediate profitability. Many companies are betting heavily on AI's future potential, but if the expected breakthroughs or market adoption do not materialize, this could lead to a sharp downturn. Such a collapse could trigger a pullback in funding, reduced demand for AI-driven technologies, and a broader reassessment of AI's economic viability, potentially affecting industries heavily invested in AI development. If the AI market were to collapse, TSMC could face significant risks due to its heavy reliance on AI-driven demand for advanced chips, which currently fuels a substantial portion of its revenue. To mitigate this risk, TSMC could diversify its customer base and focus on other high-growth areas such as automotive, 5G, and IoT, where demand for advanced semiconductors is also strong. This could be where the smartphone thesis can come into play. Additionally, TSMC could enhance its R&D efforts to stay ahead in process technology, ensuring it remains indispensable across various industries, even if the AI sector slows down.

Catalysts

1. **Political Landscape**
    - Statements from former President Trump regarding Taiwan's defense and potential tariffs/quota impositions have caused significant market reactions. His remarks about welcoming China's invasion if new policies are not enacted can trigger investor anxiety and volatility in TSMC's stock.
    - The drop in TSMC's share price by over 17% since its all-time high, following geopolitical comments, highlights the market's sensitivity to political developments.
2. **Strong Earnings Performance**
    - Significant growth in revenue from the HPC segment, with a 57% YoY and 25% QoQ increase, demonstrates TSMC's strong positioning in this high-demand market.
    - Announced plans to increase prices for 3nm technology and CoWoS reflect confidence in continued demand and pricing power