



LTS CHALLENGE 2025

Final
TSMC Investment Thesis



Altaris Capital | LTS Challenge

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Investment thesis - it's time to BUY!

We believe TSMC presents an attractive opportunity...

I. The future is now: Riding the AI wave

An essential player in AI chain, with over **90%** market share in cutting-edge.

II. Chip stack advantage: How TSMC holds the winning hand

Only TSMC has the scale to dilute **USD 30 Bn** CapEx and the process power to hold a yield at **83%**

III. How TSMC leverages Pricing Power and World Class Management into returns

Gross Margins and ROIC nearly **2x** competitors, backed by Management with **98%** variable compensation



(1): stock price on June 26th



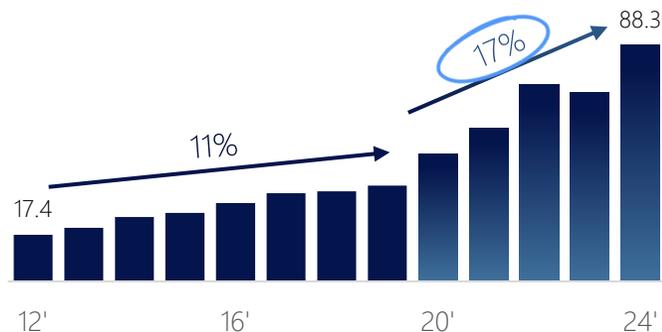
What is TSMC?

TSMC became the dominant player in leading-edge chips in a winner-takes-all segment

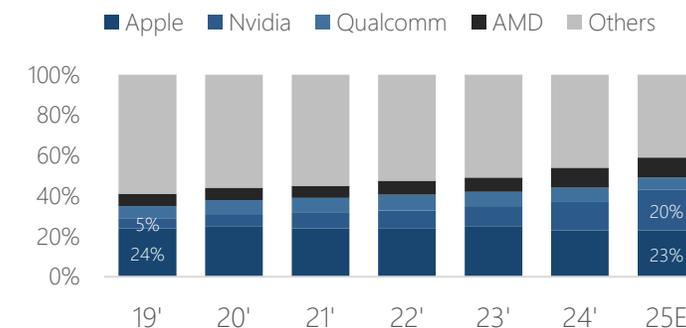
1 The semiconductor supply chain is complex at every stage, creating a concentrated network.
Semiconductor Value Chain



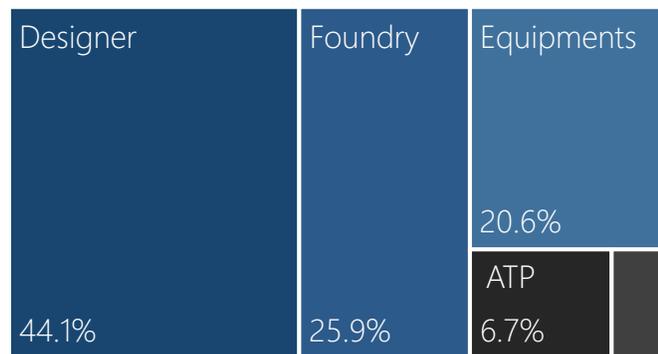
3 TSMC leads as a global economic powerhouse, fueled by the tech boom and chips demand...
TSMC's Revenue [USD bn]



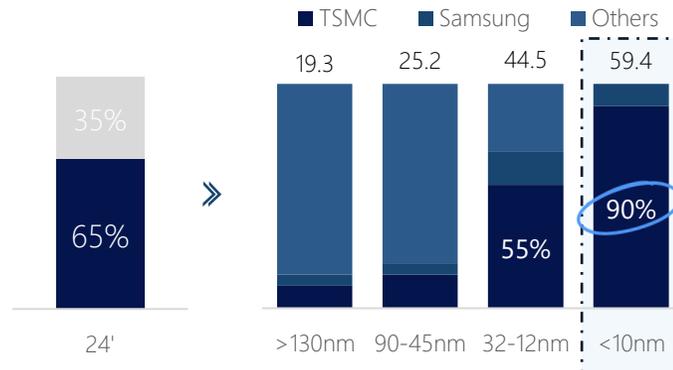
5 Making TSMC the best and sole source for its clients to meet their demands...
Revenue mix by customer [%]



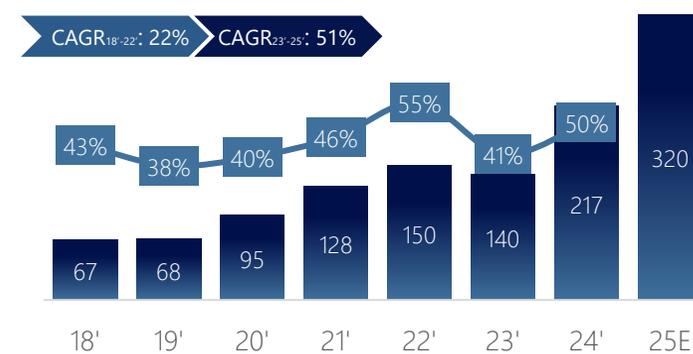
2 Industry revenues are concentrated mainly in the fabless-designer and foundry segments.
Revenue breakdown [%]



4 ...being a dominant player, especially in leading-edge, where it stands out.
Market share [%]



6 ...which is driven by Big Techs making unprecedented investments.
Big Tech's CapEx and CapEx as % of CFO [USD bn; %]



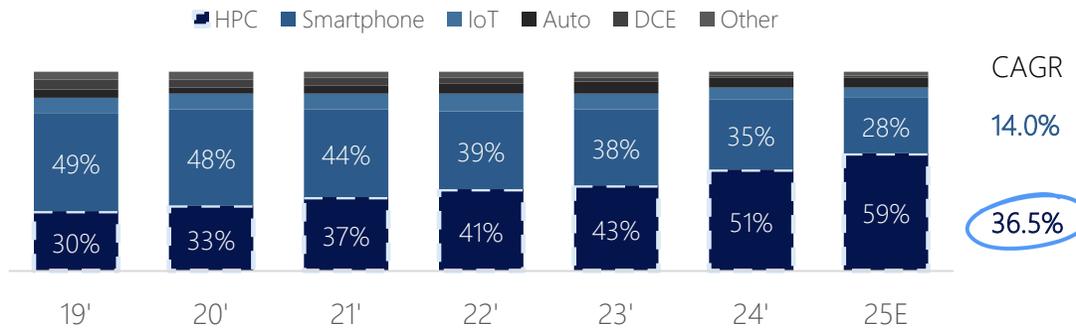


The future is now: Riding the AI wave

The High-Performance Computing and AI area has been dominating an increasingly larger share of TSMC's revenue

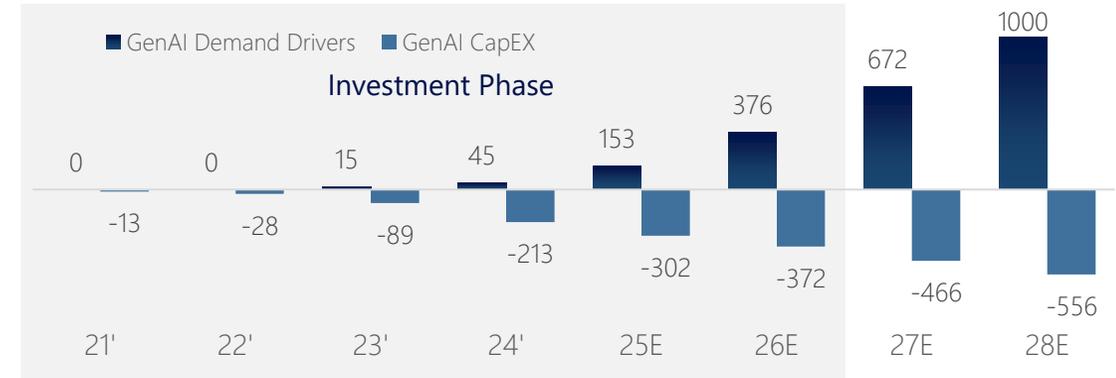
1 This massive CapEx investment by hyperscalers is reshaping TSMC's revenue profile, with HPC gaining greater relevance...

TSMC revenue by end customer [%]



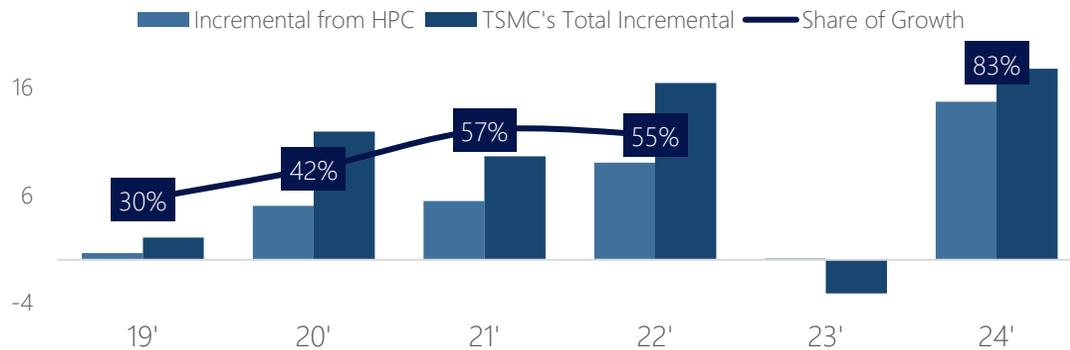
3 This trend is far from over, as it is now approaching its breakeven point and is poised to generate substantial value on a global scale...

GenAI CapEx vs. demand drivers [USD bn]



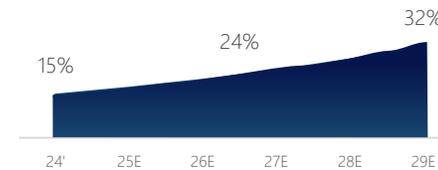
2 ...accounting for a significant portion of the company's recent revenue growth, driven primarily by the ongoing AI boom.

HPC incremental revenue and share of growth [USD bn; %]



4 ...and TSMC is aware and perfectly positioned to capture and create value from the growing adoption of AI models.

TSMC AI revenue [%]



Revenue CAGR_{24-29'} [%]



“Based on our planning framework, we are confident that our revenue growth from AI accelerators will approach a mid-40s-percentage CAGR for the next five-year period starting from 2024.”

C. C. Wei, TSMC CEO at Q1'25 Earnings Call on 04/17/25

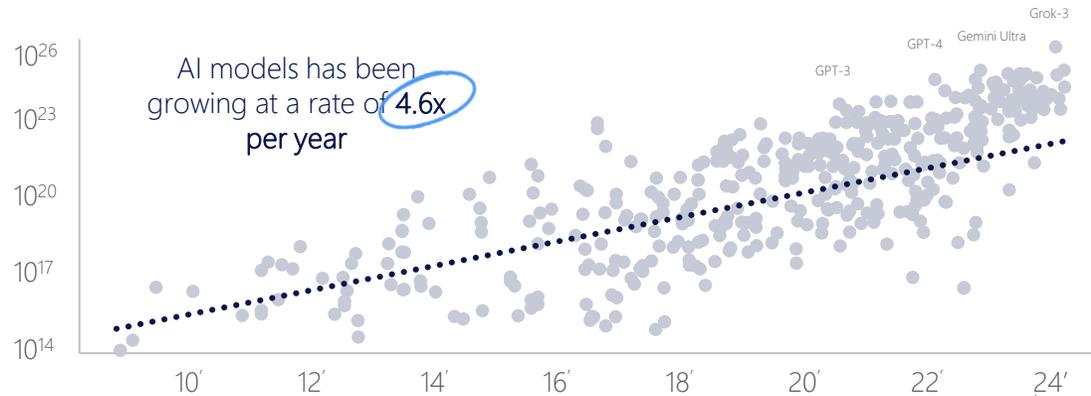


TSMC is selling the shovels

The Taiwanese company positions itself as an irreplaceable player in this gold rush

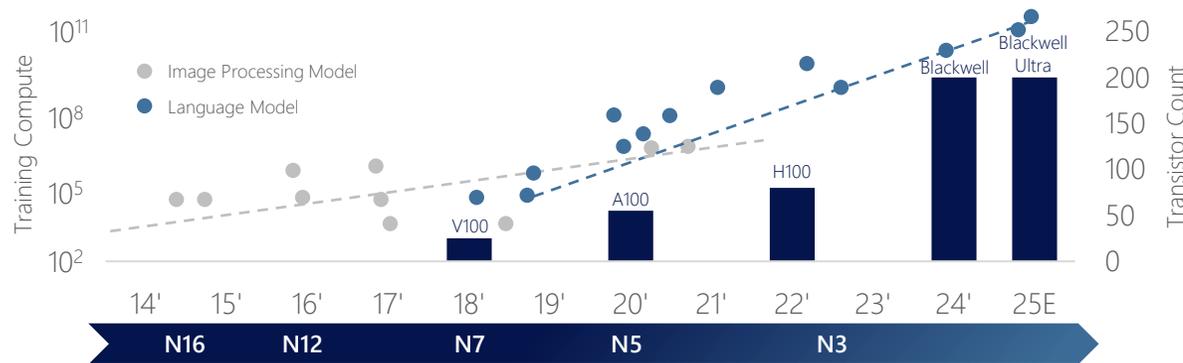
1 As AI models grow more complex, they demand increasing computational power, driving up training costs significantly.

Training compute [FLOPS]



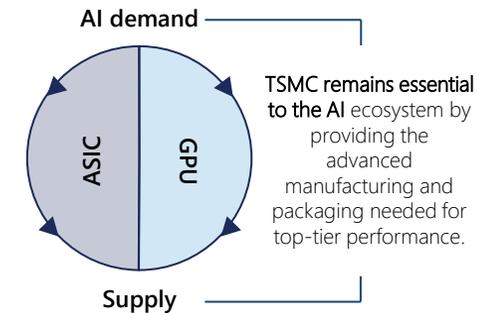
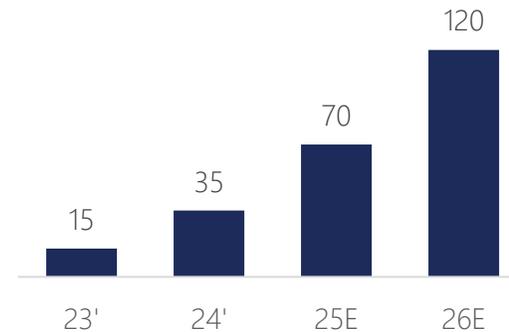
2 This is being supported by technological advancements with more advanced chips capable of enhancing computational capacity.

Training compute and Transistor Count [PFLOPS; bn]



3 Constraints shape the AI dynamics, but regardless of the processor design chosen, TSMC is the winner...

CoWoS wafer capacity [kwpm]

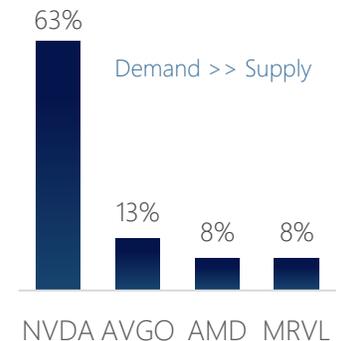


4 ...that guarantees strong demand for its products, whether ASICs or GPUs, contributing to a more predictable AI-related revenue.

TSMC 25E AI revenue sensitivity [USD bn]

		% of COGS destined to TSMC				
		30%	35%	40%	45%	50%
Customer Margin	75%	16.8	19.6	22.4	25.2	28.0
	70%	20.2	23.5	26.9	30.2	33.6
	65%	23.5	27.4	31.4	35.3	39.2
	60%	26.9	31.4	35.8	40.3	44.8
	55%	30.2	35.3	40.3	45.4	50.4

CoWoS capacity demand [%]



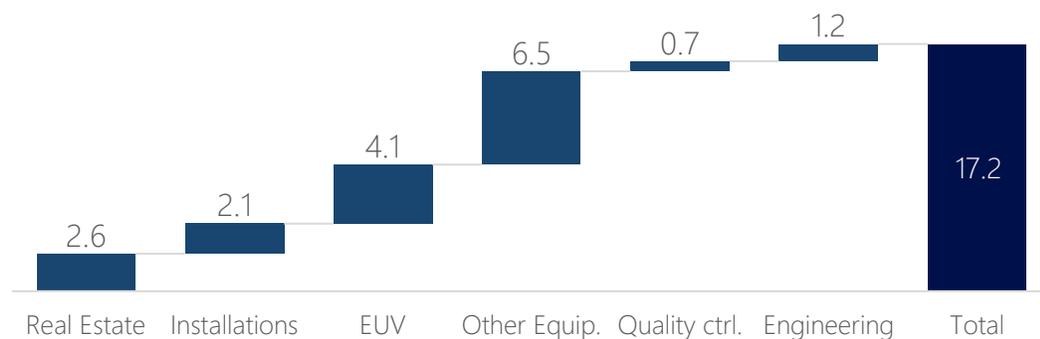


The best chips come in high stakes only

A huge CapEx is a pre-requisite to compete in leading-edge, shaping a strong barrier to entry

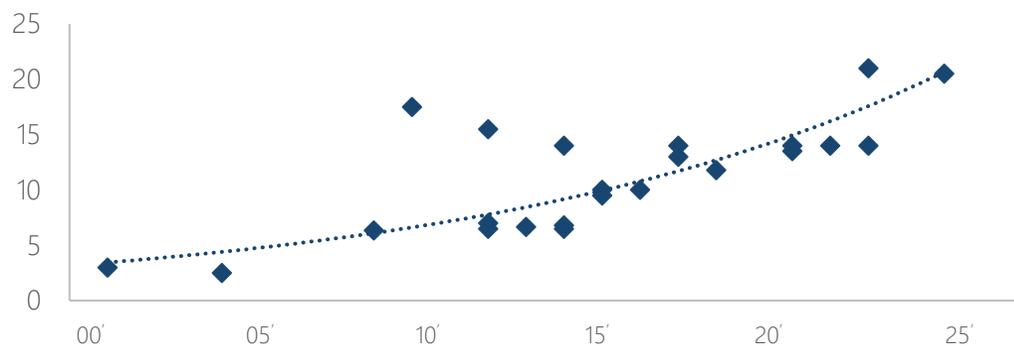
1 Starting an advanced chip fab requires an immense CapEx ranging from high-tech equipment to specialized workforce and clean-rooms...

Turn-key fab CapEx breakdown [USD bn]



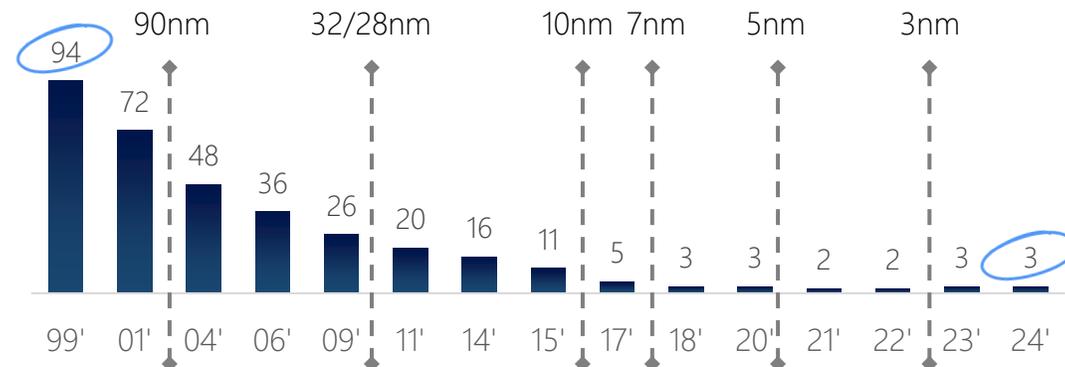
2 ...and because of the complexity in these cutting-edge chips, they are under a steep rise of cost.

Leading-edge fab total cost per wafer produced per year [USD th]



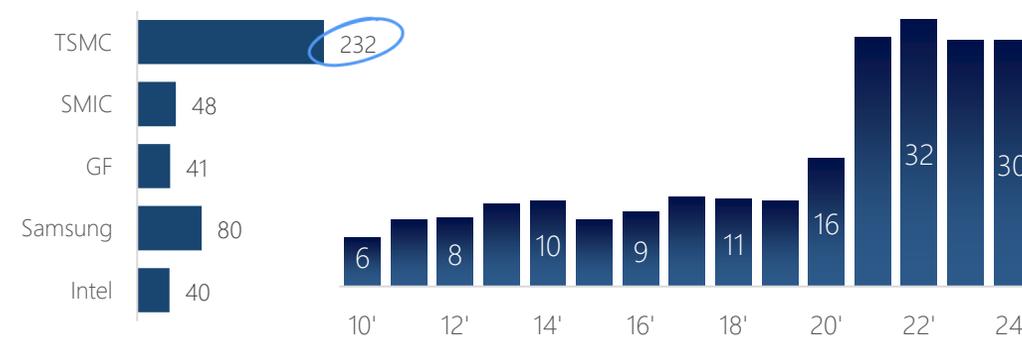
3 This has made the number of different foundries producing the most advanced chips drop generation after generation...

Foundries producing the most advanced chip nodes [#]



4 ...as consequence of the leadership TSMC built with unmatched levels of CapEx.

CapEx in pure-play foundry 10'-24', TSMC history [USD bn]

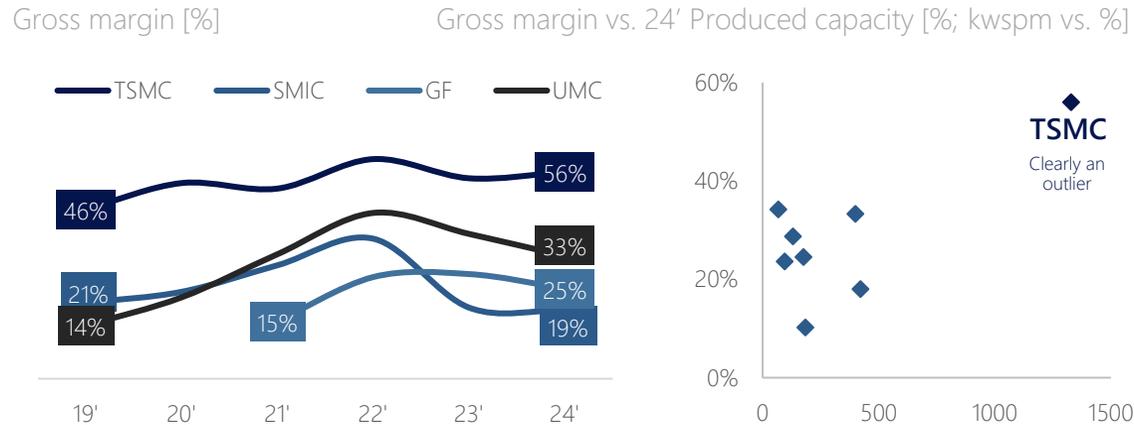




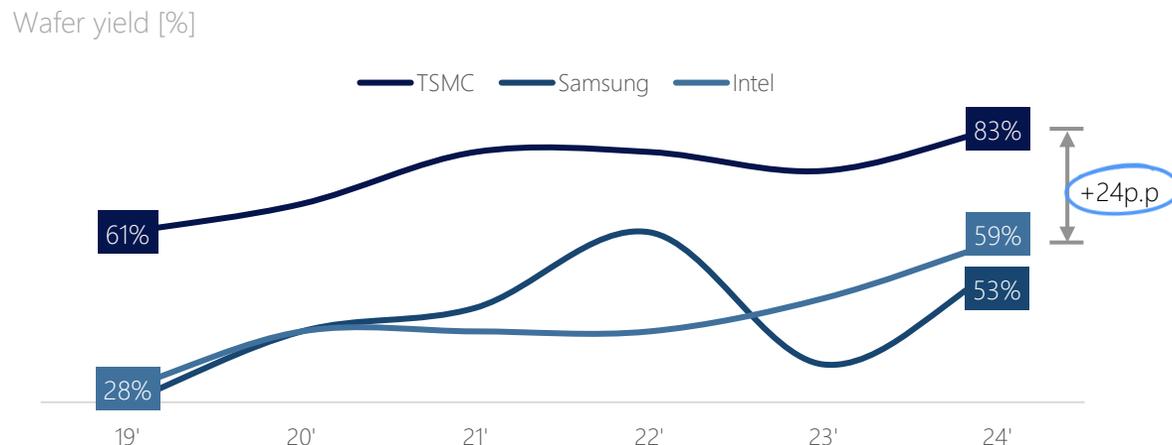
Even big islands look small in the ocean

TSMC's near-monopoly in the industry makes it the best player in efficiency

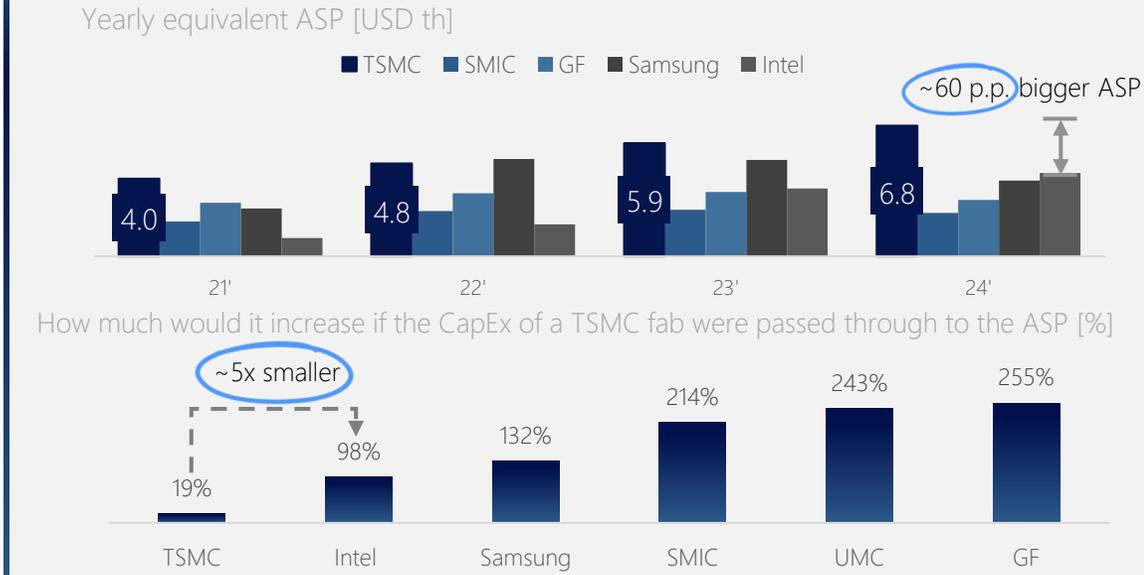
1 The more TSMC produces, the more apparent its moats become, resulting in a far higher gross margin.



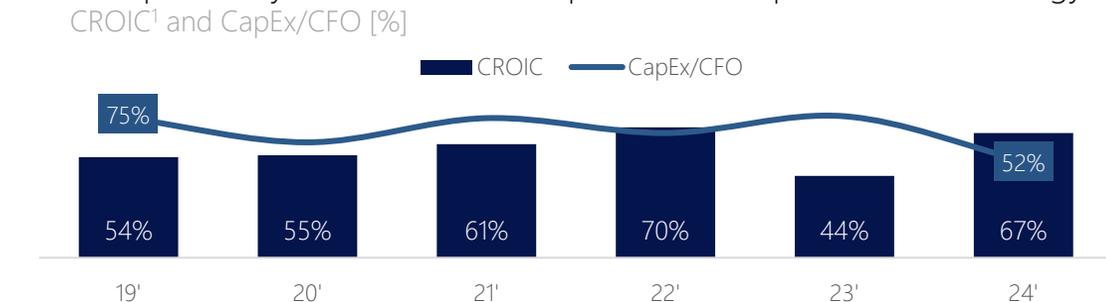
2 Like no one else, TSMC can hold a huge lead in yield, which is translated to a far more efficient, scalable operation.



3 While the large CapEx symbolizes a big barrier to entry, TSMC uniquely has the ability to dilute it in its massively scaled operation.



4 The efficient dilution of CapEx allows for a sustainable operation, which is independently able to fund the expected developments in technology.



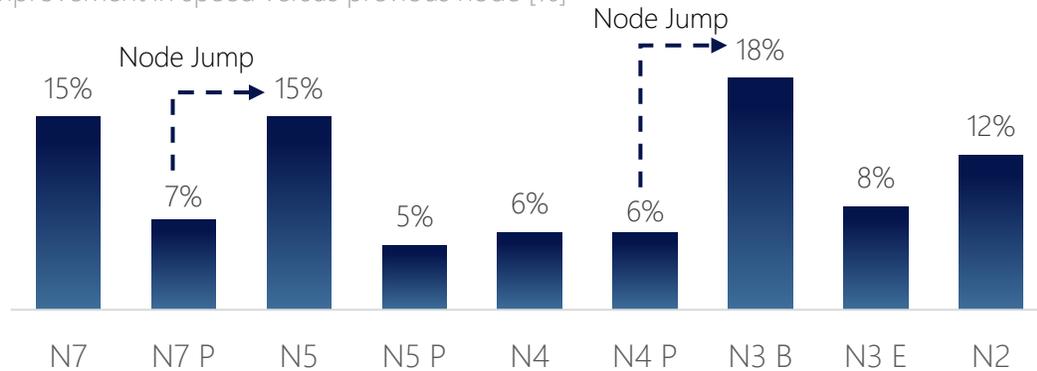


The barriers to enter go far beyond money

TSMC's Process Power is the key to being constantly pushing the tech frontier

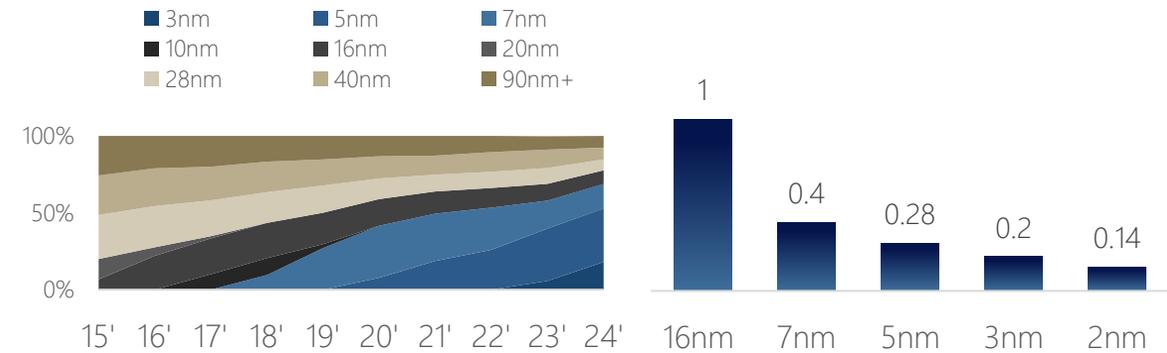
1 TSMC bets on having frequent improvements, which may be small but compound on incremental development only the company can have.

Improvement in speed versus previous node [%]



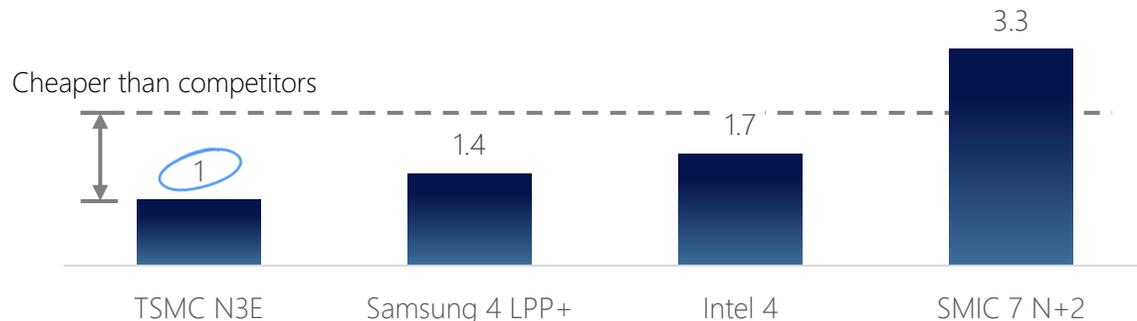
3 The impact of this strategy is twofold: the unique excellence in cutting-edge chips, and the constant improvement in operations.

Revenue breakdown by node; power consumption for TSMC [%; x]



2 Based on this, TSMC can operate on outstanding yields and shape the industry's smallest CPGT¹.

Cost-per-Good-Tera-Transistor [USD/10¹²tn]



4 And to protect this crucial process power, the company uses strict protocol to protect it at all costs from competitors.

Employee turnover including retirements [%]



“ TSMC is very concerned about security. For this, every employee knows just enough to do their assignment, nothing more. You can't learn the process with just one hiring. ”

David Su, employee at TSMC for 18 years

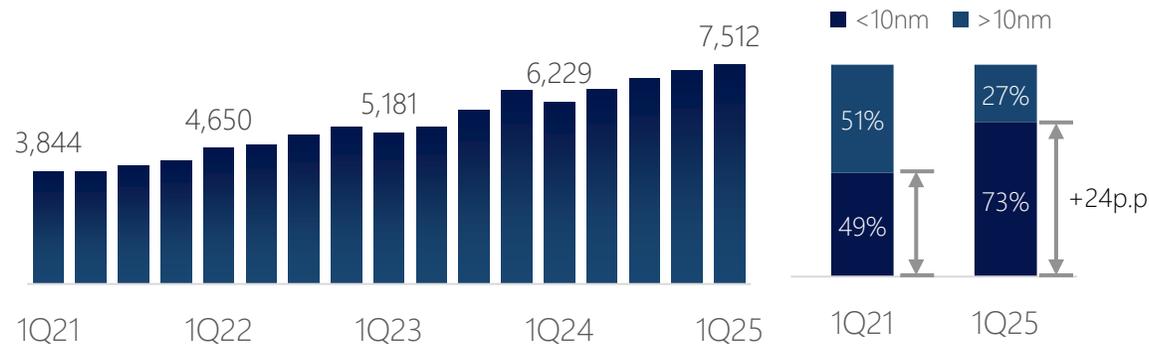


The power to charge and the wisdom not to

TSMC sustains high margins through continued expansion into higher-value chips and benefits from not pushing it too hard on clients

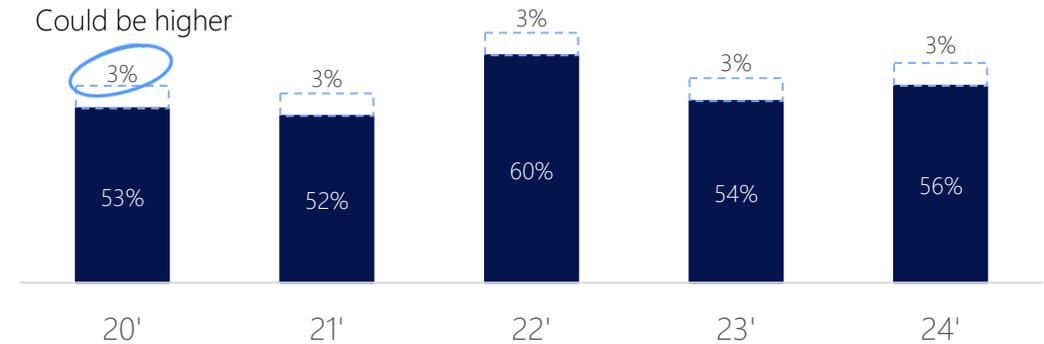
1 TSMC is able to push higher prices on the more advanced chips, which have consistently grown in the revenue mix.

TSMC's Blended ASP, 12" equivalent and Revenue Breakdown [USD; %]



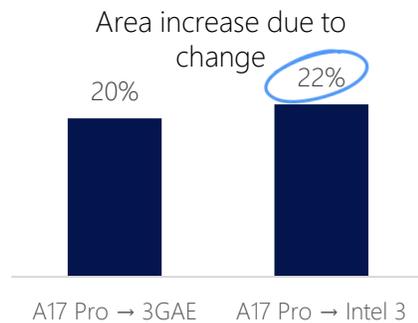
3 TSMC controls this dynamic closely, sustaining high margins, but not as high as it could in order to preserve the trust of its big fish clients...

TSMC's gross margin and estimated incremental if full pricing power were exercised [%]



2 But it's not worth it for clients to move away as the technical gap is immense and a slight increase in costs is easily diluted in high-value products.

Increase in chip area; Apple's annual cost impact from TSMC price hikes [%; USD]



Units produced [mn]	% price increase				
	6%	8%	10%	12%	14%
Apple	3.1	4.2	5.2	6.3	7.3
420	3.1	4.2	5.2	6.3	7.3
360	3.7	4.9	6.1	7.3	8.6
300	4.4	5.9	7.3	8.8	10.3
240	5.5	7.3	9.2	11.0	12.8
180	7.3	9.8	12.2	14.7	17.1

4 ...for which TSMC is heavily rewarded, benefiting from prepayments that allow for tech developments and direct investments by Apple and NVIDIA.

Good pricing pays off

"Apple's \$500B pledge to expand US manufacturing includes chips from massive TSMC Phoenix factory"

"NVIDIA Plans \$500 billion AI Investment in U.S., with Taiwan's TSMC and Foxconn Leading the Charge"

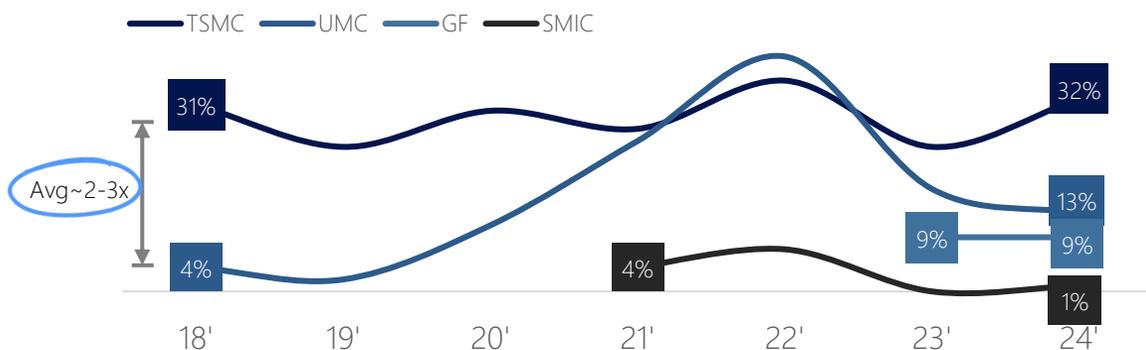


Unmatched capital allocation

Leveraging its steep scale advantages and near-monopoly on cutting-edge chips, TSMC deploys capital more effectively than any rival

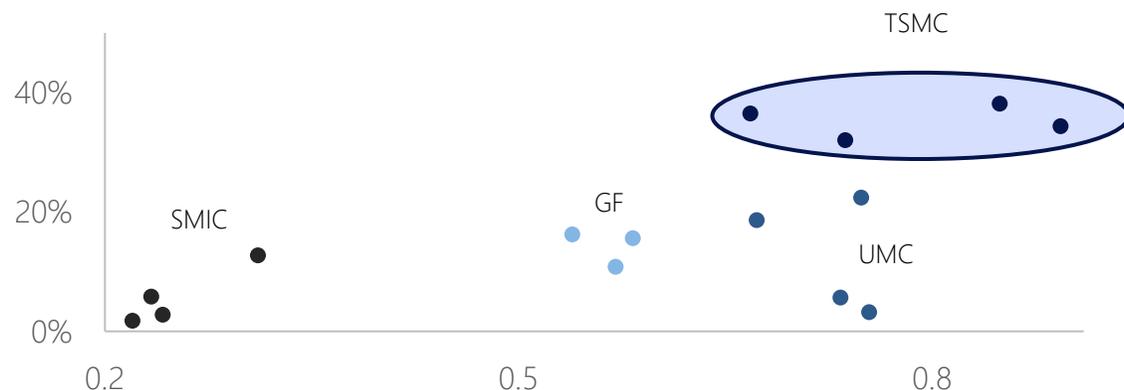
1 Owing to its formidable barriers to entry and strong pricing power, TSMC maintains a ROIC that consistently outperforms its competitors...

Operational ROIC [%]



2 ...distinguished itself by superior asset turnover and, above all, exceptional operational efficiency...

Invested Capital Turnover and NOPAT Margin [x axis; y axis]



3 ...where although operating expenses align with peers, COGS excels thanks to premium pricing on advanced chips...

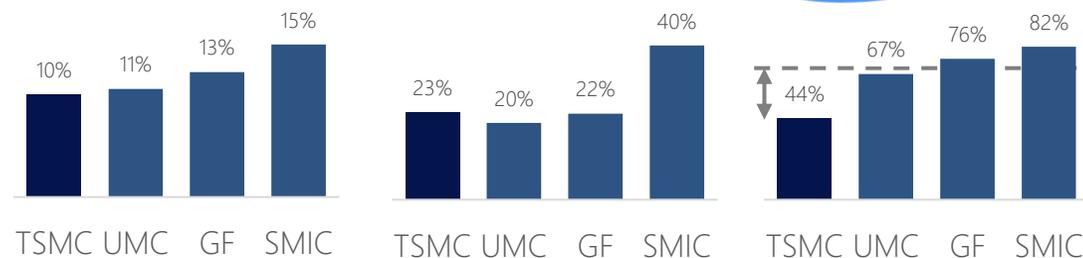
Spread = TSMC - Avg.(UMC;GF)

(SG&A + R&D)/Net Revenue [%] D&A/Net Revenue [%] COGS/Net Revenue [%]

Spread vs Avg = -2%

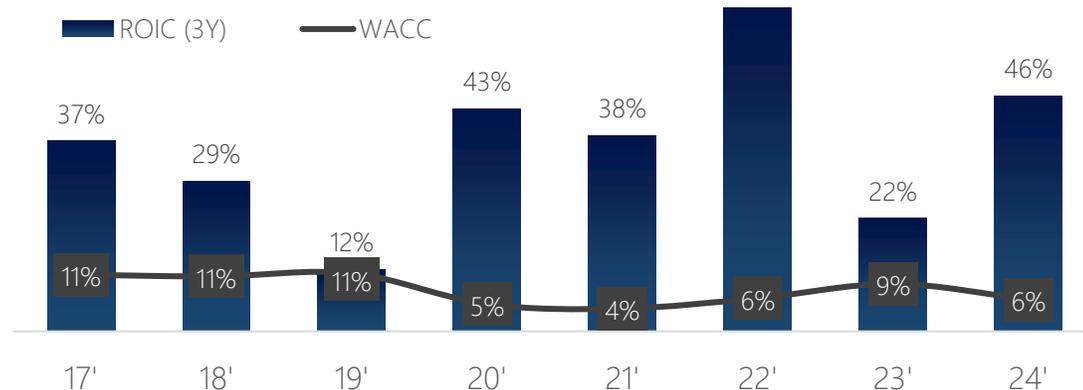
Spread vs Avg = +2%

Spread vs Avg = +27%



4 ...and TSMC demonstrates its ability to allocate capital to sustain this ROIC, generating value above its cost of capital.

Incremental ROIC 3Y¹ and WACC [%]



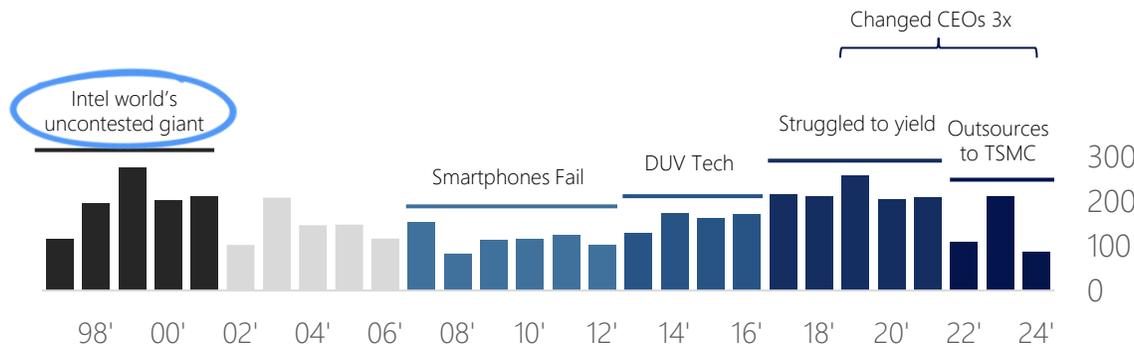


Founder DNA with world-class execution

TSMC excels at making the right call when outcomes are unclear, a principle ingrained in its culture and driven by mostly variable pay

1 Despite TSMC's current success, it wasn't always clear thirty years ago that its business model would work, but thanks to the incumbent's missteps...

Intel Market Capitalization [USD bn]



3 Much of this success stems from a team that excels in execution and has a long-term vision for the industry...

- Experience at TSMC
- Experience as CEO at TSMC

Morris Chang

- 31y
- 21y

Mit Massachusetts Institute of Technology

Pioneered the pure-play foundry model

Mark Liu

- 31y
- 5y

Berkeley UNIVERSITY OF CALIFORNIA

Implemented the EUV adoption

C. C. Wei

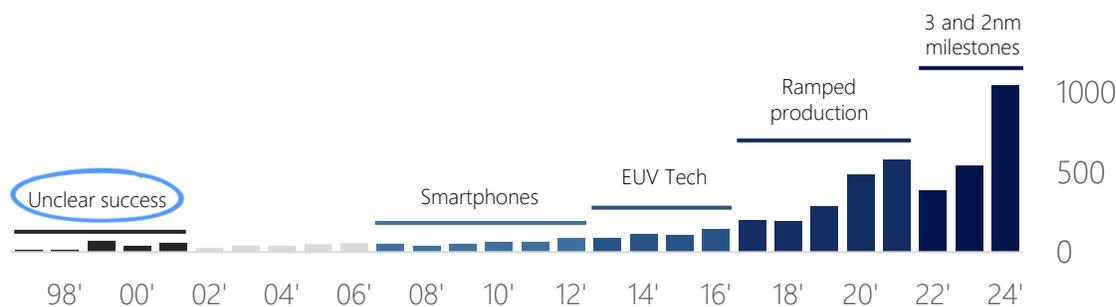
- 27y
- 7y

Yale

Ramp up maintaining leadership at 5 nm and 3 nm

2 ...and to right decisions, the company went on to achieve undisputed success and unseat one of the greatest firms in history.

TSMC Market Capitalization [USD bn]



4 ...factors that are rewarded through aggressive variable-compensation that incentives for meeting targets and guidance.

CC Wei Total Compensation Breakdown [%]



RSA for executive officers of the Company

TSMC vs S&P500's TSR	Above by X%	Equal to	Below by X%
	50% + X*2.5%	50%	50% - X*2.5%

RSA for critical talents

	Revenue	Gross Margin	ROE
Threshold	10%	50%	20%
Target	15%	53%	25%
Ratio	< Threshold = 0%	Threshold = 50%	>= Target = 100%

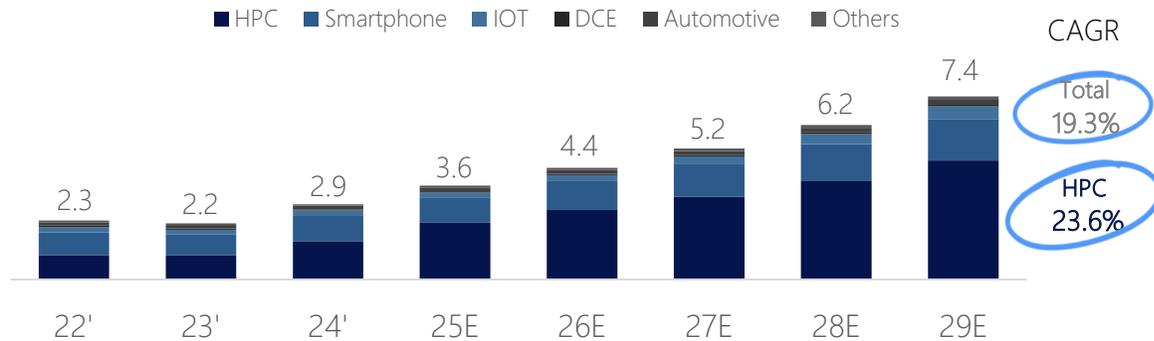


Valuation: shaping the wafer into numbers

Our main assumptions to the DCF model

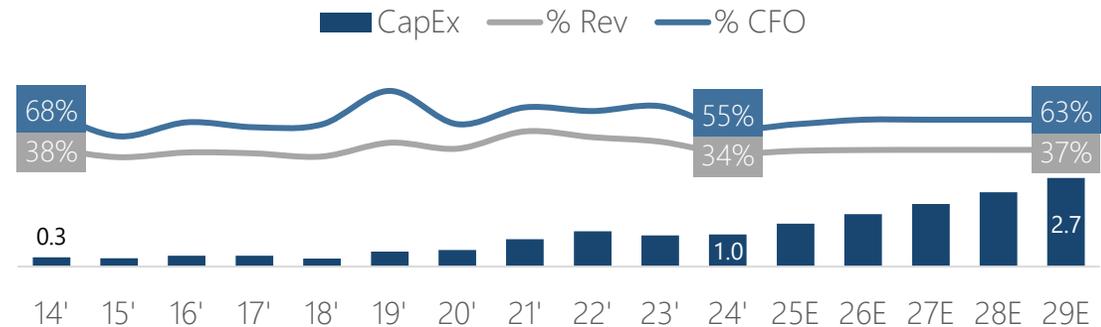
1 We forecast revenue to be strongly pushed by High Performance Computing, as it leads to a 19% CAGR from 2025 through 2029.

Net Revenue [NT\$ Tn]



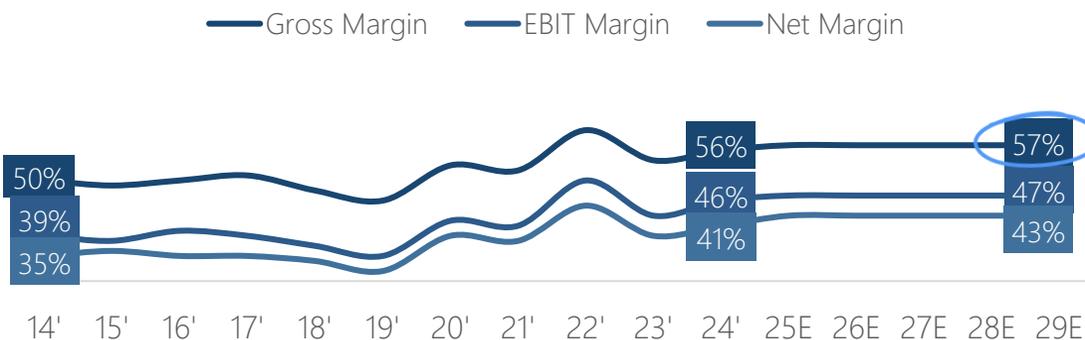
3 ...with CapEx growing moderately and under the operational control of the company...

CapEx; CapEx as % Rev.; CapEx as % CFO [NT\$ Tn; %; %]



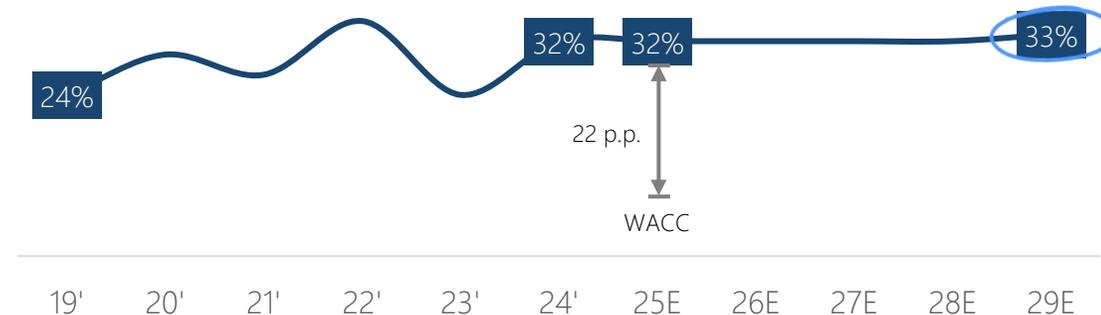
2 This growth is expected to carry the pricing power, bringing up a slight increase in margins despite the international expansion...

Gross, EBIT and Net Margins [%]



4 ...and ultimately sustaining the company's historically elevated ROIC, far above its cost of capital.

Return on invested capital [%]



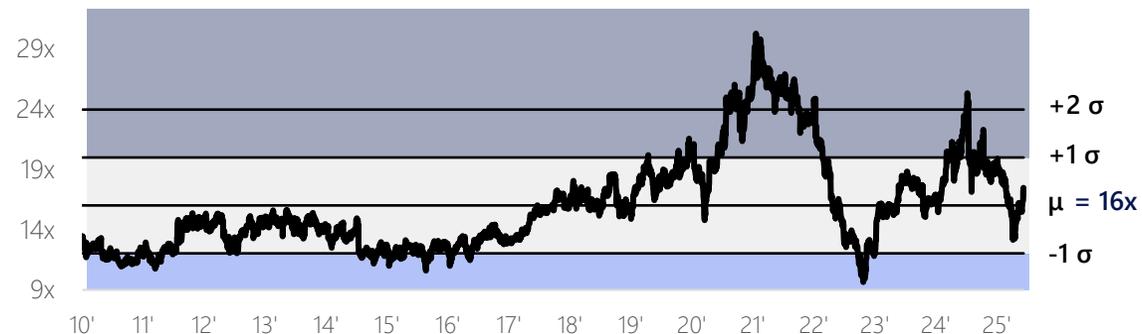


Multiples: The key role of in TSMC's high IRR

We forecast an 21.4% IRR considering a 16x exit P/E and sensitivity proving the BUY

1 TSMC has been trading at a 1-year forward P/E in its average over the past few years.

P/E fwd 1Y historic [x]



2 When compared to its foundry peers, it is trading at attractive multiples. This without considering that it is the only one positioned in the leading edges.

Comp. Table

Company	P/E fwd 1y	PEG	EPS CAGR 25'-27'	ROE	Gross Margin
TSMC	16.4x	0.5x	19%	26%	56%
UMC	13.8x	1.5x	5.8%	11.5%	32.6%
SMIC	56.5x	2.6x	22%	3%	18%
Global Foundries	21.9x	0.8x	19%	-1.7%	24.5%

3 Using a 16x exit P/E multiple in 3 years, it would result in an 21.4% IRR.



4 With the long thesis confirmed by the higher amount of buy scenarios in the sensitivity analysis

Exit P/E vs. revenue CAGR_{25E-27E} sensitivity analysis [%]

		Exit P/E fwd 1y				
		12x	14x	16x	18x	20x
Revenue CAGR	21.4%	7%	13%	17%	22%	26%
	15%	9%	14%	19%	24%	28%
	17%	11%	16%	21%	26%	30%
	19%	13%	18%	23%	28%	33%
	23%	14%	20%	25%	30%	35%

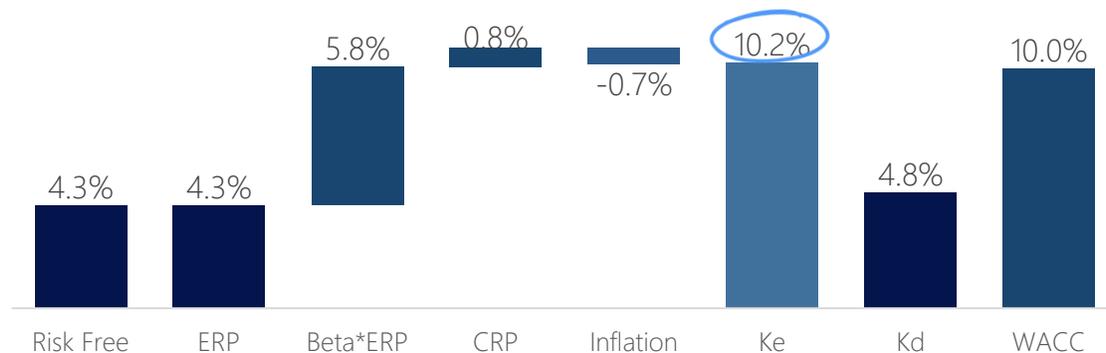


Diving into valuation

Deep dive inside the model numbers

1 Through the CAPM model, we estimated our WACC, resulting in an 11% cost of capital...

WACC Breakdown [%]



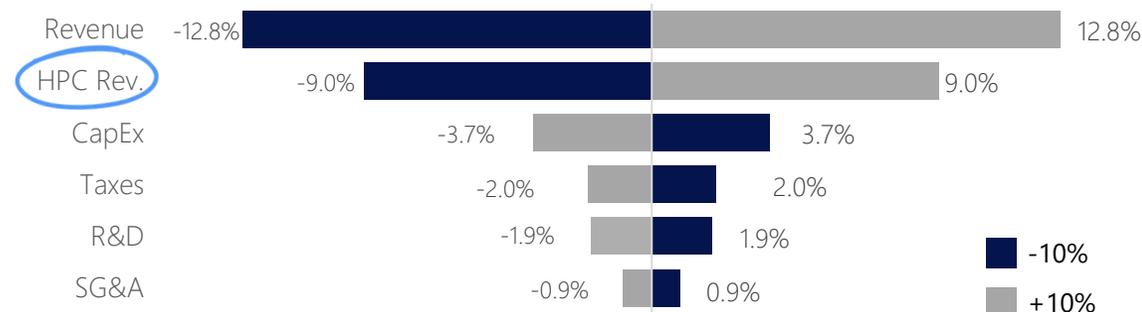
2 ...we then varied Ke and g in a sensitivity analysis so as to ensure further confidence in our results...

Ke vs. g sensitivity analysis [downside/upside; %]

		Ke						
		11.7%	11.2%	10.7%	10.2%	9.7%	9.2%	8.7%
Perpetuity g	2.0%	-9%	-4%	3%	9%	17%	26%	36%
	2.5%	-5%	1%	8%	16%	24%	34%	46%
	3.0%	0%	7%	14%	23%	33%	44%	57%
	3.5%	5%	13%	21%	31%	42%	55%	71%
	4.0%	11%	20%	29%	40%	53%	69%	88%
	4.5%	18%	28%	39%	51%	67%	85%	108%
5.0%	26%	37%	49%	65%	83%	106%	135%	

3 ...and conducted a Tornado Analysis to identify which variables have the greatest influence on our model.

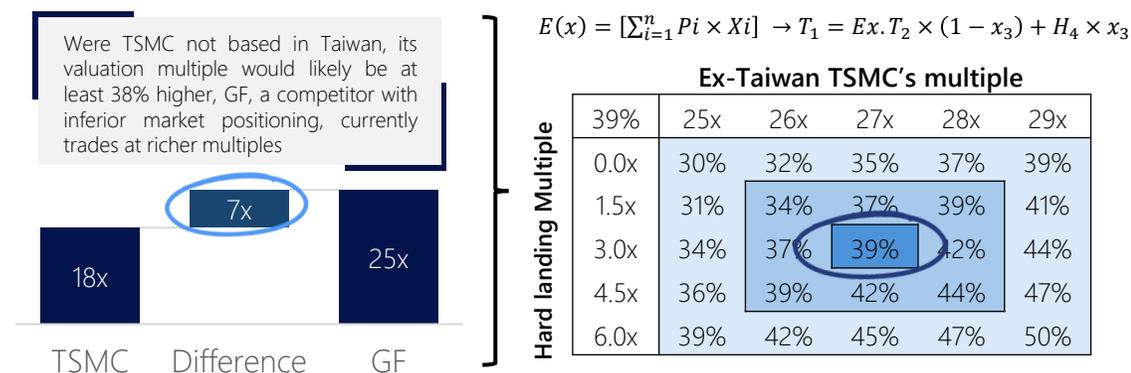
Tornado analysis [%]



4 Finally, estimating TSMC's fair multiple excluding TW we found the implied invasion probability to be unrealistically high, reinforcing its undervaluation.

P/E Multiple 1y fwd. [x]

Estimated Taiwan-invasion risk priced into TSMC [%]



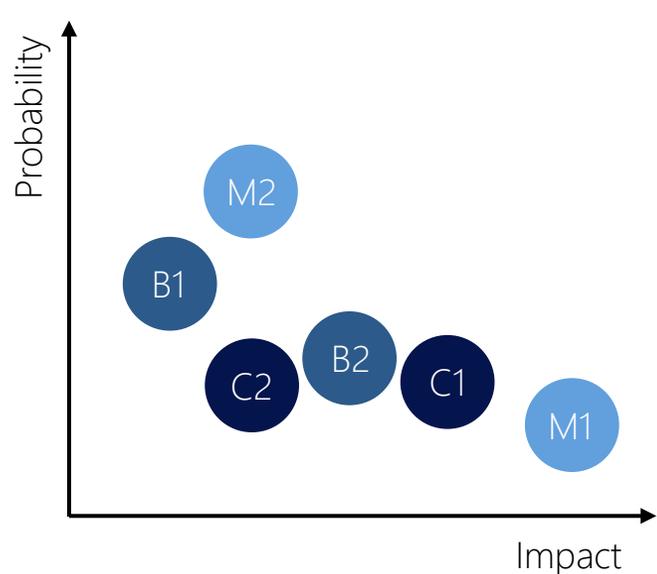


Where could we be wrong?

Inherent risks drive TSMC analysis, key factors were identified, and the valuation was stress-tested for resilience

1 A substantial portion of the discourse underpinning TSMC investment thesis centers on competitive and business risks and, above all, geopolitical risks...

2 ...with scenario analyses simulating pricing wars, cross-border operational complexities to map out risk-return outcomes.



Competitive risks

- C1 - Erosion of technological leadership to Intel and Samsung
- C2 - China's tech advance and SMIC's EUV access

Business risks

- B1 - One client's troubles generate outsized impact due to high client concentration
- B2 - Margin erosion due to Fabs outside Taiwan facing operational setbacks

Macroeconomics risks

- M1 - China-Taiwan tensions and risk of military conflict
- M2 - Economic crisis over the world

Global GDP deviation from pre-crisis trend [%]



	24'	Bear	Base	Bull	Consensus
4y Rev. CAGR	21%	12%	19%	23%	15%
Gross Margin %	56%	54%	57%	59%	57%
4y EPS CAGR	23%	12%	19%	23%	14%
P/E	17x	11x	16x	20x	-
IRR	-	3%	21%	38%	-

Case in a nutshell

Summarizing our TSMC **LONG** thesis

Exceptional market positioning

Unbreachable barriers

Outstanding returns with visionary leadership

Investment Analysis

TWD 1,070.0⁽¹⁾ TWD 1,399.8

Long

30.8% Upside

21.4% 3y IRR

DCF: 30.8% Upside

Current Price: TWD 1,070.0

Target Price: TWD 1,399.8

3 Year IRR: 21.4%

Ke = 10.2%

IRR - Ke = 11.2%

(1): stock price on June 26th

Presentation Index

1st Pillar

Overview

HPC growth

AI models

2nd Pillar

CapEx

Scale

Process Power

3rd Pillar

Pricing Power

ROIC

Management

Valuation

Main Assumptions

Multiples

Zooming the valuation

Risks

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Risks

1. Taiwan
2. Taiwan Quali
3. Put hedge
4. AI Bubble Burst
5. Reasoning

Multiples

1. P/E Comparison
2. Sensitivity Analysis
3. Comparable Table
4. Implied Multiple
5. P/E fwd 1y vs. EPS CAGR

Others

1. Revenue Explanation
2. Market Share
3. CapEx
4. CHIPS Act
5. Nodes & Ramps
6. Stock Performance
7. Management
8. Intel
9. ADR

Competitors Comparison

1. Margins

2. IDMs Margins
3. ROIC
4. ROE

Calls

1. David Su
2. Jon Bathgate
3. Prof. Marcelo Zuffo
4. Prof. Antonio Seabra

Past Presentation

1. Altaris Capital - Phase I
2. Altaris Capital - Semifinal

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Evolution

1. Revenue
2. Gross Profit
3. EBIT
4. EBITDA
5. EBT
6. Net Income
7. Gross Margin
8. Net Margin
9. ROE
10. ROIC
11. CFO-CFI
12. CFO/EBITDA

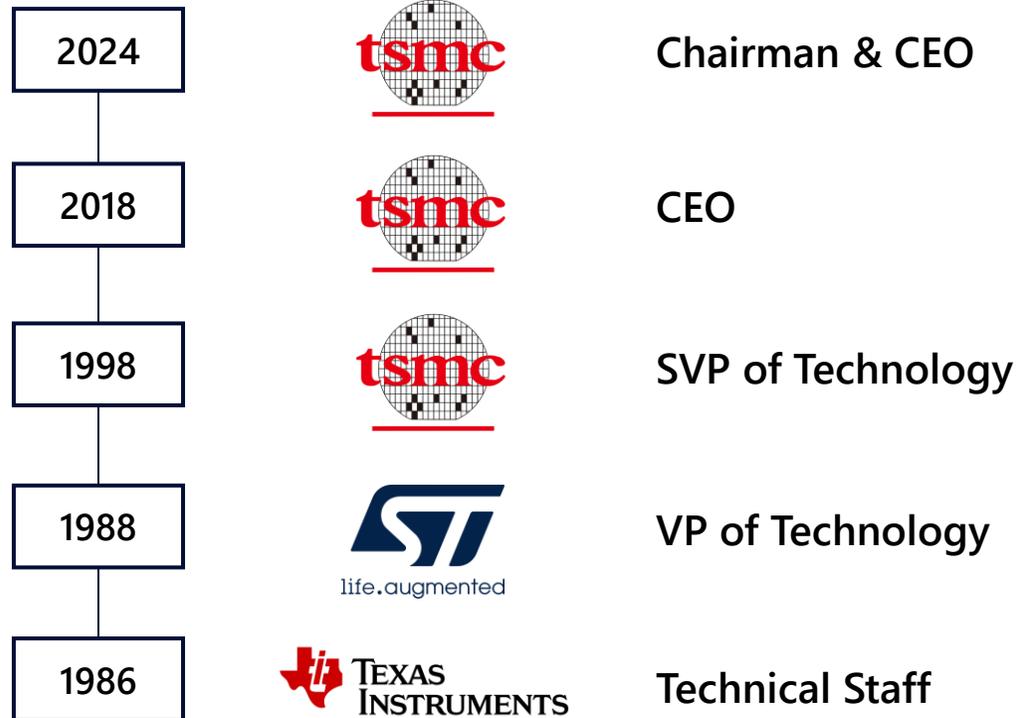
Model

1. Income Statement
2. Balance Sheet
3. Cash Flow
4. Revenue Build-Up
5. COGS
6. Opex
7. Working Capital
8. PP&E
9. Debt
10. Payout
11. FCFE
12. Ke
13. IRR
14. Bear
15. Bull



Management Deepdive: C.C. Wei

With almost 40 years in semiconductor manufacturing, Dr. C. C. Wei has repeatedly turned deep process know-how into market-leading growth for TSMC. Since becoming sole CEO in 2018 and Chairman & CEO in June 2024 he has overseen the on-schedule roll-outs of EUV 7 nm, 5 nm and 3 nm nodes, secured long-term capacity deals with Apple, NVIDIA and AMD moves that **almost tripled TSMC's market value in six years**



Undergrad & Masters:
Electrical Engineering



PhD:
Electrical Engineering

39y

27y

7y



CC Wei
CEO at TSMC (7y)

Oversees global expansion, with manufacturing facilities in Arizona, Kumamoto, and Dresden, approves over US\$ 40 billion in annual CAPEX, and manages relationships with anchor clients such as Apple and NVIDIA.



Years at Semis



Years at TSMC



Years as CEO



Management Deepdive: Yuh-Jier Mii

In more than 20 years of services at TSMC, Dr. Mii has contributed the development and manufacturing of advanced CMOS technologies in both Fab Operations and R&D. He successfully managed the development of 90nm, 40nm and 28nm technologies. By spearheading the research and development of 16nm, 7nm, 5nm, 3nm, and beyond, he has helped maintain TSMC's technology leadership in the foundry segment of the global semiconductor industry.



Undergrad & Masters:
Electrical Engineering



PhD:
Electrical Engineering

35y

31y

2y



Y.J. Mii
EVP & Co-COO at TSMC (2y)

Acts as the board's technical voice and the bridge between process engineering and fab-level execution, ensuring the company meets its aggressive 2 nm (N2) timeline in 2025-26 and delivers on the A14/1.4 nm plan by 2028



Years at Semis



Years at TSMC



Years as Co-COO



Management Deepdive: Kevin Zhang

Dr. Zhang has published more than 80 papers at international conferences and in technical journals. He holds 55 U.S. patents in the field of integrated circuit technology. Dr. Zhang was the 2016 International Solid-State Circuit Conference (ISSCC) Program chair and conference chair for 2021/2022. He currently serves on the Advisory Board of MIT Engineering School. Dr. Zhang is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE).



Undergrad & Masters:
Electrical Engineering



PhD:
Electrical Engineering

20y

9y

1y



Kevin Zhang
SVP & Co-COO at TSMC (1y)

Collaborates with R&D to select which variants of each node (N3E, N3P, N2P, A14, etc.) should be prioritized, acting as the “orchestrator” of the technology-customer mix that drives fab utilization rates and sustains the company’s pricing power



Years at Semis



Years at TSMC



Years as Co-COO



Management Deepdive: Wendell Huang

Mr. Huang joined TSMC in 1999 and has led a number of significant corporate level finance projects, such as the acquisitions of TSMC and WSMC, the sale of Philips' shares in TSMC to institutional investors, and a series of major bond issues in 2010-2013. In his past two decades of service at TSMC, Mr. Huang has been responsible for the management of the Finance Division



Undergrad & Masters:
Statistics



PhD:
Electrical Engineering

36y

26y

6y



Wendell Huang
SVP & CFO at TSMC (6y)

Manages leverage and returns on the multibillion-dollar CAPEX that fuels node scaling and geographic diversification, a critical lever for sustaining ROIC above 30% even as the company expands beyond Taiwan



Years at Corporate Finance



Years at TSMC



Years as CFO



Appendix - Taiwan

1 Examining leading market institutions that consult experts to assess and quantify geopolitical risk...

2 ...it is possible to identify that the risk specialists estimate for an invasion of China over a one-year period hovers around 8%.

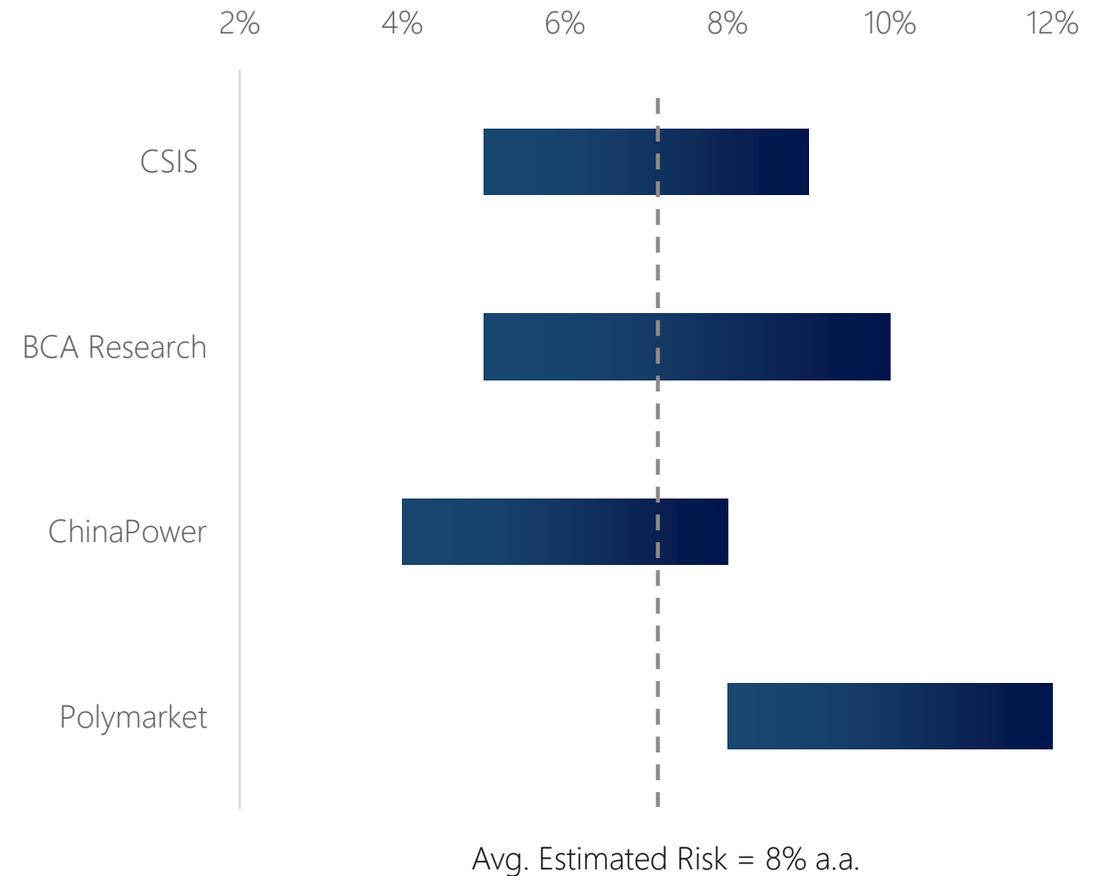
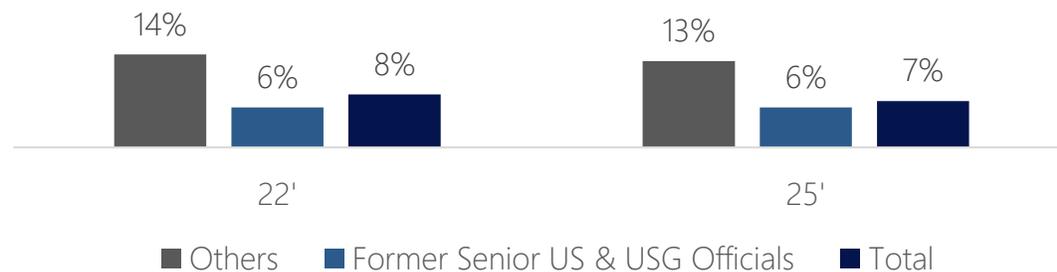
CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

CSIS surveyed 64 experts on the PRC, Taiwan, and cross-Strait relations: 28 former senior U.S. government officials (from both parties), 23 ex-USG policy and intelligence analysts, and 13 leading academics and think-tank specialists.

CSIS: An independent, nonpartisan think tank dedicated to foreign policy research and analysis

How likely is Beijing to resort to Invasion of Taiwan in the next year following courses of current action?

Percentage of positive responses (Very Likely + Likely/ Very Unlikely & Unlikely) [%]



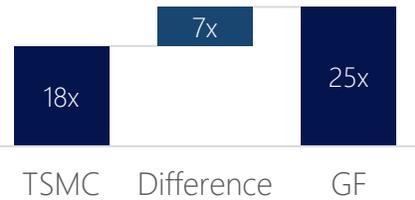


Appendix - Taiwan

1 However, by estimating the geopolitical risk implicit in the discounted P/E multiple...

Were TSMC not based in Taiwan, its valuation multiple would likely be at least 38% higher, GF, a competitor with inferior market positioning, currently trades at richer multiples

P/E Multiple 1y fwd. [x]



$$E(x) = \left[\sum_{i=1}^n P_i \times X_i \right]$$

$$T_1 = Ex.T_2 \times (1 - x) + H_4 \times x$$

Ex. $T_2 = \frac{P}{E}$ Outcome if there was no risk of invasion

$H_4 = \frac{P}{E}$ Outcome if there is an invasion

$x =$ risk of invasion

$T_1 =$ Current TSMC $\frac{P}{E}$ multiple

Estimated Taiwan-invasion risk priced into TSMC [%]

Ex-Taiwan TSMC's multiple

	39%	25,0x	27,0x	29,0x	31,0x	33,0x
0,0x	39%	30%	35%	39%	43%	47%
1,5x	31%	37%	41%	45%	49%	
3,0x	34%	39%	44%	48%	51%	
4,5x	36%	42%	47%	51%	54%	
6,0x	39%	45%	50%	54%	57%	

2 ...and annualizing that probability, it becomes clear that market-implied 14% diverges sharply from the experts' 8%

$$p = 1 - e^{-\lambda T} \rightarrow \lambda = - \frac{\ln(1 - p)}{T}$$

$p =$ Market implied probability of the event (44%)

$T =$ Investment time horizon (4 years)

$\lambda =$ Market implied annualized probability of the event (x%)

$\therefore \lambda_{market} = 14\% a. a. \quad \lambda_{experts} = 8\% a. a.$

The exponential-distribution formula is employed as the simplest and most transparent mathematical tool for converting a cumulative probability into an annualized rate, facilitating comparison of risk estimates on a consistent temporal basis

Market Implied Probability of the Event

	12%	40%	42%	44%	46%	48%
5,0y	12%	10%	11%	12%	12%	13%
4,5y	11%	12%	13%	14%	14%	15%
4,0y	13%	14%	14%	15%	15%	16%
3,5y	15%	16%	17%	18%	18%	19%
3,0y	17%	18%	19%	19%	21%	22%



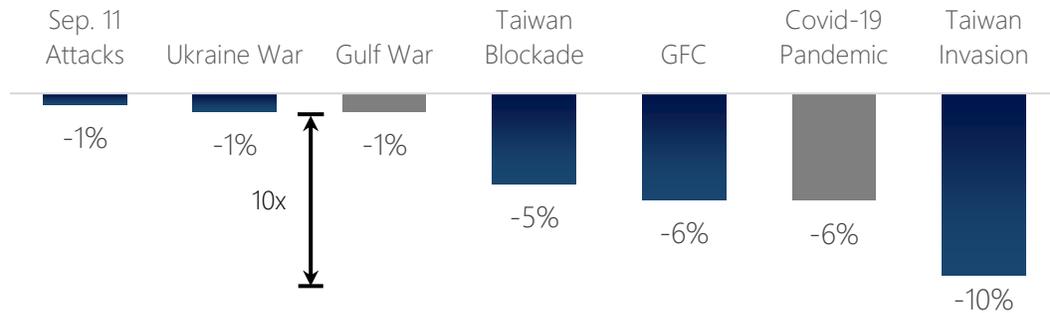
Appendix - Taiwan

1 The projected impact of a Chinese invasion of Taiwan would be immense

+92% Global capacity under 10nm

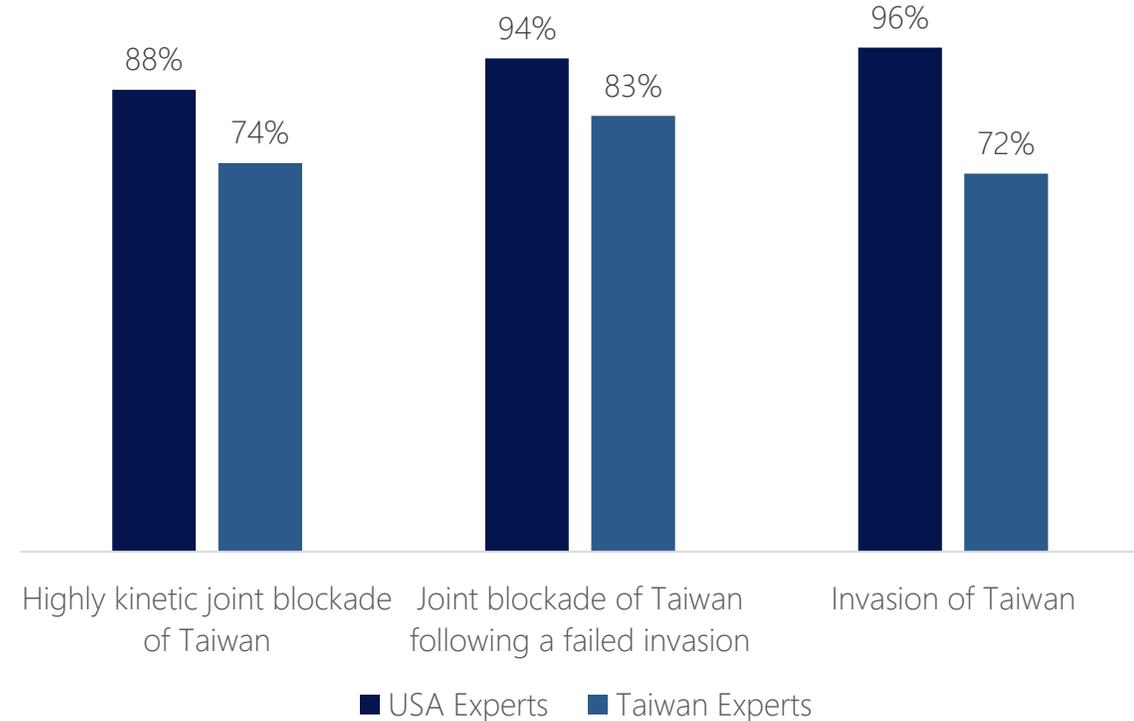
~70% Smartphone chipsets

~35% Automotive microcontrollers



2 Experts regard USA intervention as virtually certain

Given this scenario occurs in the next five years, how confident are you that the United States would be willing to intervene militarily to stop Beijing from achieving its objectives?



"China is the Department's sole pacing threat, and denial of a Chinese *fait accompli* seizure of Taiwan — while simultaneously defending the U.S. homeland is the Department's sole pacing scenario" May 2025

Defense Secretary Pete Hegseth



"What we were afraid of is that the Trump administration will ignore Taiwan just like Ukraine and make a deal with China. And now we are certain, that's not going to happen" May 2025

William Chung INDSR¹



Appendix - Taiwan

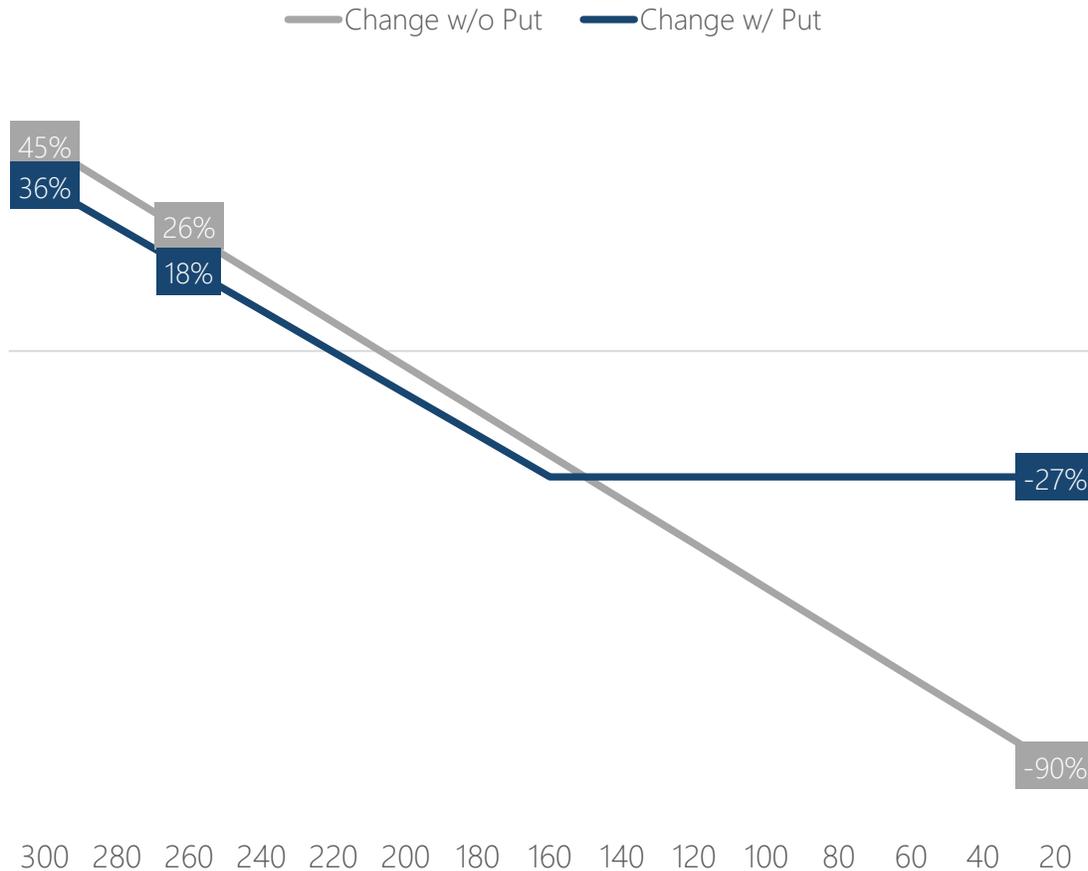
Name	Business Description	Gross Margin 24'	ROIC 24'	EPS CAGR 25'-27'	P/E 1y fwd (as May 2025)
Global Foundries	<p>GlobalFoundries Inc., a semiconductor foundry, provides range of mainstream wafer fabrication services and technologies worldwide. It offers semiconductor devices, including microprocessors, mobile application processors, baseband processors, network processors, radio frequency modems, microcontrollers, and power management units. The company was incorporated in 2008 and is headquartered in Malta, New York.</p>	25%	9%	19%	25x
TSMC	<p>Taiwan Semiconductor Manufacturing Company Limited provides various wafer fabrication processes. Its products are used in high performance computing, smartphones, Internet of things, automotive, and digital consumer electronics. The company was incorporated in 1987 and is headquartered in Hsinchu City, Taiwan.</p>	56%	32%	19%	18x



Appendix - Put 1.5y - 160 strike

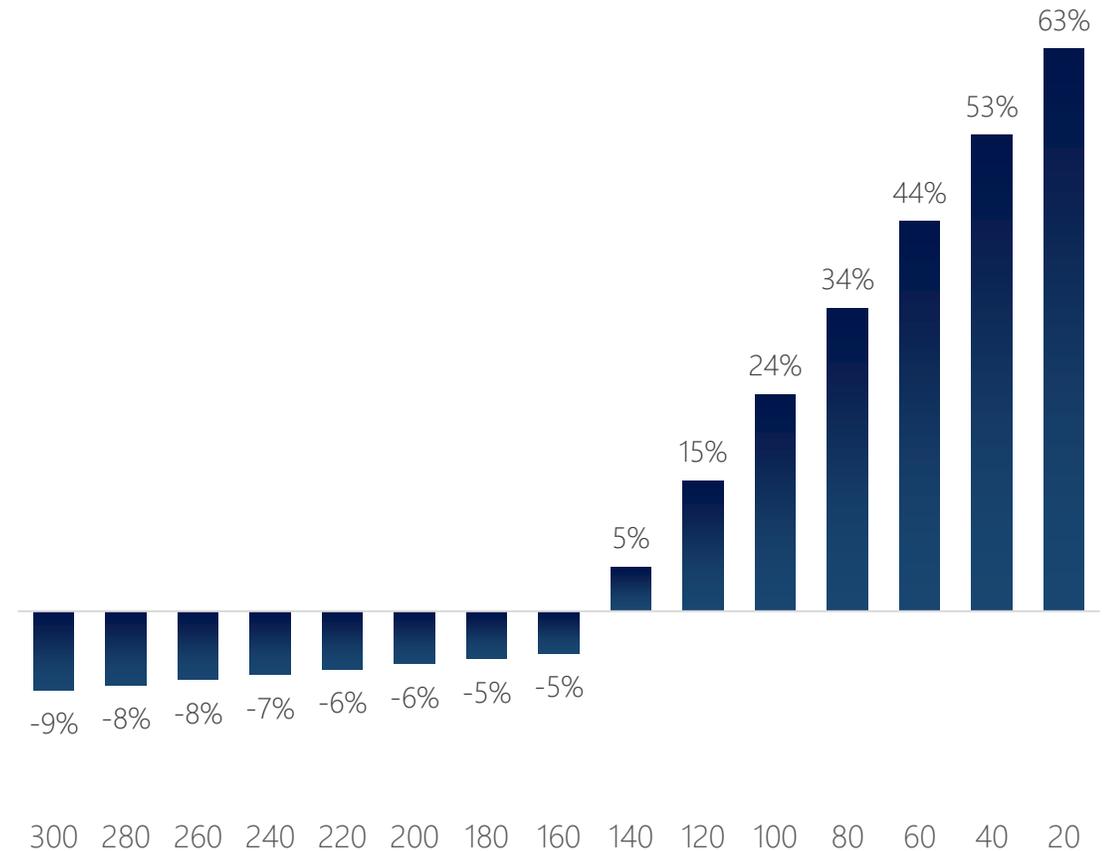
1 It significantly defends the thesis against the risk of invasion...

Upside/downside per final stock price [%]



2 ...while taking only an acceptable portion of the upside away

Change without option - change with option [%]

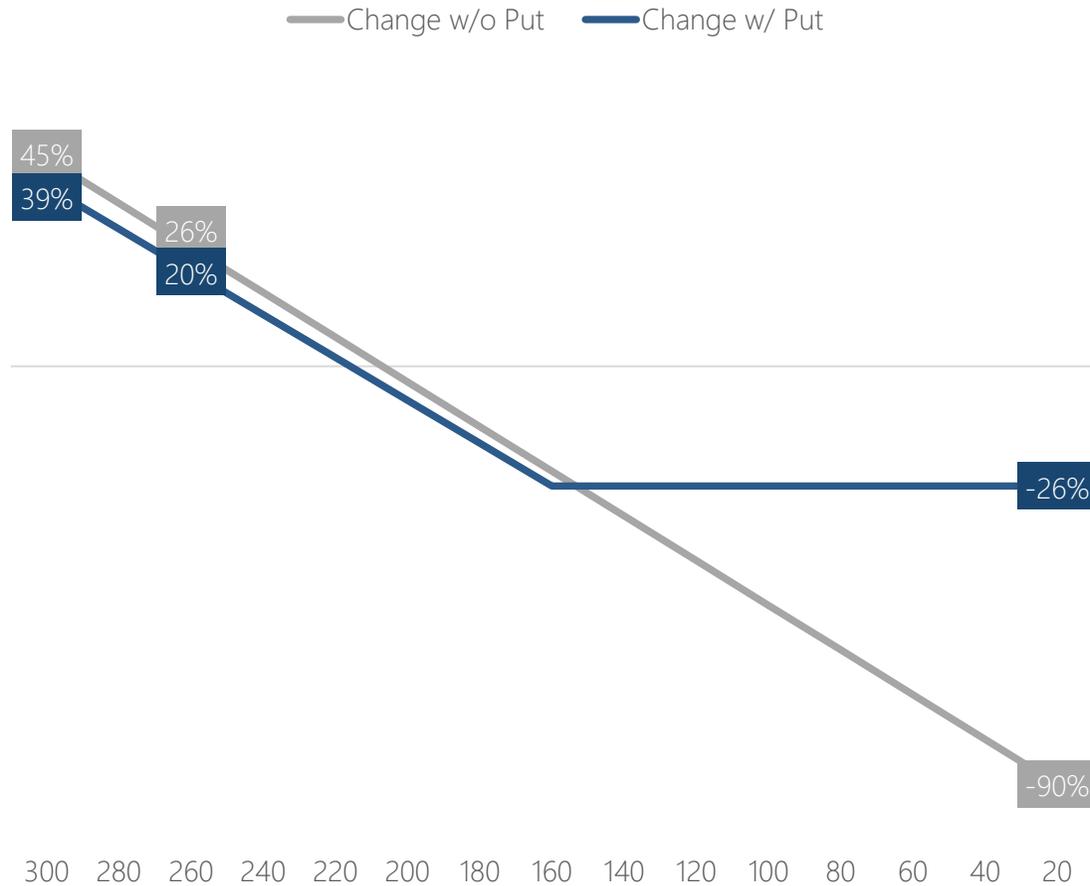




Appendix - Put 1y 160 strike

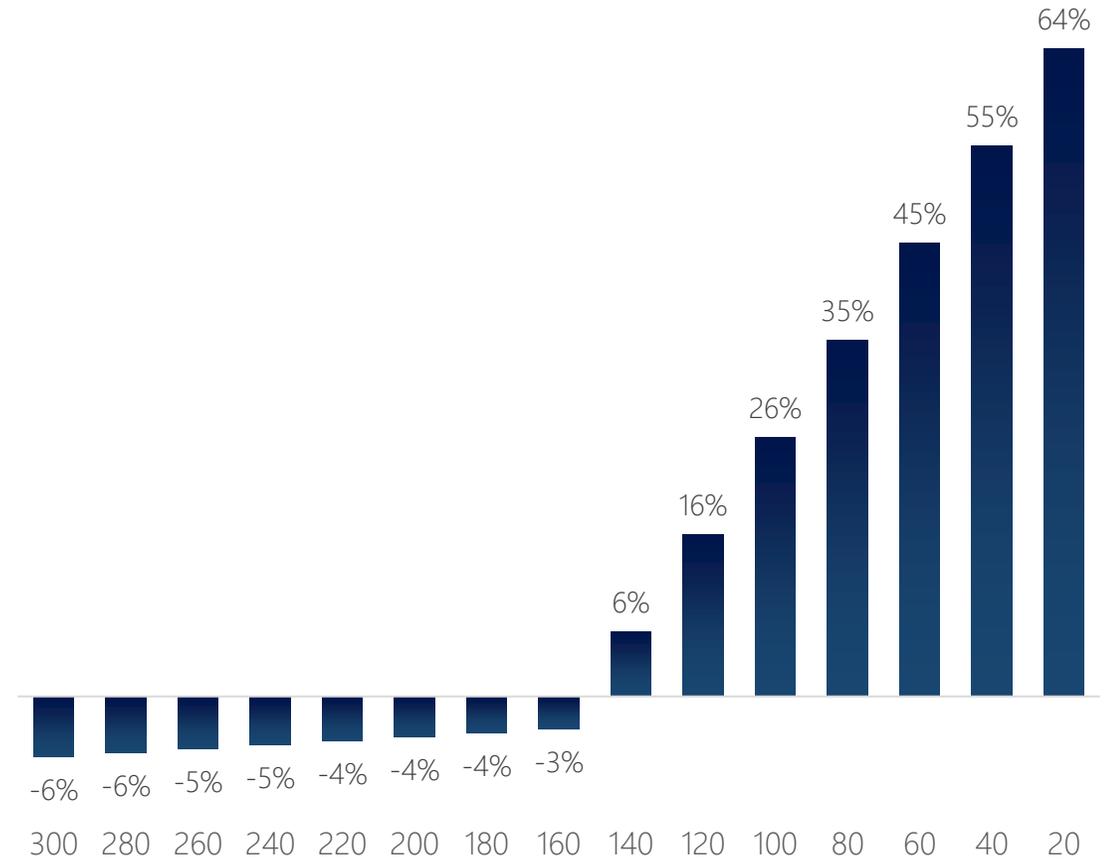
1 It significantly defends the thesis against the risk of invasion...

Upside/downside per final stock price [%]



2 ...while taking only an acceptable portion of the upside away

Change without option - change with option [%]

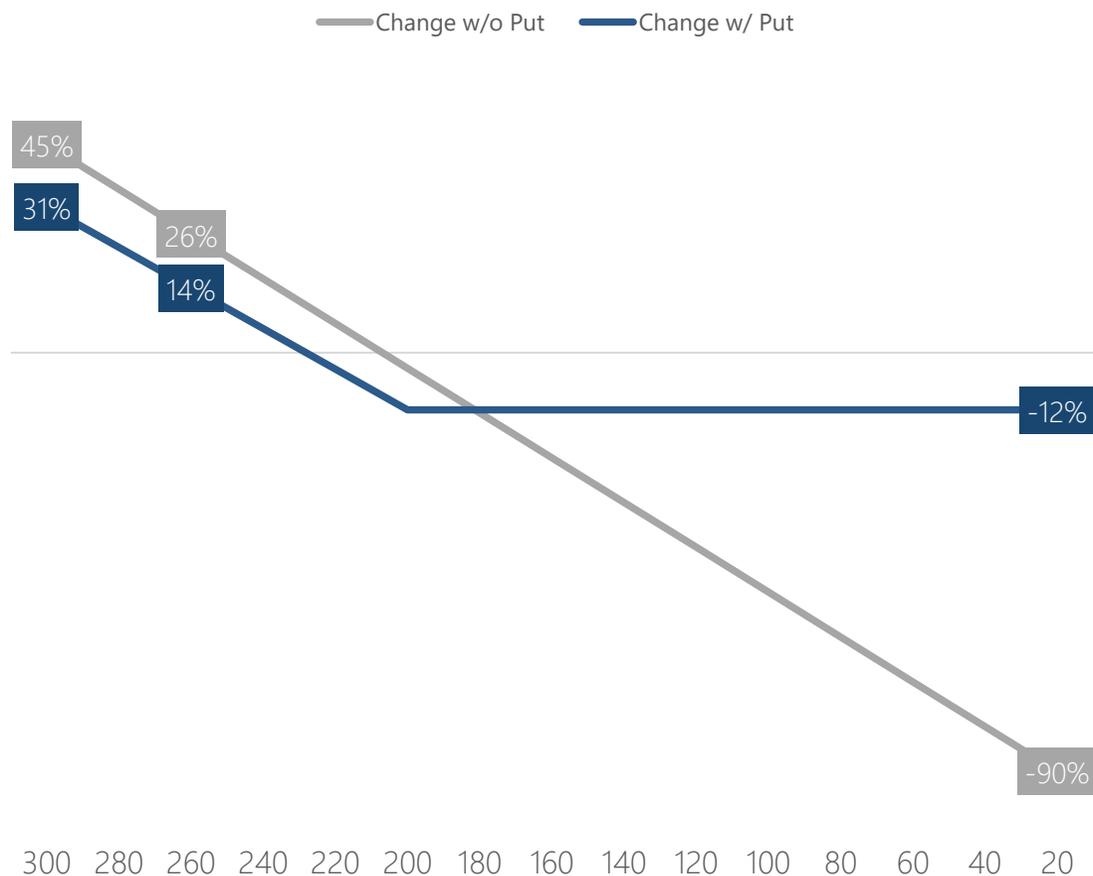




Appendix - Put 1y 200 strike

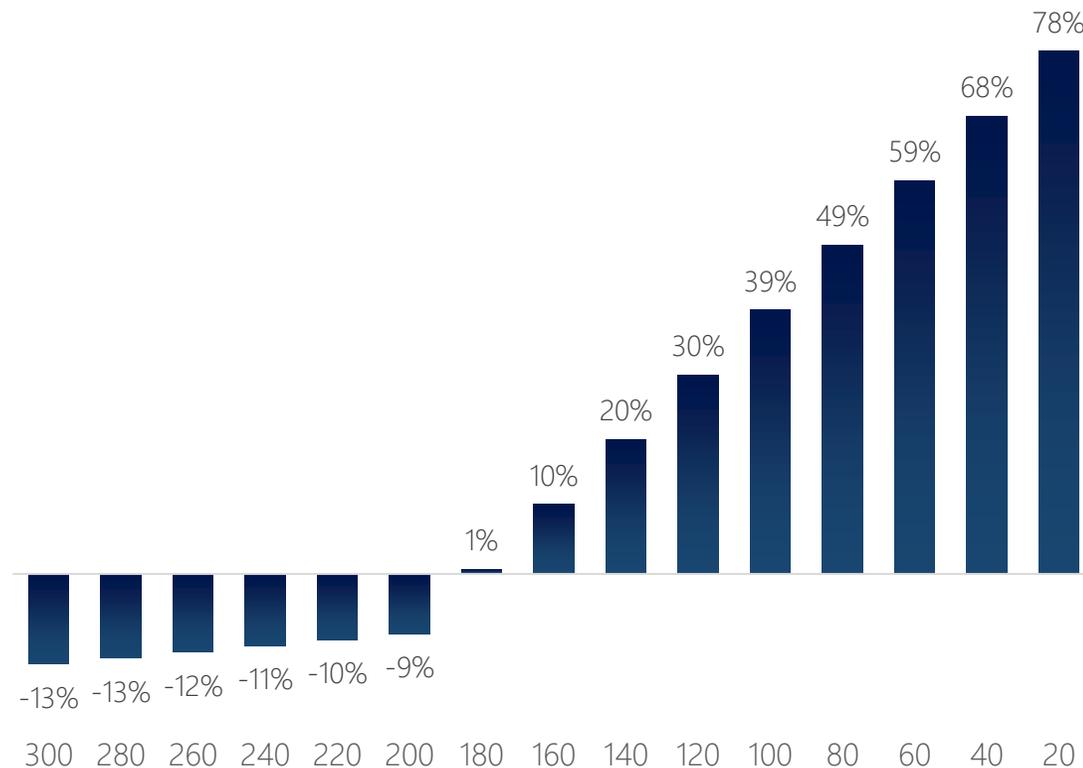
1 It significantly defends the thesis against the risk of invasion...

Upside/downside per final stock price [%]



2 ...while taking only an acceptable portion of the upside away

Change without option - change with option [%]





Appendix - Directional Strangle Overlay

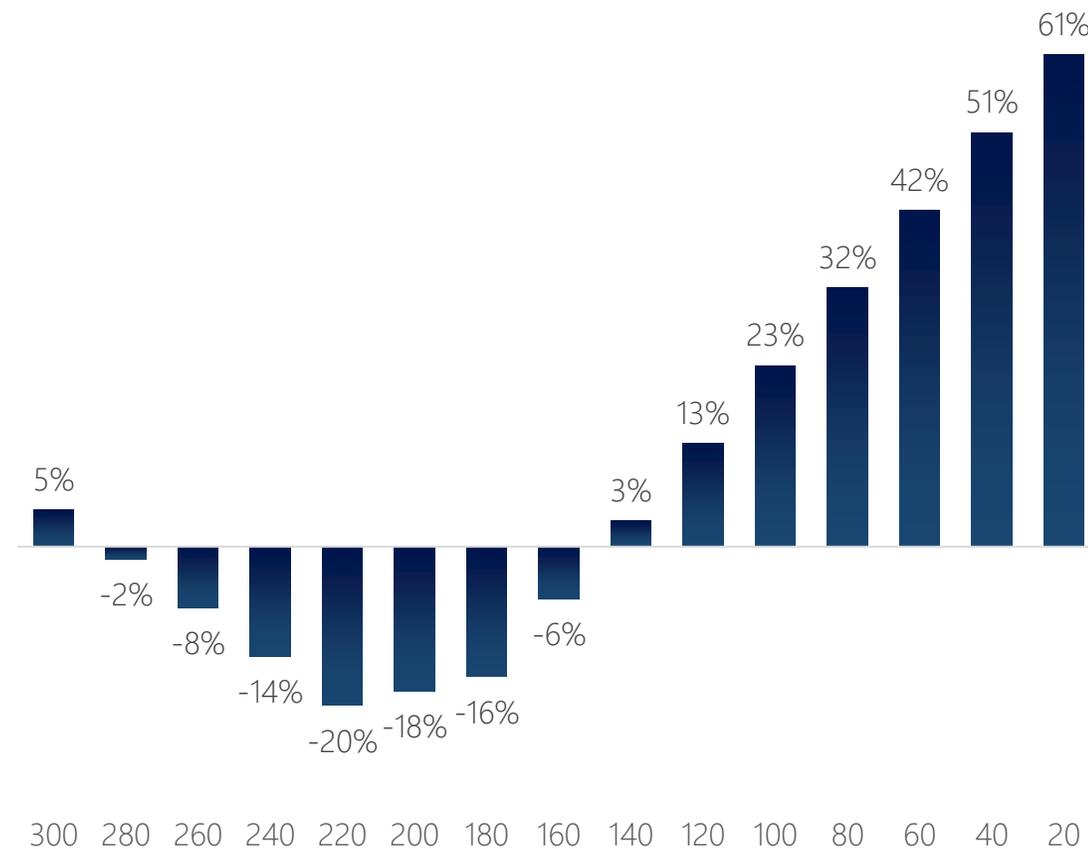
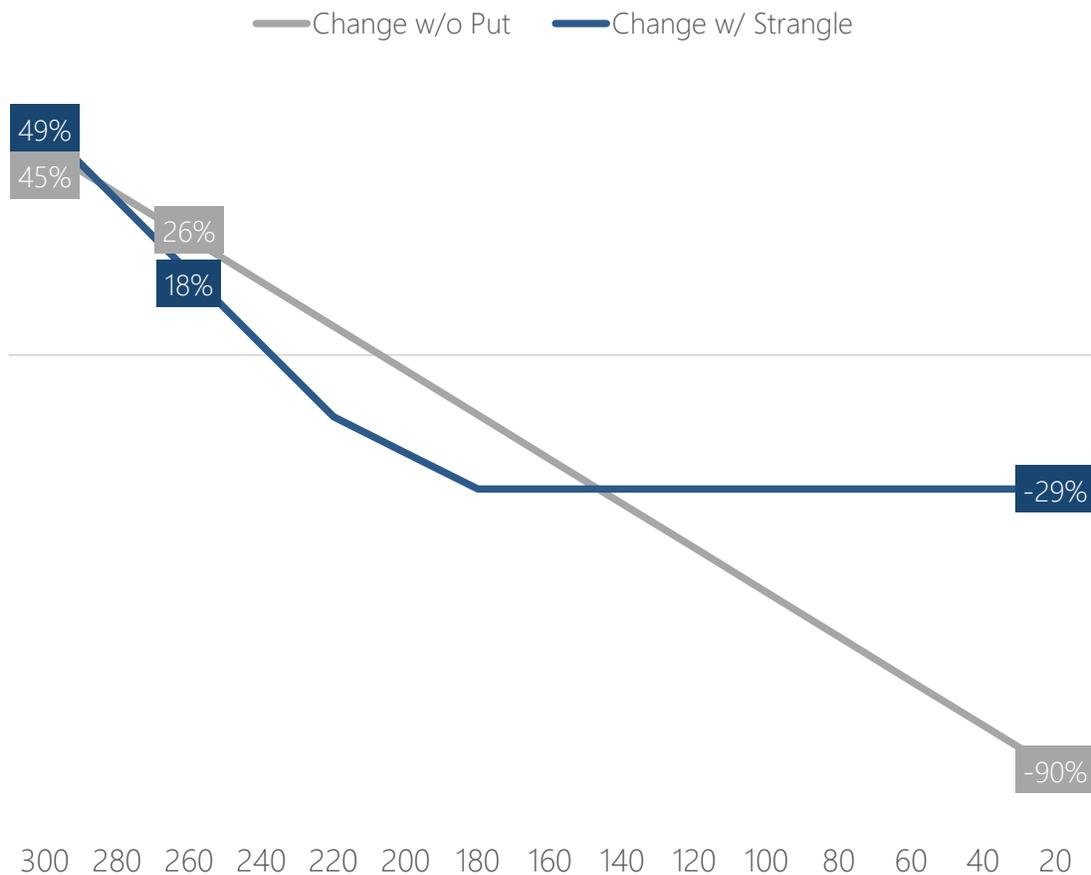
Combining a USD 220 call with a USD 180 put while still being long in the stock

1 It significantly defends the thesis against the risk of invasion...

2 ...while taking only an acceptable portion of the upside away

Upside/downside per final stock price [%]

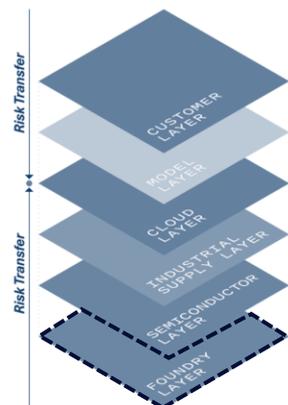
Change without option - change with option [%]





Appendix - AI Bubble Burst

1 The risk of failure in AI falls primarily on the cloud providers, in other words, the Big Techs since they are the ones investing in the future.



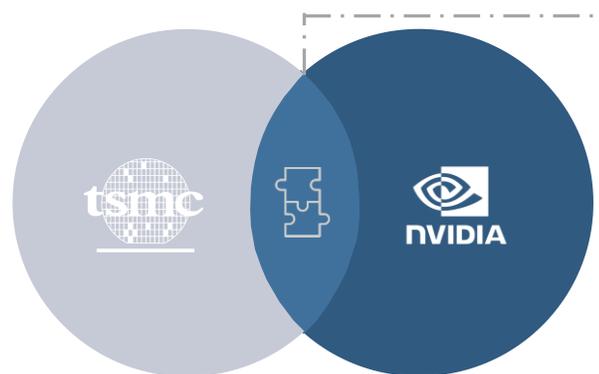
	Q4 2023 ESTIMATE	Q4 2023 ACTUAL	Q1 2024 ACTUAL	Q4 2024 ESTIMATE
NVDA Data Center Run-Rate Revenue	\$50	\$74	\$90	\$150
Data Center Facility Build and Cost to Operate	50%	50%	50%	50%
Implied Data Center AI Spend	\$100	\$147	\$181	\$300
Software Margin	50%	50%	50%	50%
AI Revenue Required for Payback	\$200	\$294	\$363	\$600

AI CAGR	0%	10%	20%	40%
Upside	10%	13%	17%	31%

3 Today, the big cloud giants are acting as risk-absorbers in this system. They absorb risk from their downstream partners Nvidia and TSMC



2 TSMC is the most insulated player from Big Tech's CapEx reductions, as it only has incentive to expand once their customers has already secured the revenue.



TSMC wonderful position

Nvidia wants TSMC to expand capacity aggressively to avoid shortages, while TSMC prefers to build just enough to meet demand. TSMC holds the power in the relationship as the leading foundry. As a result, we should expect TSMC to consistently underbuild relative to peak AI demand

4 Big Tech companies either due to AI optimism or oligopolistic competition are stepping in to absorb this risk and keep CapEx cranking.

Sundar Pichai quote



“ This is an important and historic moment. I think when history looks back it will see this as the beginning of a golden age of innovation. **The biggest risk could be missing out.** Every generation worries that the new technology will change the lives of the next generation for the worse and yet, it’s almost always the opposite ”

Sundar Pichai, CEO of Alphabet/Google, at the AI Action Summit 2025

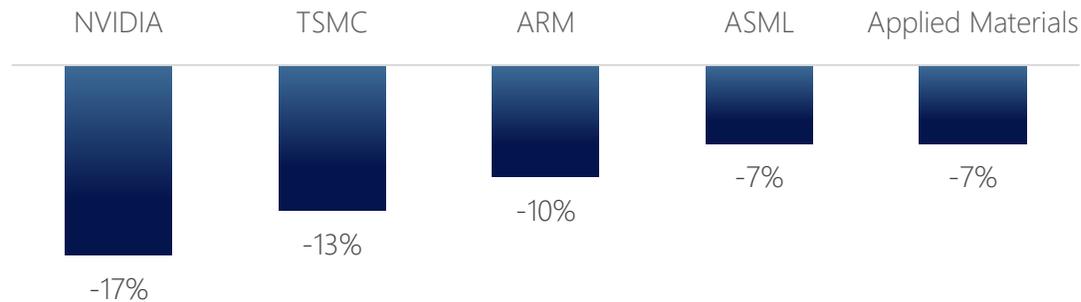


Appendix - Reasoning and DeepSeek

Quite the opposite, we see DeepSeek as an opportunity for TSMC, since it will demand greater computational power

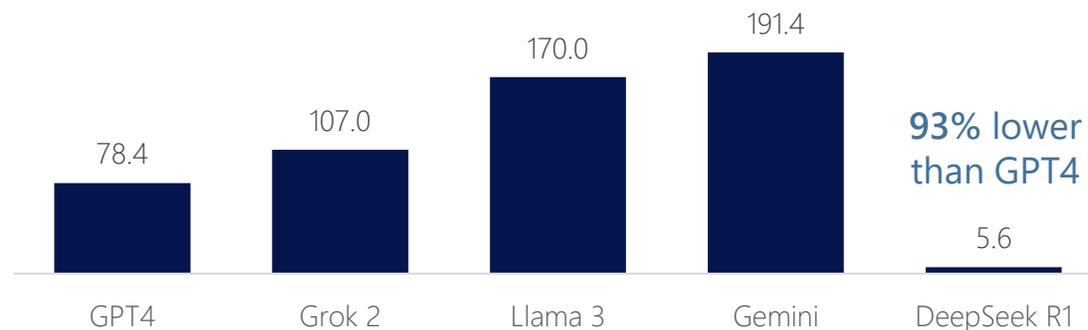
1 With the launch of DeepSeek, the market heavily punished companies related to the AI sector...

1-day price move at 27 Jan 2025 [%]



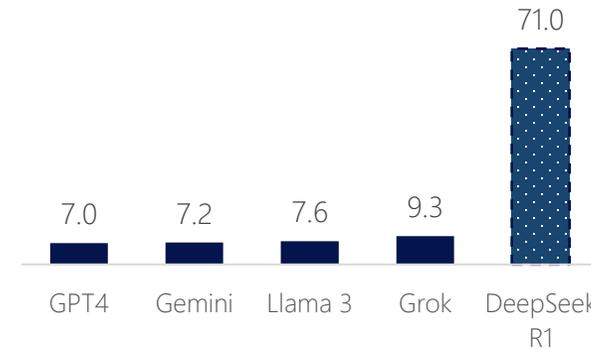
2 ...this is because the reported training cost of the Chinese model was 93% lower than that of those already active in the market.

Cost of training [USD mn]



3 Despite this, the reasoning model thinks through the answer as it generates it, which consumes significantly more tokens and compute power.

Tokens used to run all evaluations in the Artificial Analysis Intelligence Index [mn]



How does reasoning work?

Tokens are text units used by language models. Reasoning models “think aloud”: they break problems into steps, explore options, self-review, and explain their logic. This multi-step process generates far more tokens and demands significantly more compute than models that provide direct answers.

4 In this way, TSMC ends up benefiting from an increase in chip sales volume to support this greater demand.

Jensen Huang quote



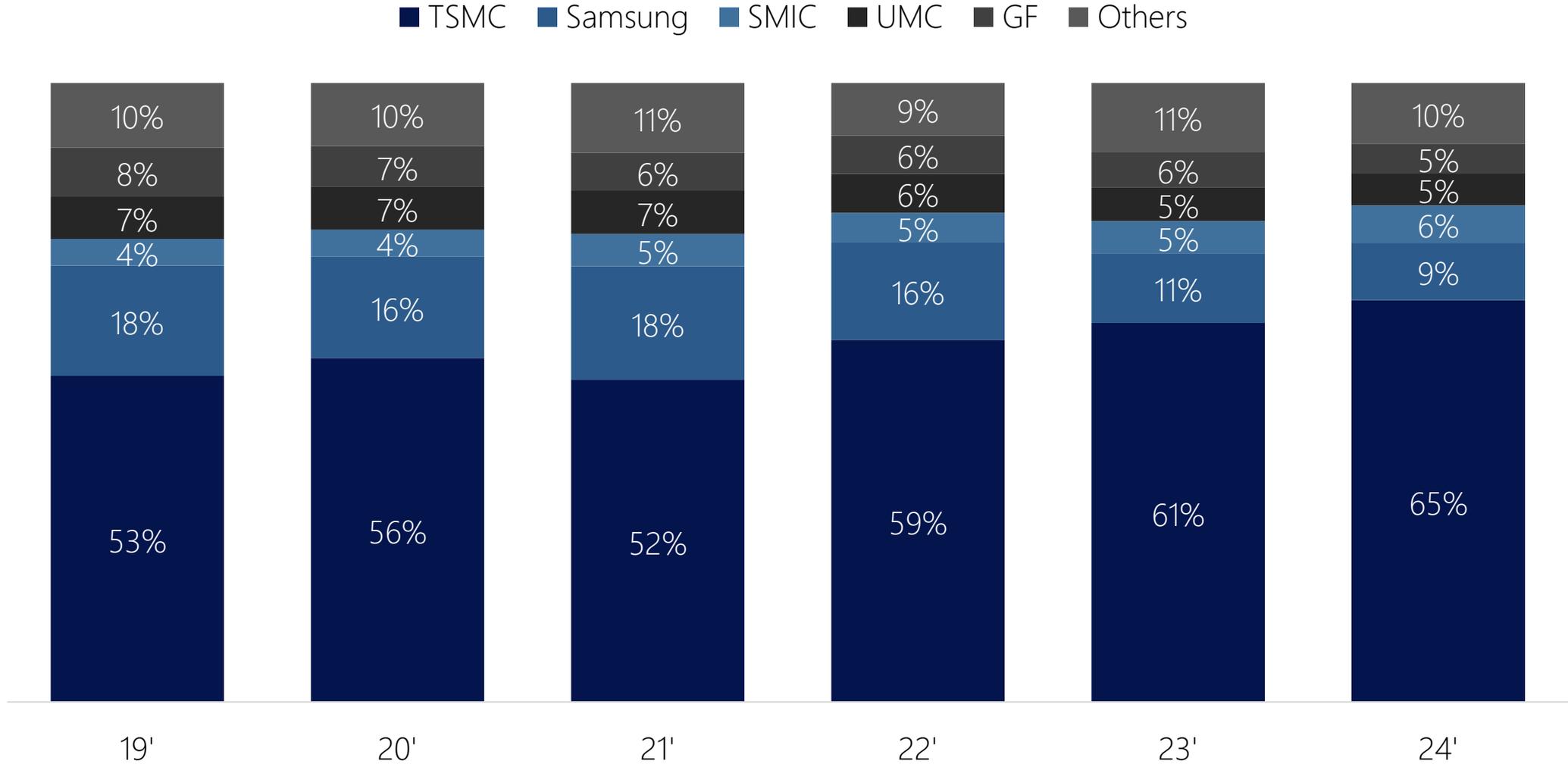
“ What makes R1 incredible is that it reasons. That’s why the answer is so good and it breaks the problem down step by step. It asks itself while it’s thinking, it comes up with several different options for the answer. **This reasoning AI consumes 100x more compute than a non-reasoning AI.** It was the exact opposite conclusion that everybody had. ”

Jensen Huang, NVIDIA CEO to Jim Cramer (CNBC) in March, 2025



Appendix - Foundry Market Share

[%]

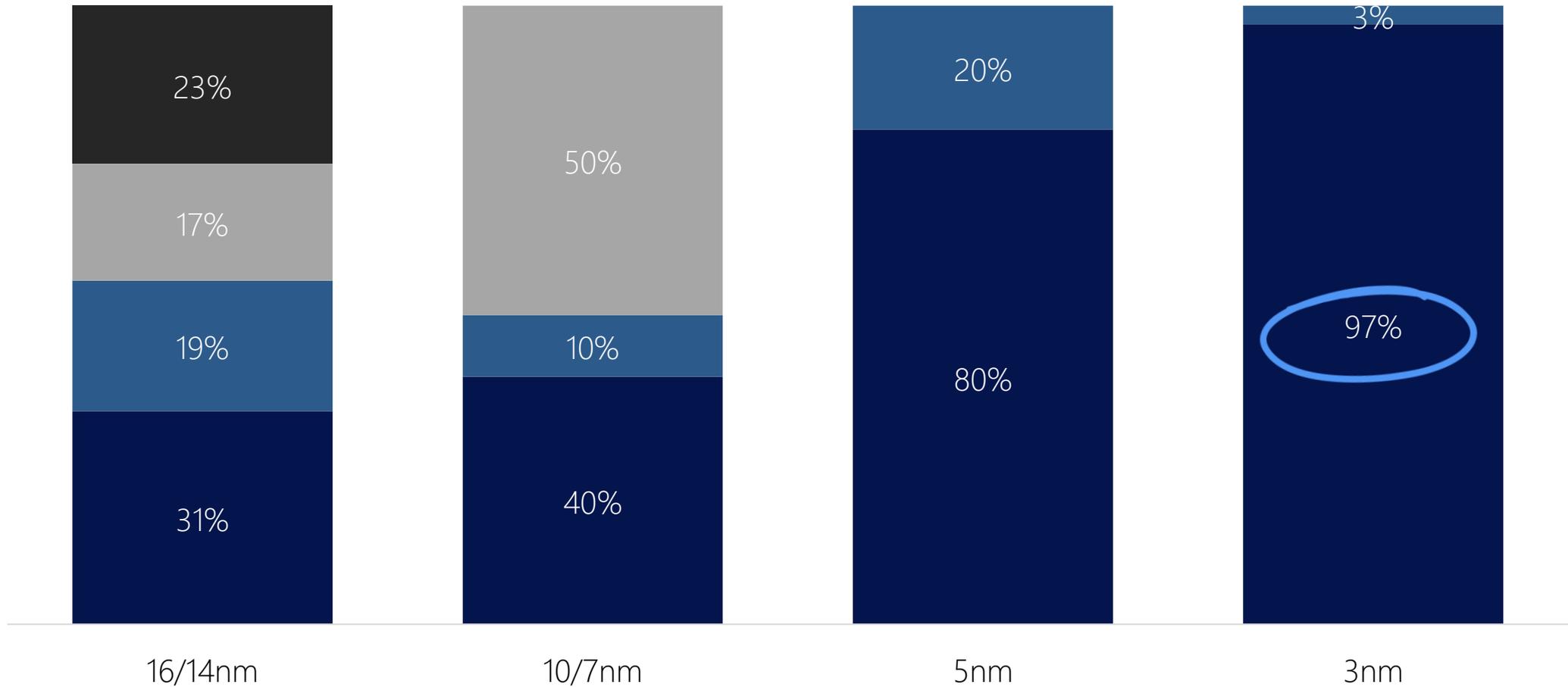




Appendix - Market Share by Node

[%]

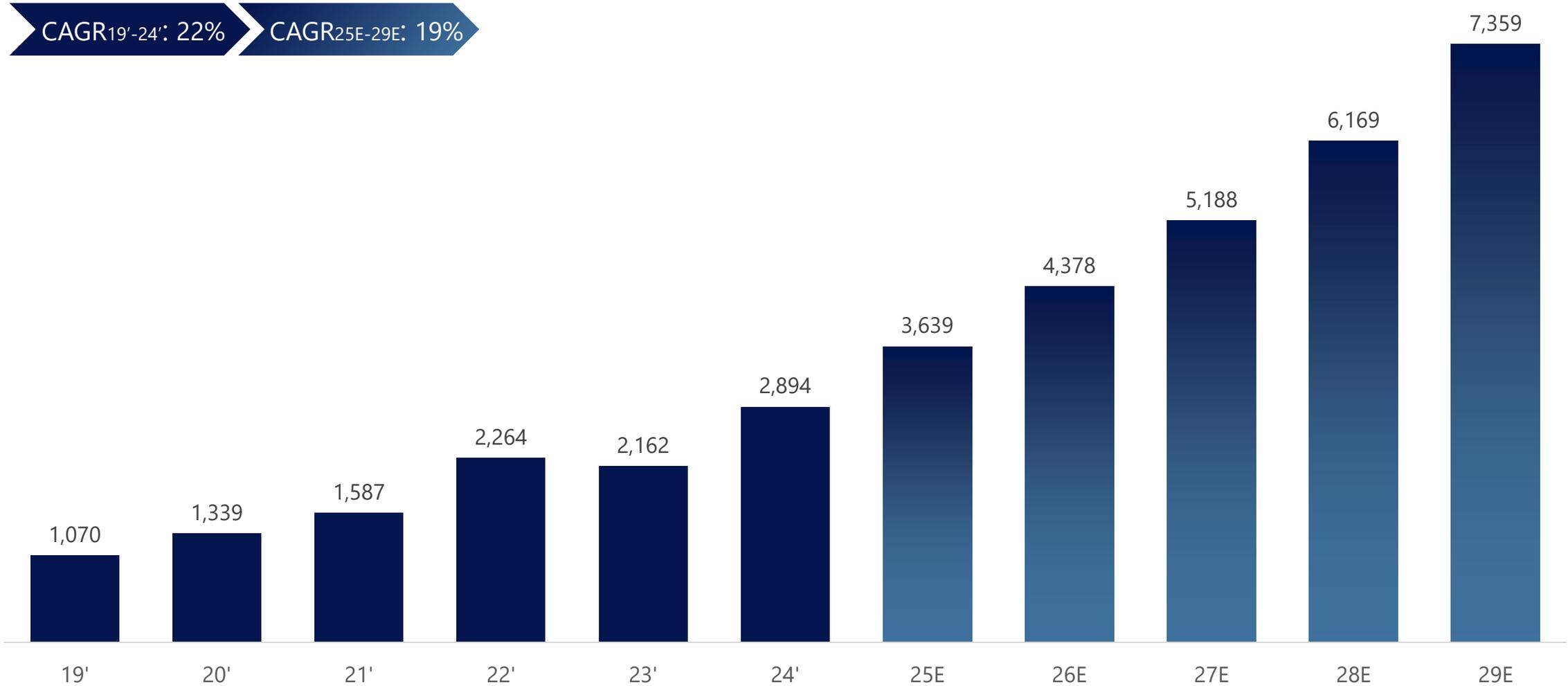
■ TSMC ■ Samsung ■ Intel ■ Others





Appendix - Revenue Evolution

[TWD bn]



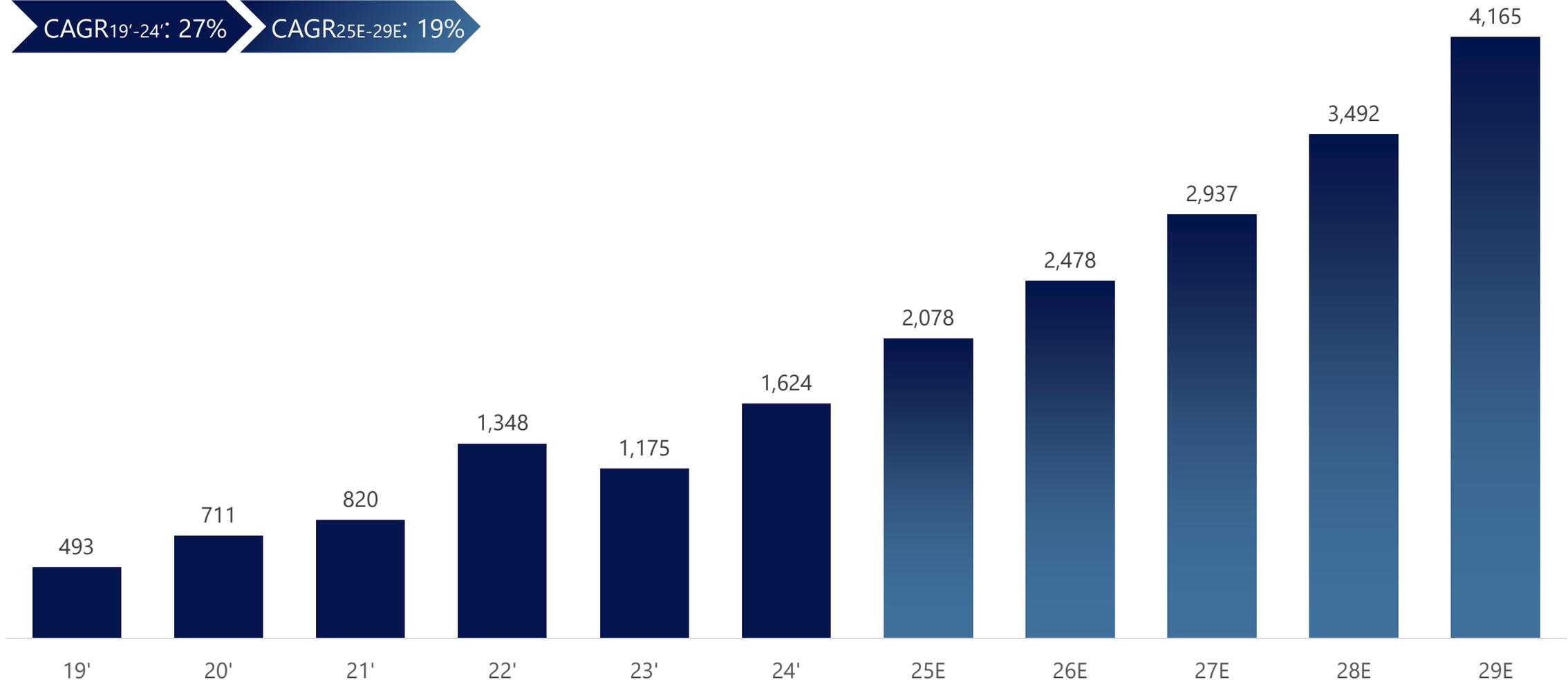


Appendix - Gross Profit Evolution

LTS CHALLENGE 2025

[TWD bn]

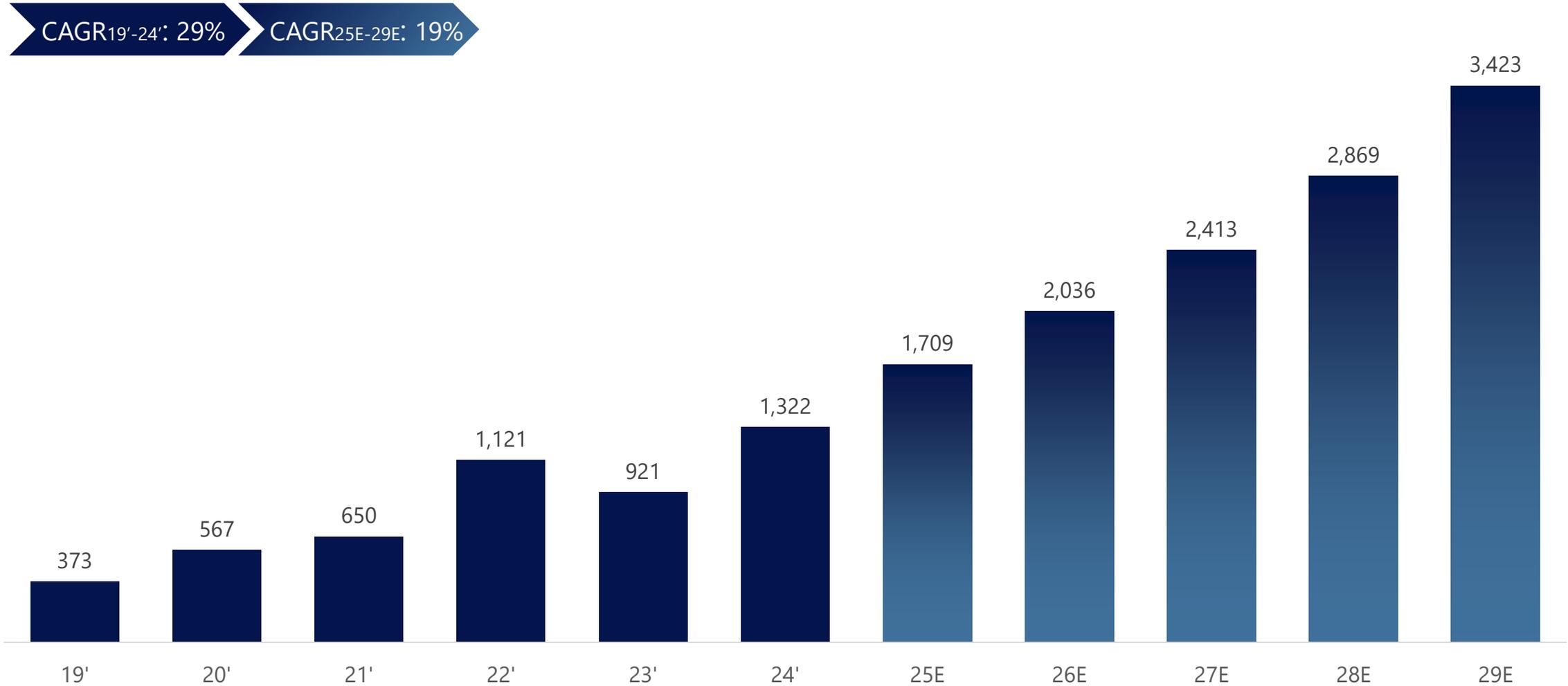
CAGR_{19'-24'}: 27% CAGR_{25E-29E}: 19%





Appendix - EBIT Evolution

[TWD bn]

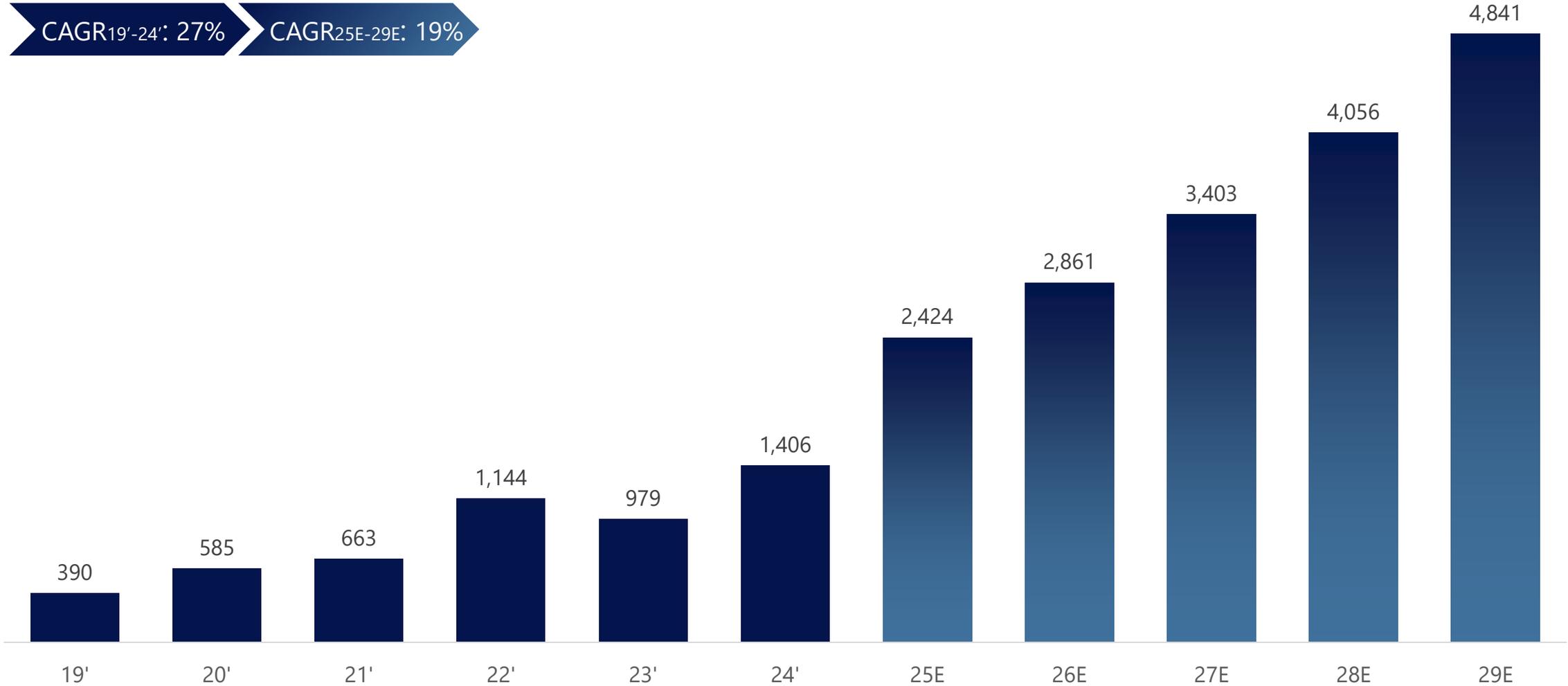




Appendix - EBITDA Evolution

[TWD bn]

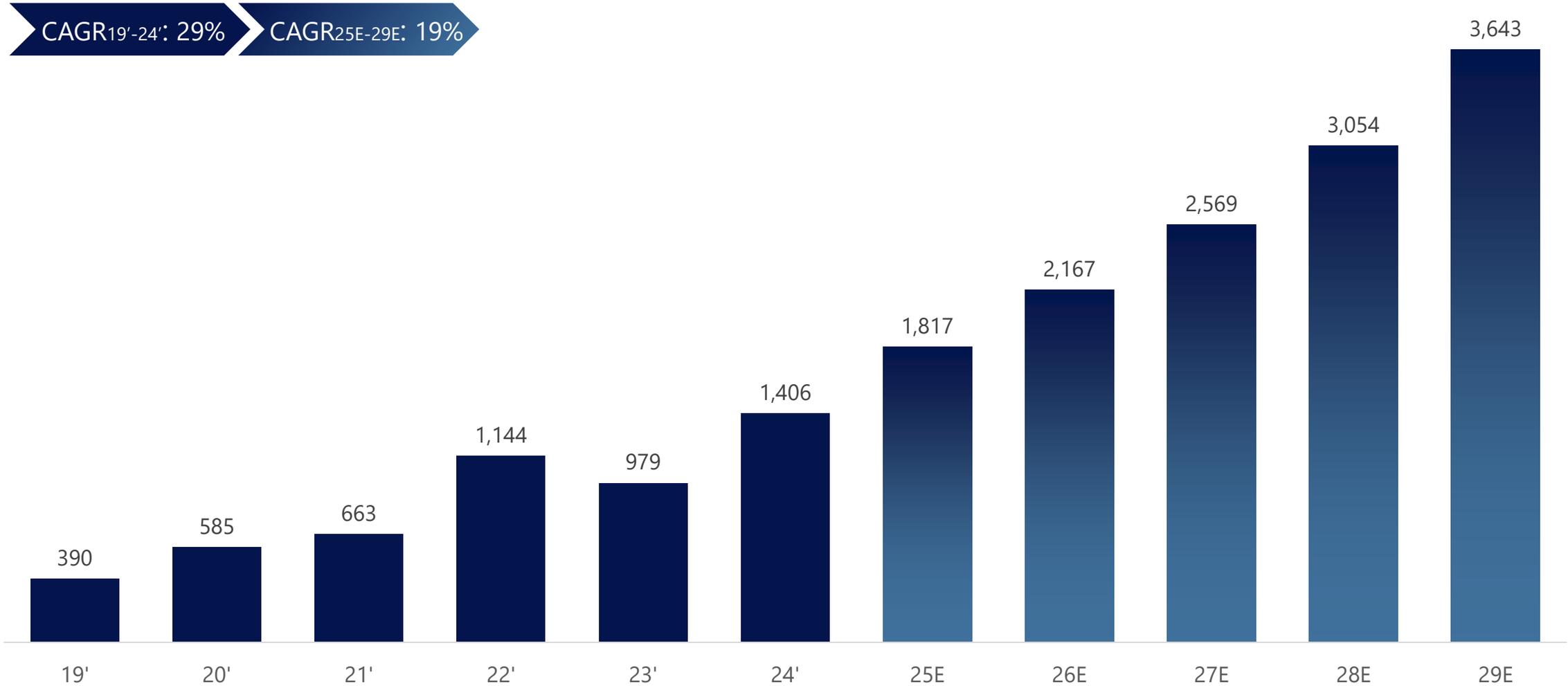
LTS CHALLENGE 2025





Appendix - EBT Evolution

[TWD bn]

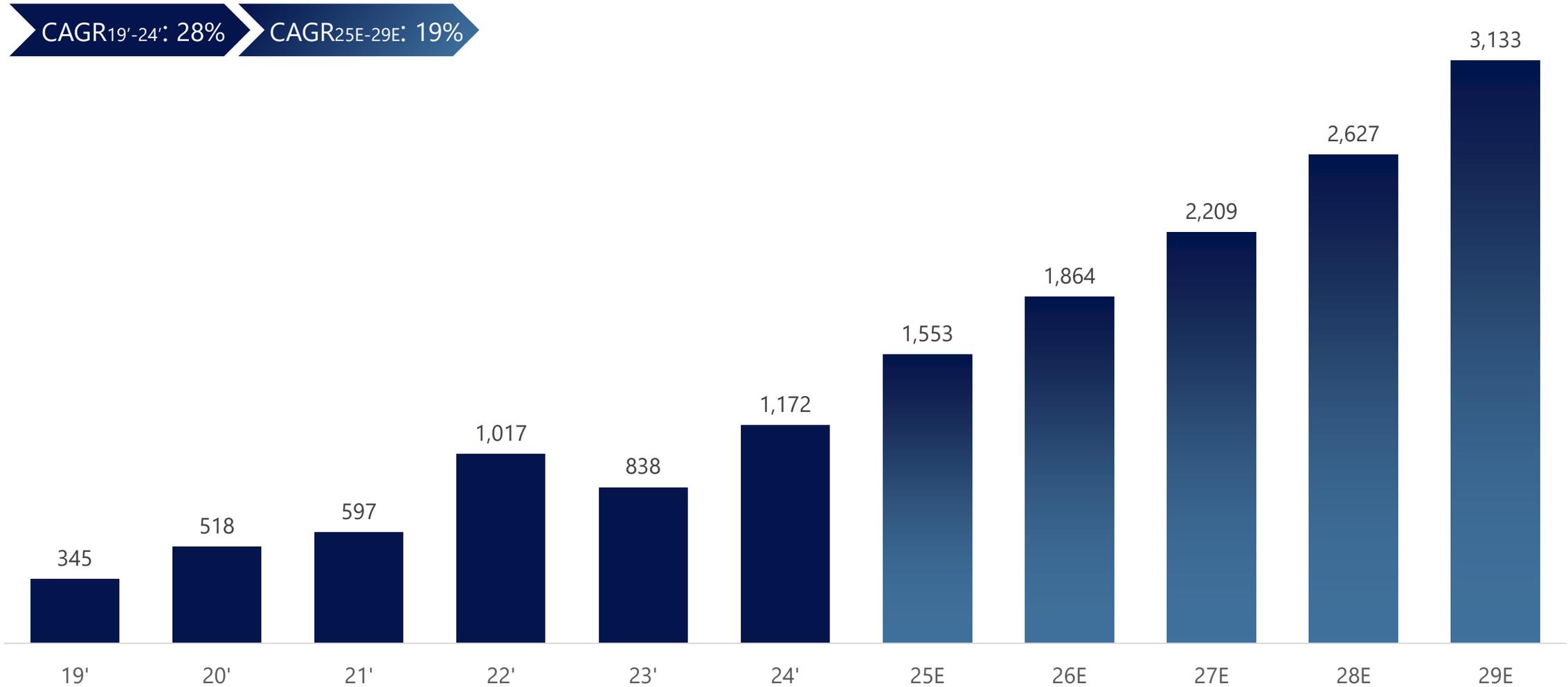




Appendix - Net Income Evolution

LTS CHALLENGE 2025

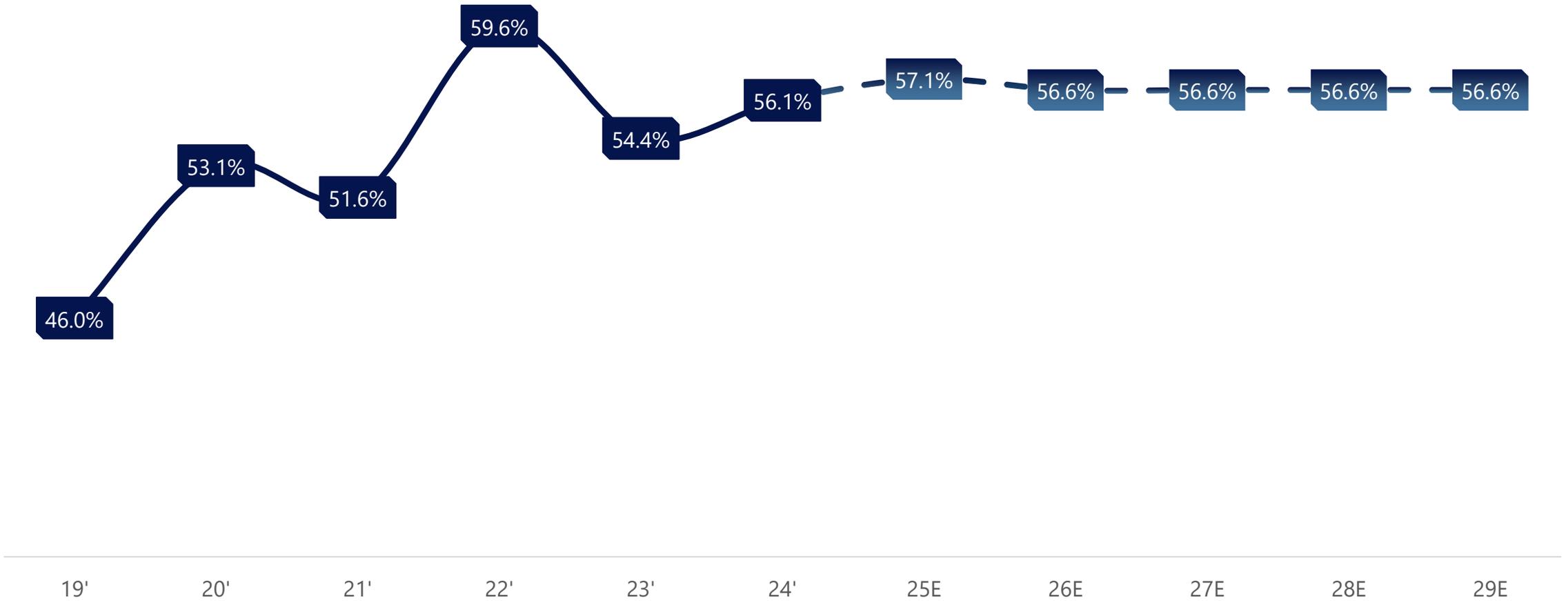
[TWD bn]





Appendix - Gross Margin Evolution

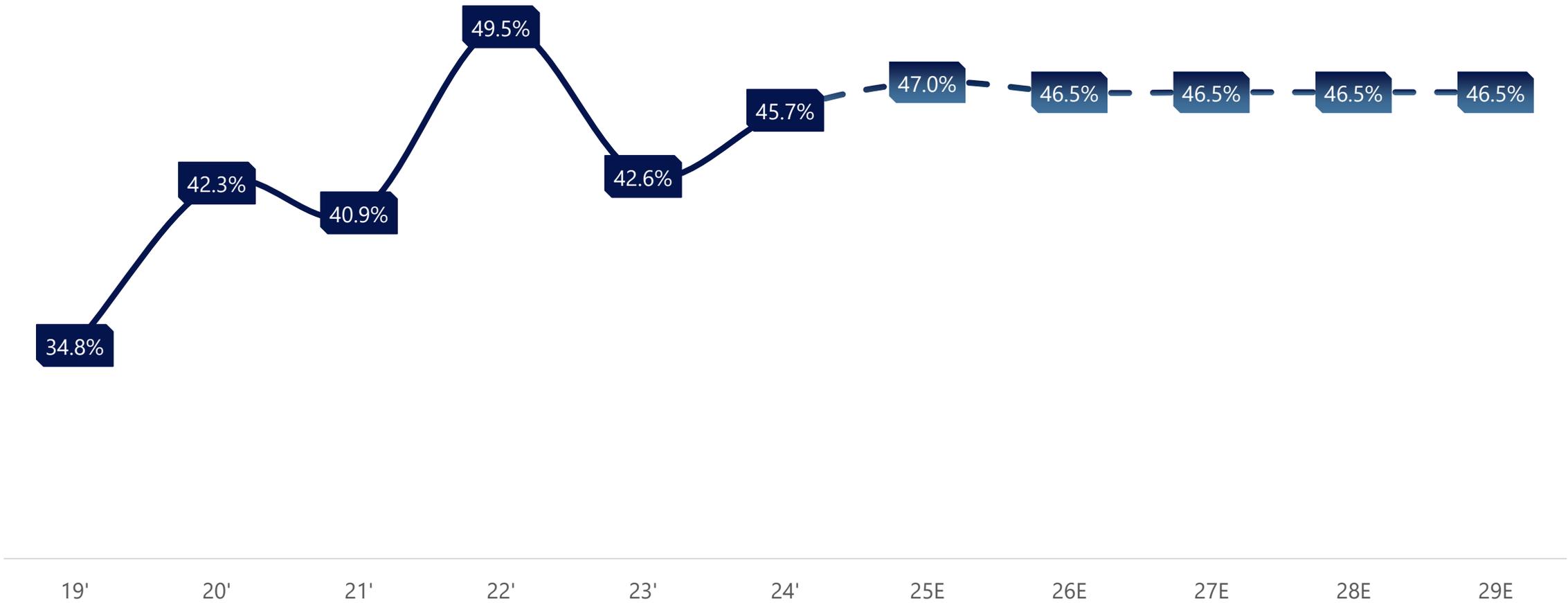
[%]





Appendix - EBIT Margin Evolution

[%]

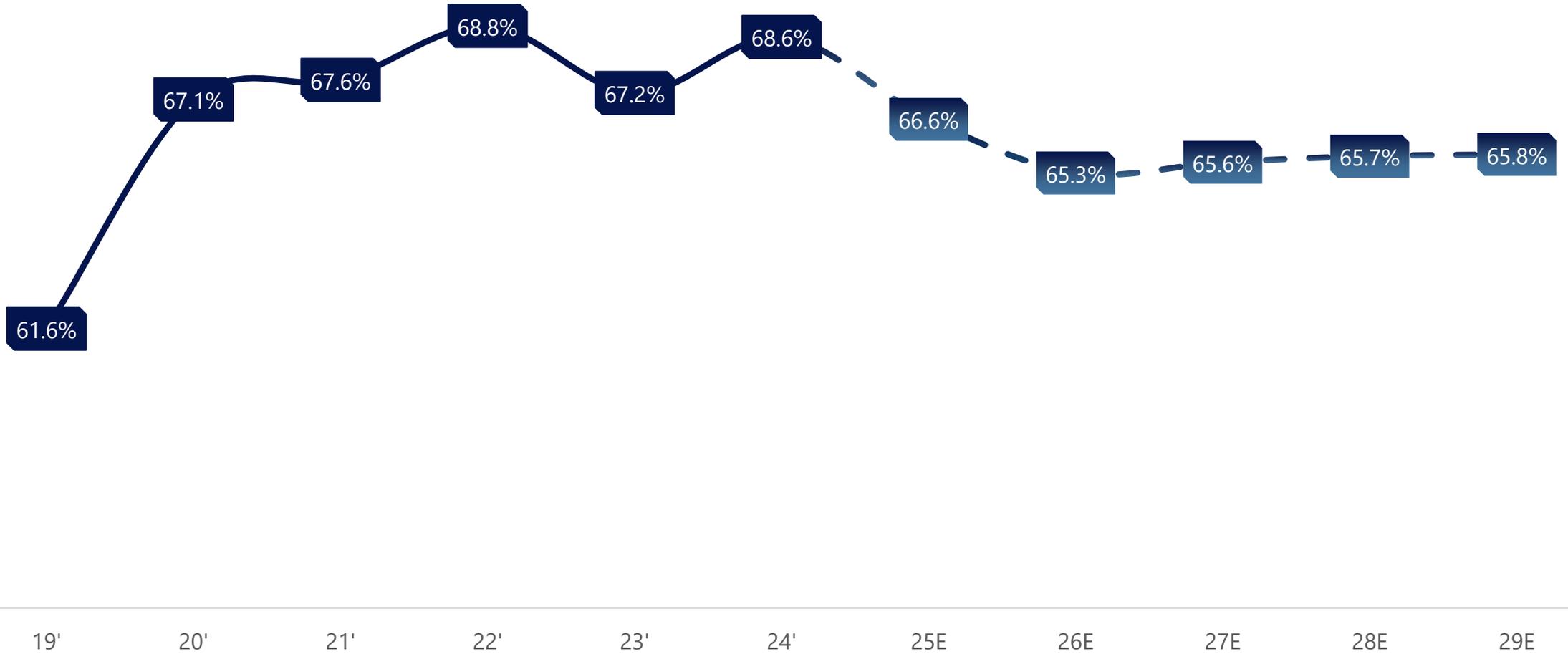




Appendix - EBITDA Margin Evolution

LTS CHALLENGE 2025

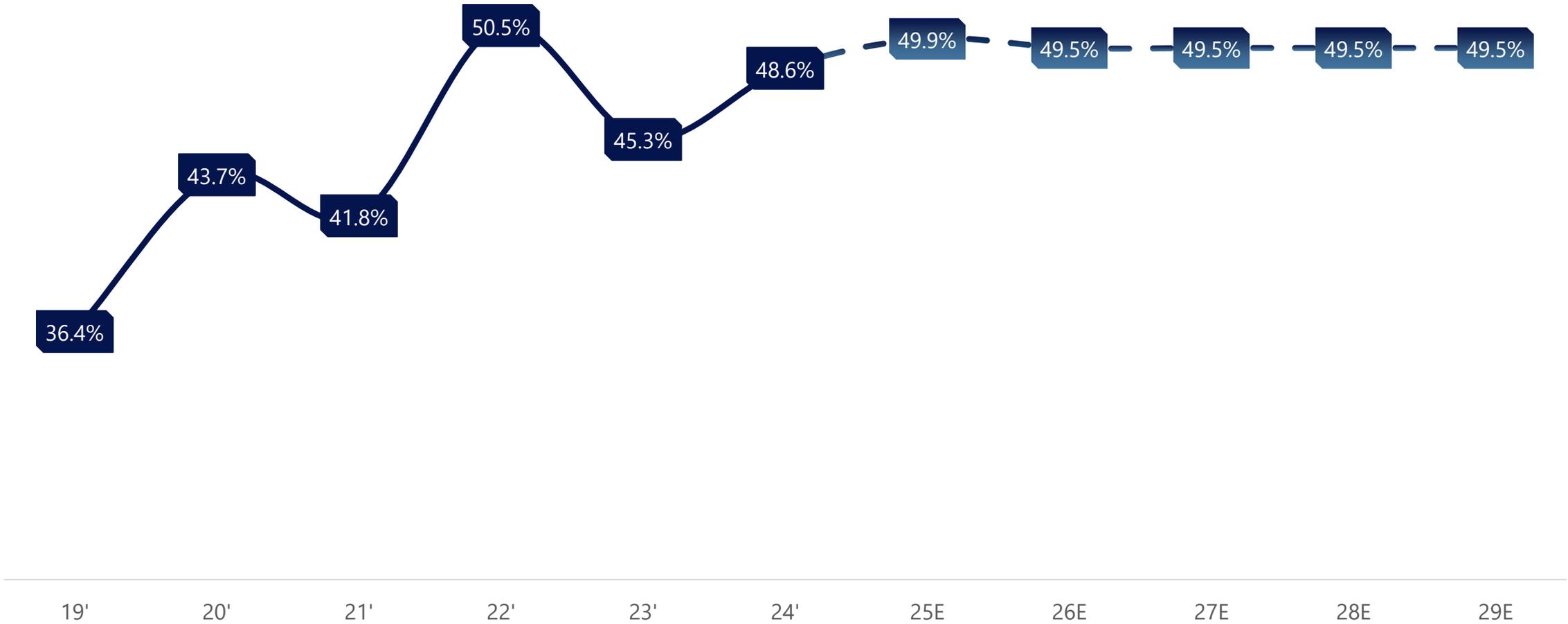
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Appendix - EBT Margin Evolution

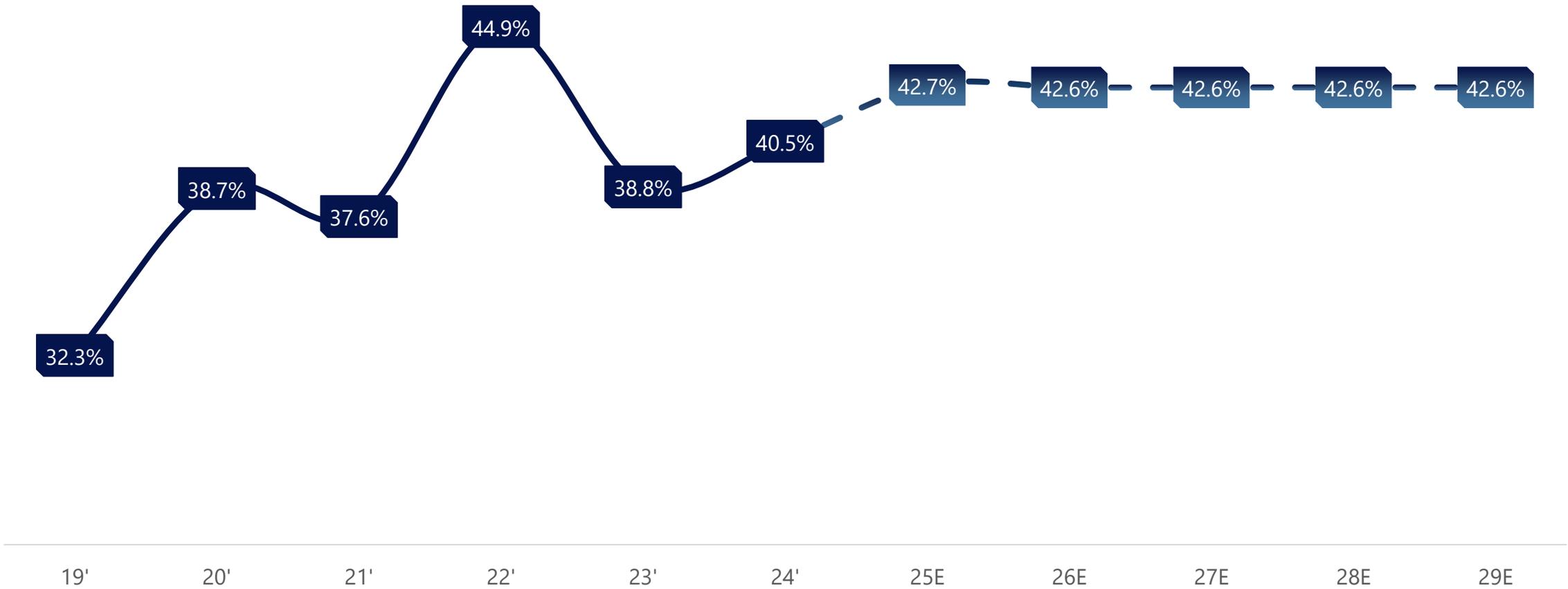
[%]





Appendix - Net Margin Evolution

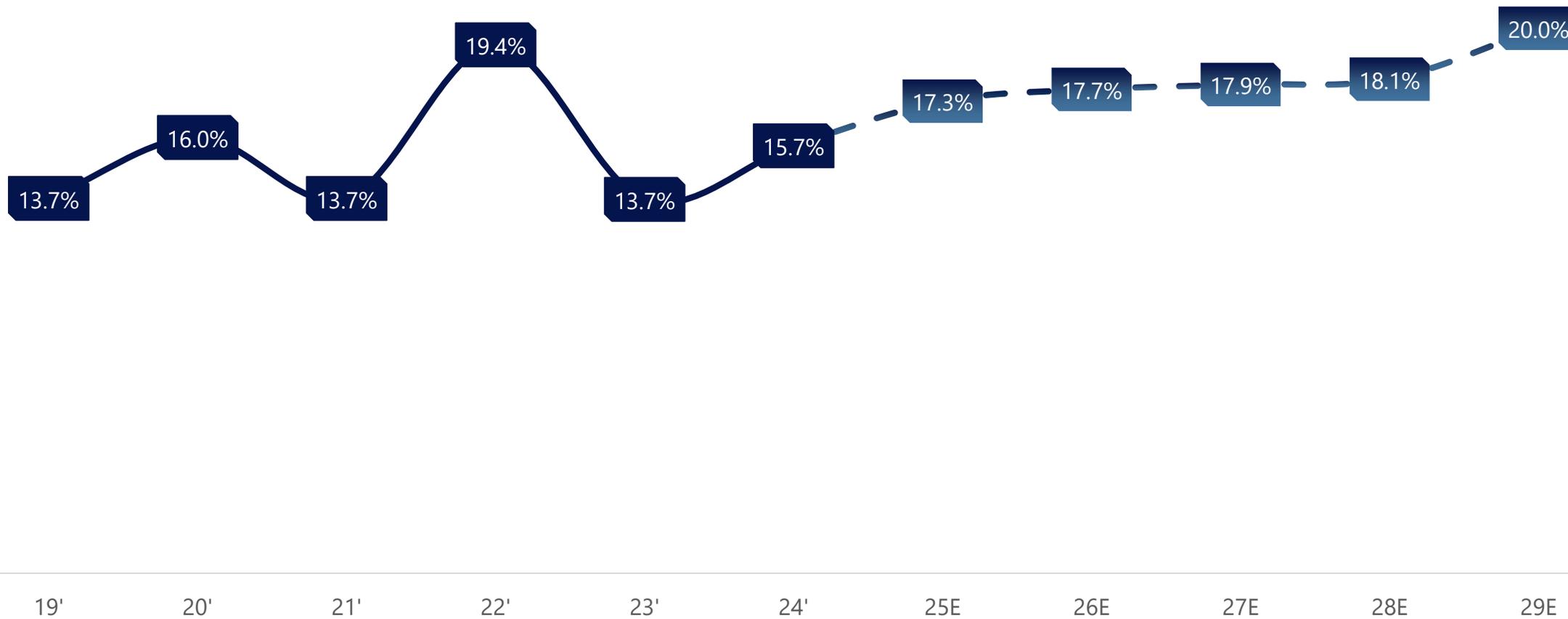
[%]





Appendix - ROA

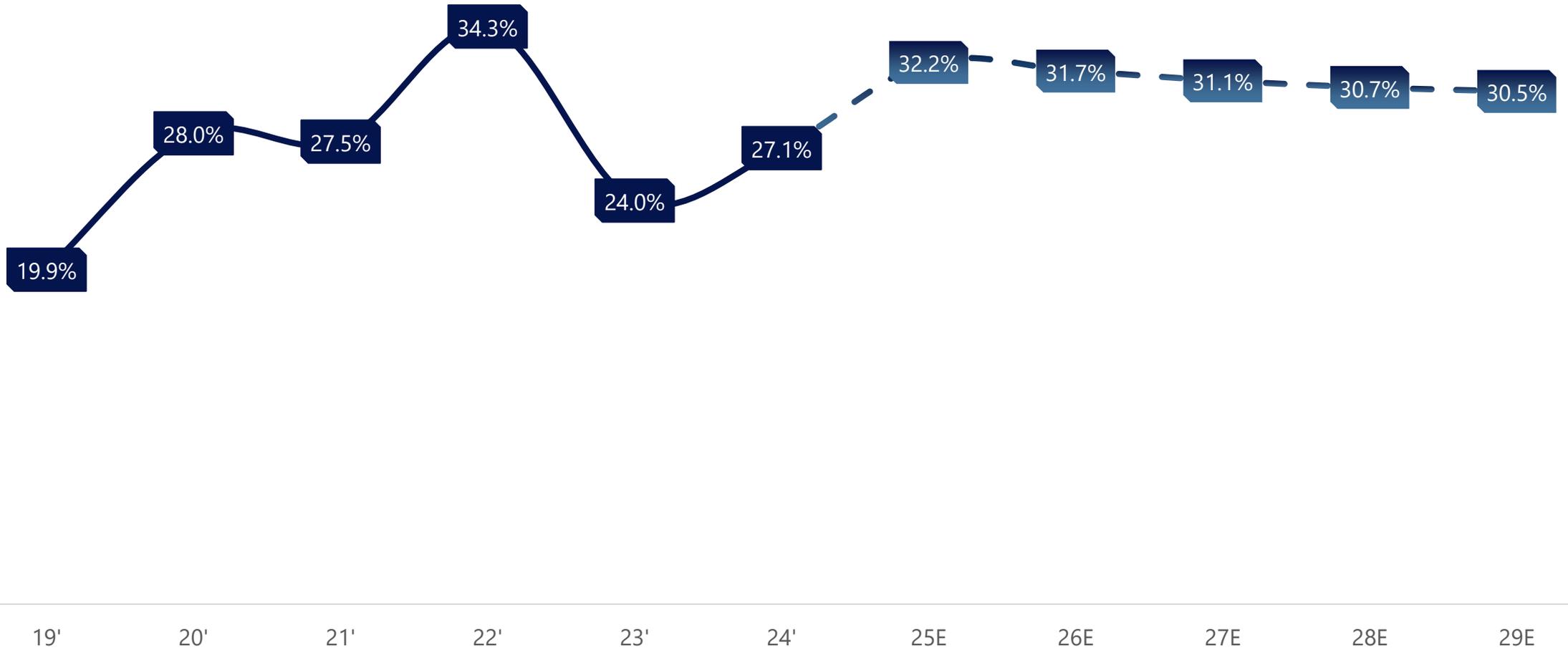
[%]





Appendix - ROE

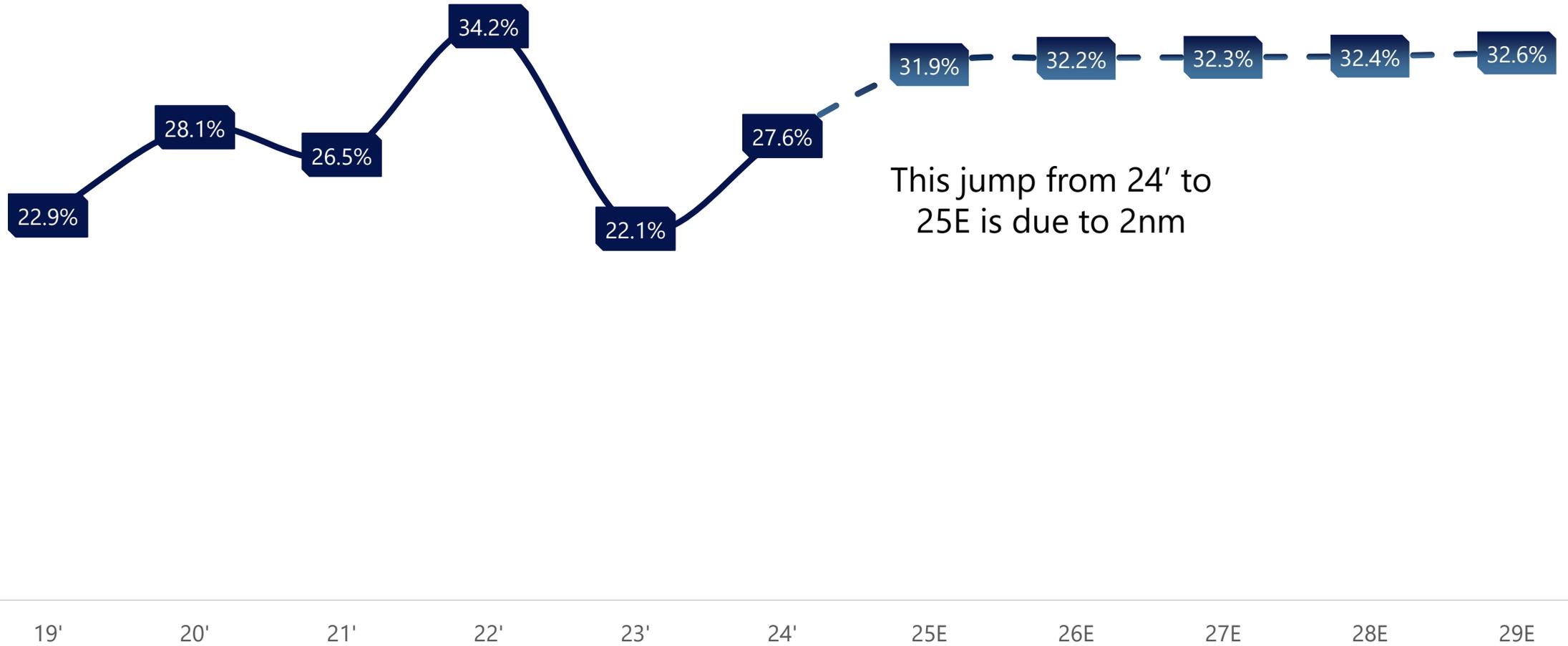
[%]





Appendix - ROIC

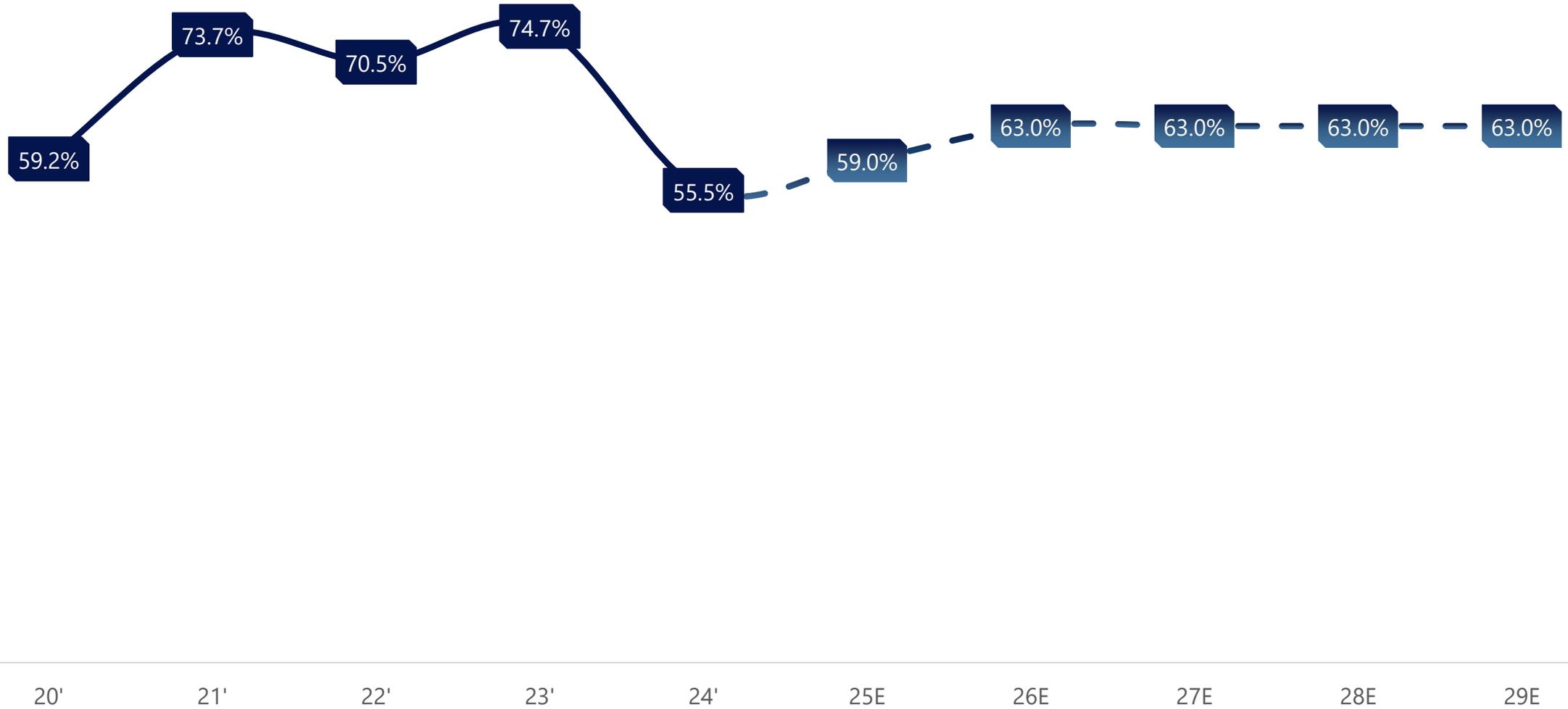
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Appendix - CapEx as % of CFO

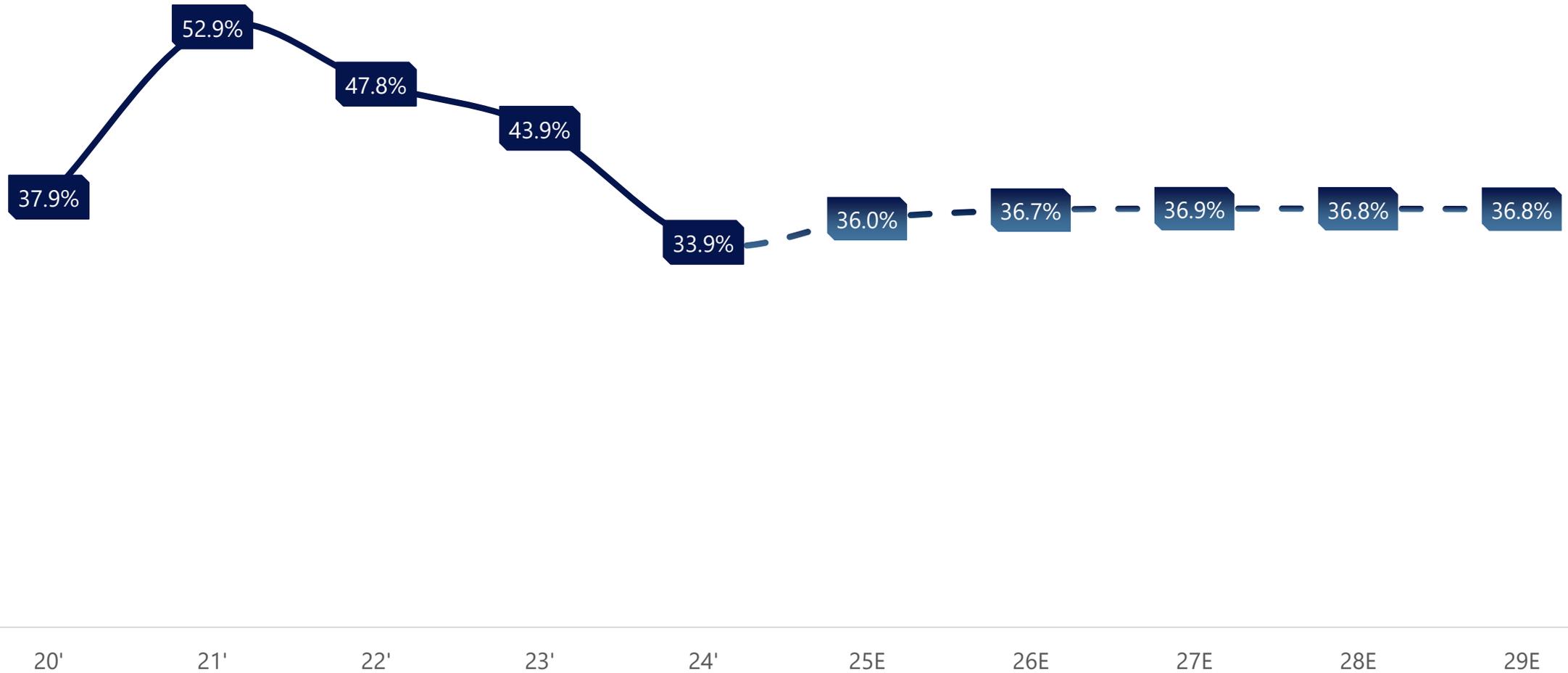
[%]





Appendix - CapEx as % of Revenue

[%]

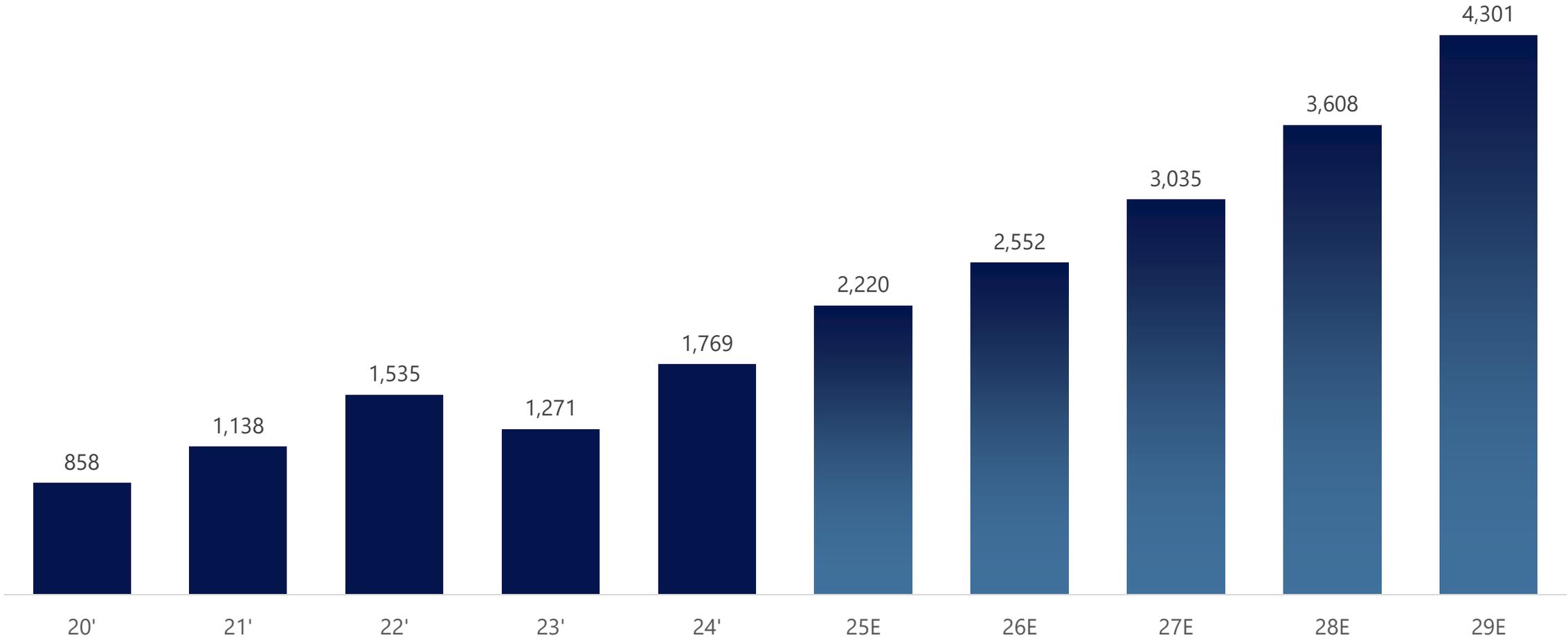




Appendix - CFO Evolution

[TWD bn]

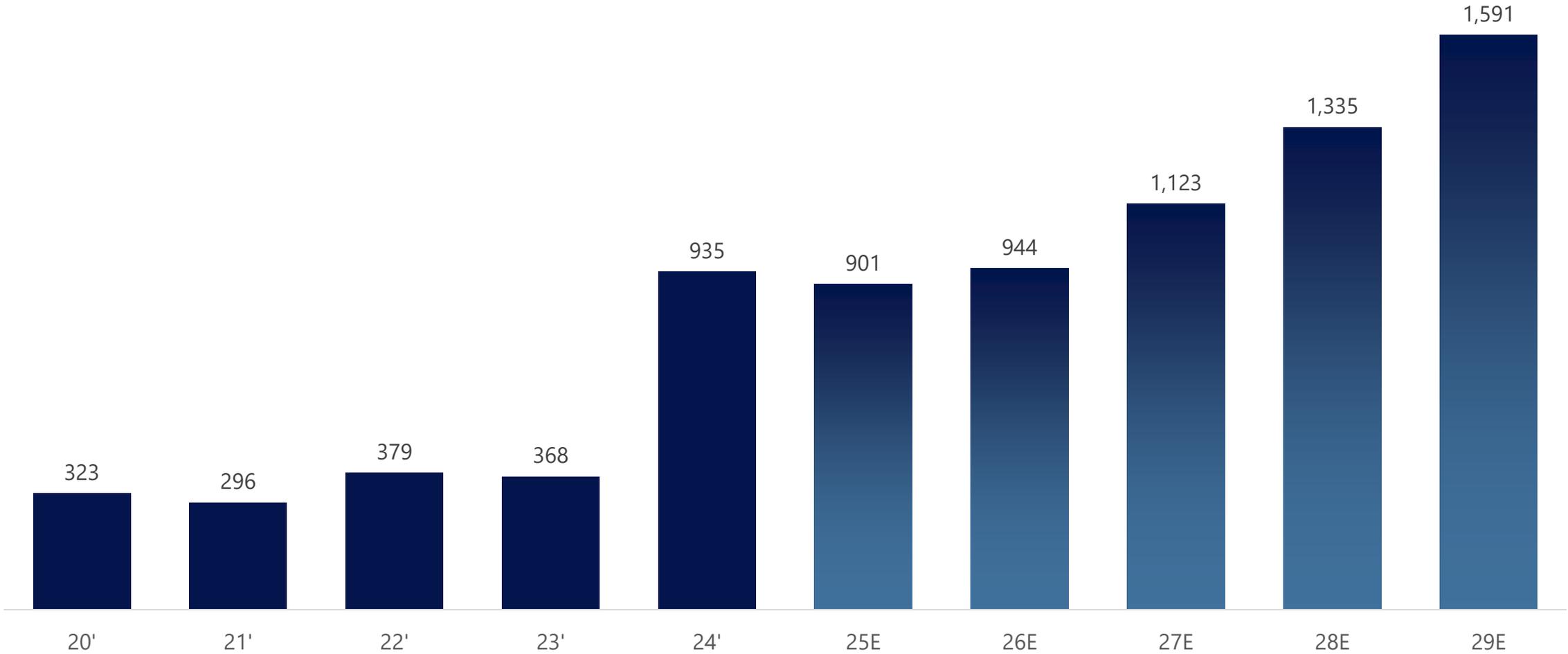
LTS CHALLENGE 2025





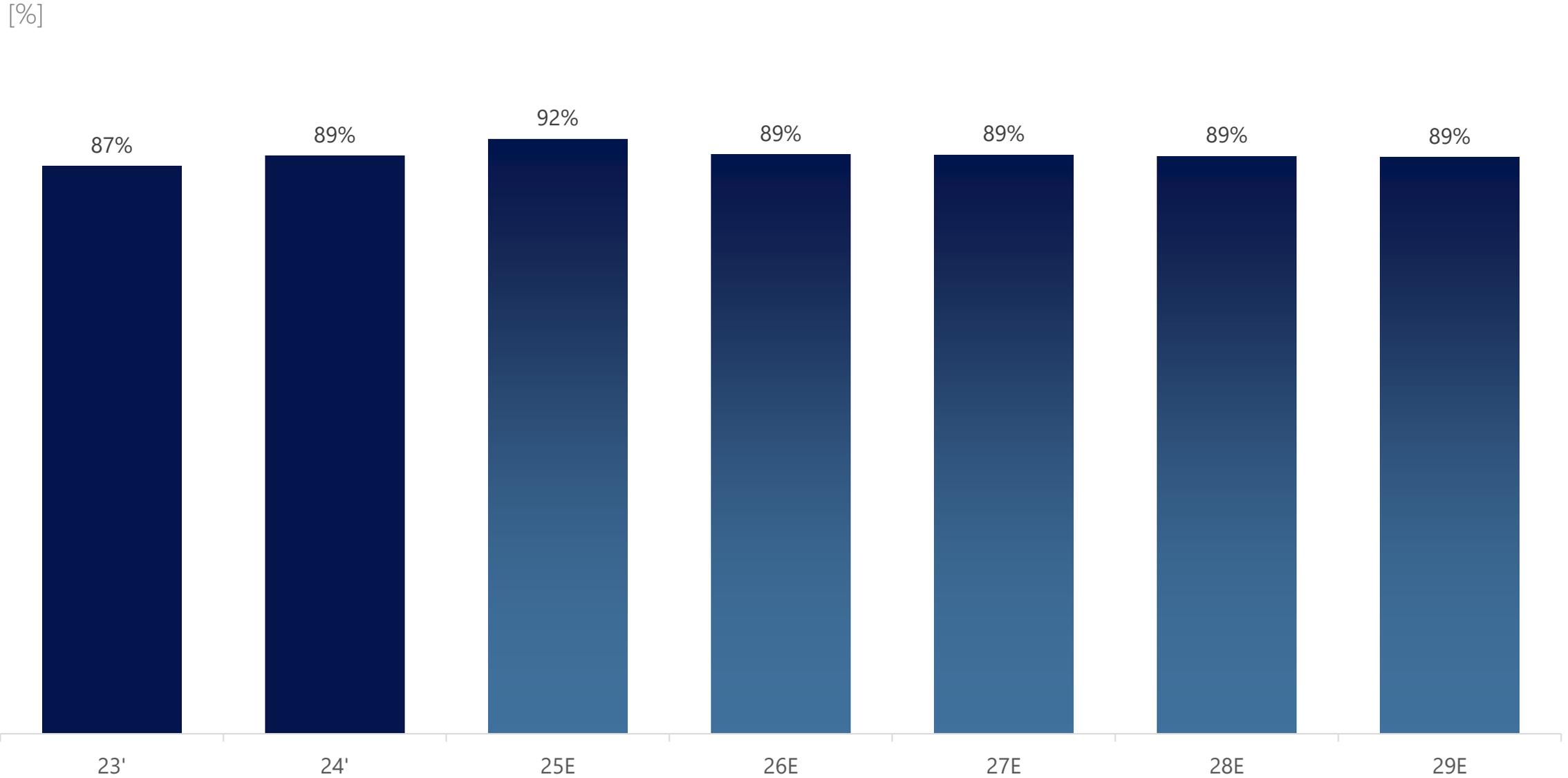
Appendix - CFO-CFI Evolution

[TWD bn]





Appendix - CFO/EBITDA

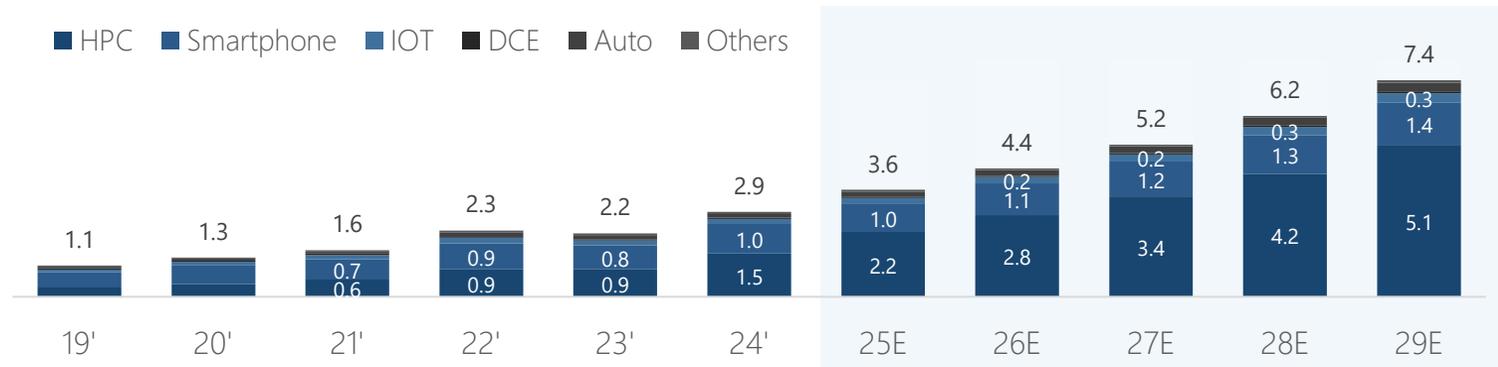




Appendix - Revenue Mix Projection (by platform)

1 We see revenue increasing sharply, reaching 7 trillion TWD by 2029, driven primarily by high-performance computing...

Revenue [TWD tn]



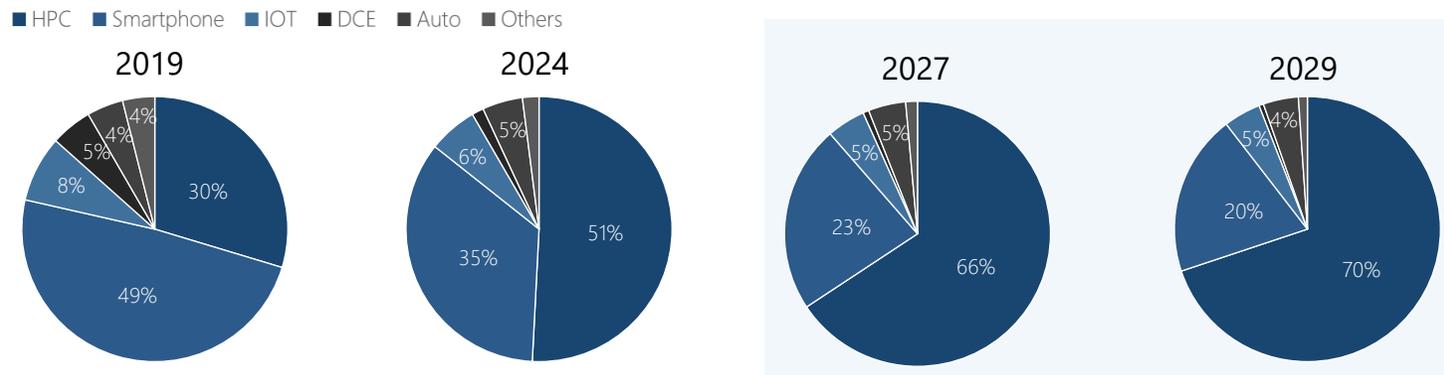
3 Since it has the highest projected CAGR, its share will only continue to increase.

Revenue CAGR [%]

	19'-24' CAGR	25E-29E CAGR
HPC	35.9%	23.6%
Smartphone	14.1%	10.4%
IOT	14.9%	17.0%
DCE	-5.1%	0%
Automotive	24.5%	15.5%
Total	21.2%	19.3%

2 ...a segment, which has been gaining share of revenue compared to the others, and according to projections will reach 70% of total revenue by 2029.

Revenue Mix [%]

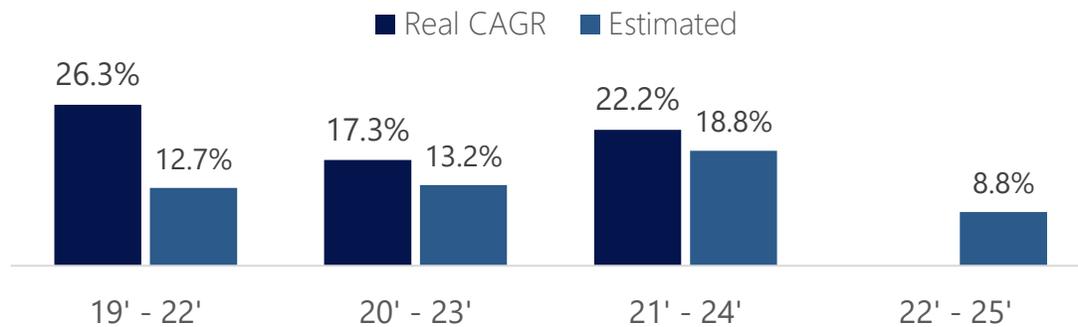




Appendix - Revenue vs. Consensus vs. Management

1 We diverge from consensus on revenue CAGR, but the consensus has not proven to be accurate in forecasting the 3-year forward revenue CAGR...

3y fwd consensus Revenue CAGR Estimation vs. Real Revenue CAGR [%]



In this analysis, we examined the percentage CAGR that sell-side analysts projected for future revenue over three years, finding that on average they err by about 5% in their CAGR estimates.

3 C.C. Wei stated that the forecast for the next five years is a 20% revenue CAGR, driven by HPC.

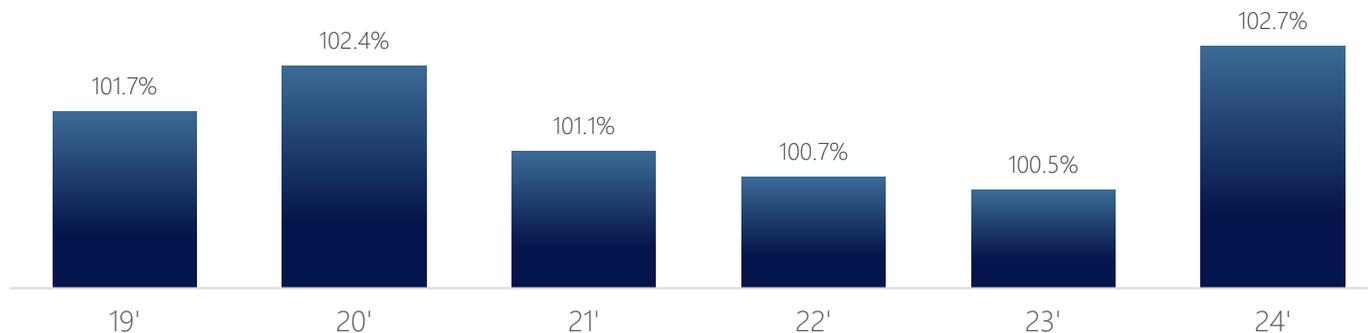


“ For the five-year period, we expect our long-term revenue growth to approach a 20% CAGR in US dollar term, fueled by all four of our growth platforms, which are smartphone, HPC, IoT and automotive. ”

C. C. Wei, TSMC CEO at Q4'24 Earnings Call on 01/16/25

2 ...so we prefer to base ourselves on those who have consistently been close and conservative over the years: the management

Revenue vs. Guidance [%]



4 We thus achieved growth close to management's expectations.

Source	Revenue CAGR 24'-29E
Altaris Capital	20%
Management	20%
Consensus	15.2%



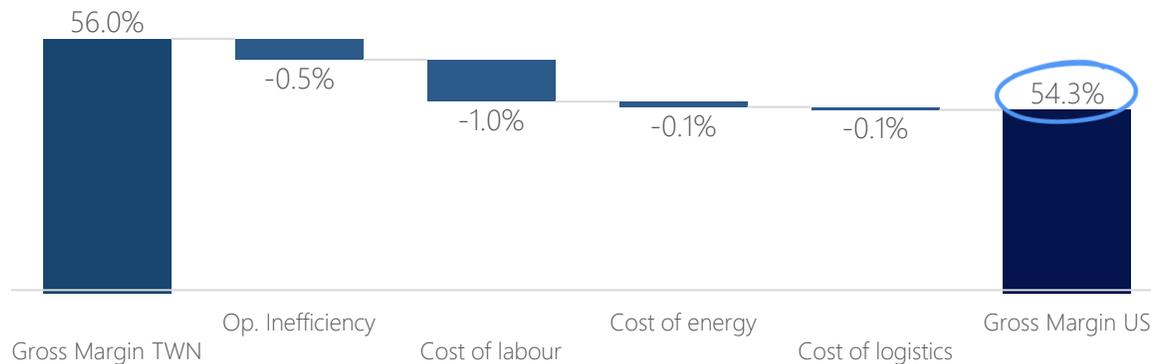
Appendix – Bear Case

1 The lower revenue in the bear case comes primarily from a deceleration in the AI segment to a 10% CAGR.

	HPC	Smartphone	IOT	DCE	Auto	Total
Base	23.6%	10.4%	17.0%	0%	15.5%	19.3%
Bear	16.6%	10.4%	12.0%	0%	10.5%	12.3%

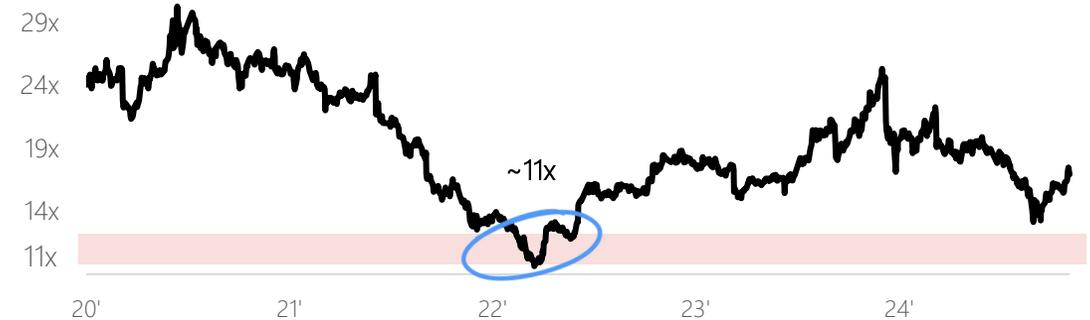
2 The margin we used is based on a TrendForce study about the maximum potential margin decline that could result from the U.S. expansion.

Loss of gross margin breakdown [%]



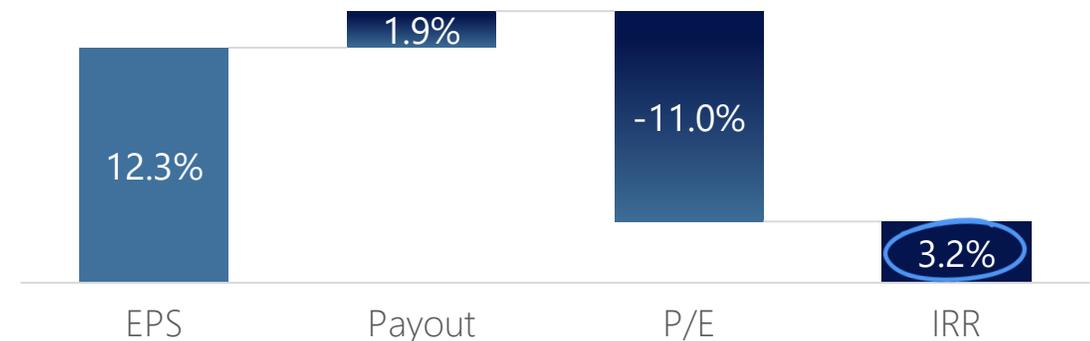
3 The 11x P/E marked the end of the shortage, when the market recognized it was cyclical rather than structural.

P/E fwd. 1y [x]



4 All of this resulted in an IRR of 3%, which carries a negative spread of over 7% relative to the cost of equity.

IRR Breakdown [%]





Appendix – Bull Case

1 The EPS CAGR in the bull case stems from a 5 percentage point increase in the AI CAGR compared to management expectations, along with growth in HPC.

	HPC	Smartphone	IOT	DCE	Auto	Total
Base	23.6%	10.4%	17.0%	0%	15.5%	19.3%
Bull	28.3%	10.4%	17.0%	0%	15.5%	22.5%

3 The 59% margins represent the company's optimistic long-term guidance.

Wendell Huang quote

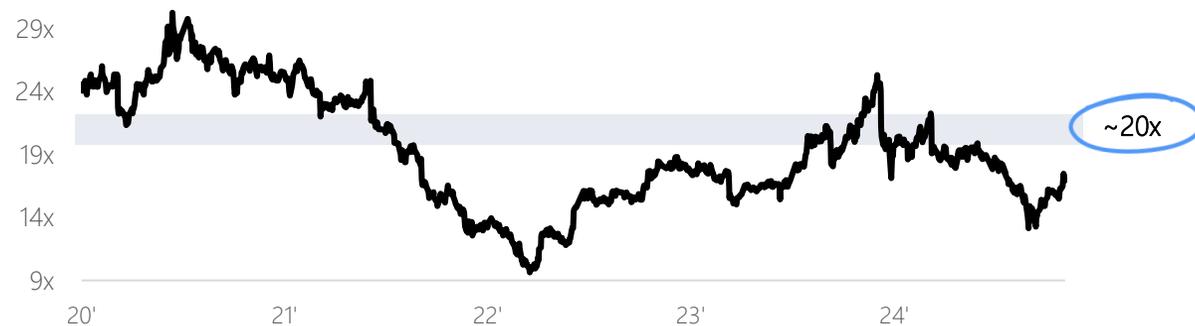


“ The company guide for gross margins between 57% and 59%, and operating margins between 46.5% and 48.5% ”

Wendell Huang, TSMC CFO at Q4'24 Earnings Call

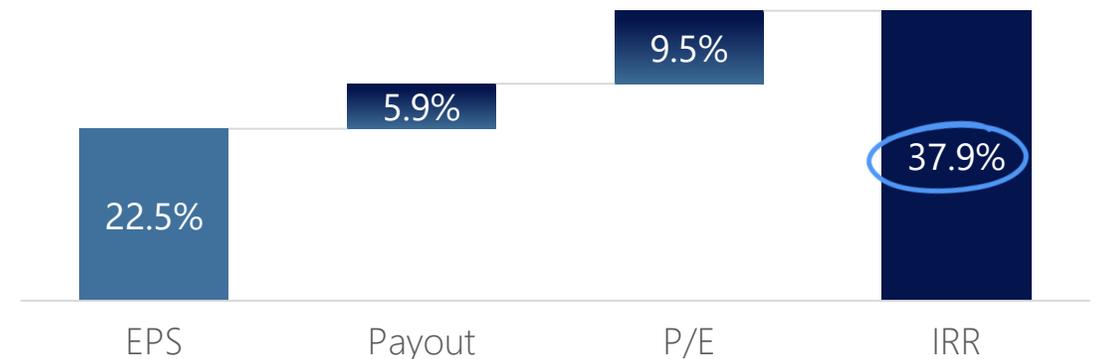
2 The P/E multiple reached 20x during periods of expected secular growth, such as the semiconductor shortage and the rise of AI and HPC.

P/E fwd. 1y [x]



4 All of this resulted in a 38% IRR, implying a spread of over 20 percentage points above the cost of equity.

IRR Breakdown [%]



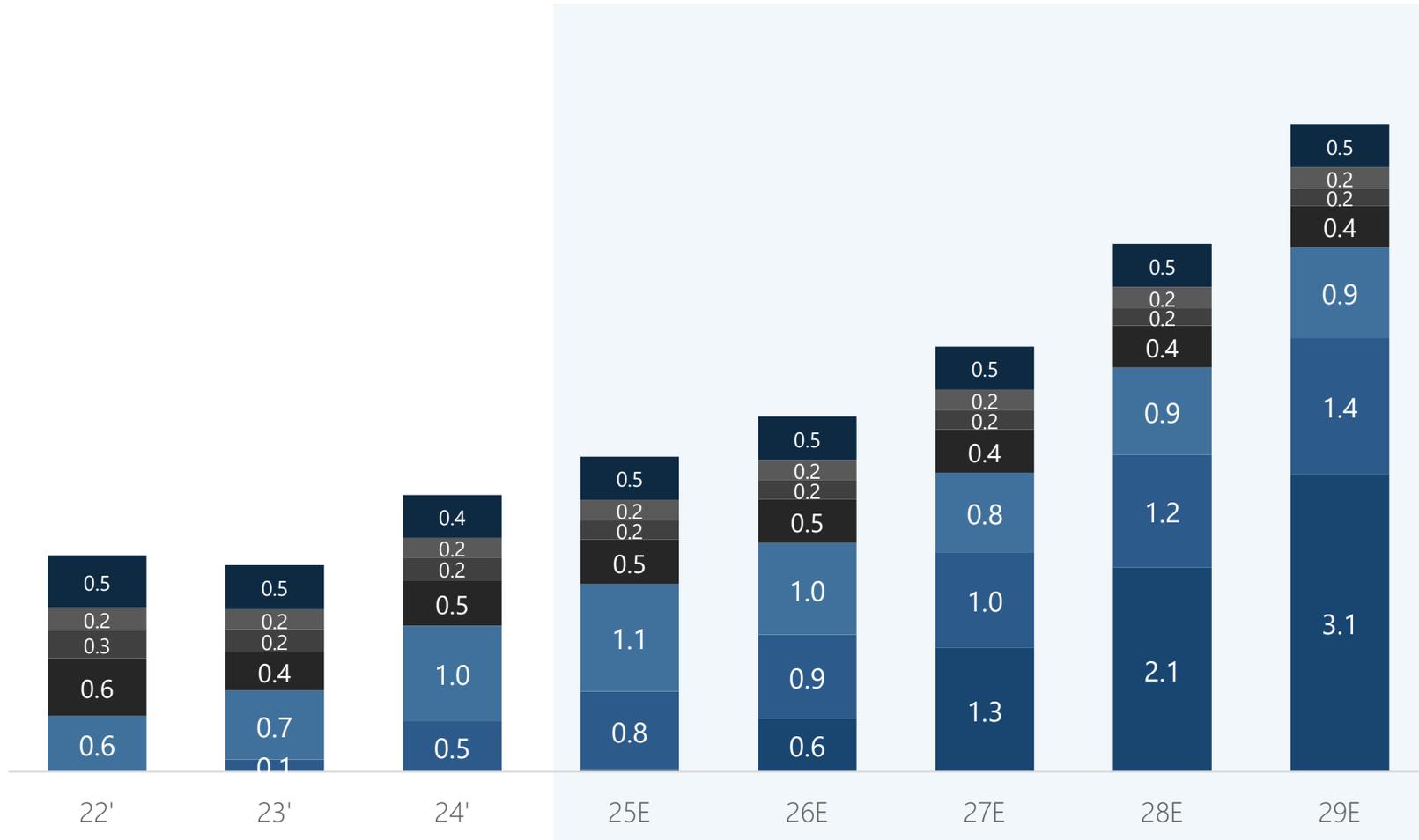


Appendix - Revenue Mix Projection (by node)

[TWD tn]

LTS CHALLENGE 2025

■ 2nm ■ 3nm ■ 5nm ■ 7nm ■ 16/20nm ■ 28nm ■ Over 28nm



	22'-24' CAGR	25E-29E CAGR
2nm	0%	227%
3nm	320%	16.9%
5nm	30.6%	-4.0%
7nm	-11.1%	-1.5%
16/20nm	-10.2%	-2.5%
28nm	-6.8%	0%
>28nm	-9.4%	0%



Appendix - CapEx

We forecast a stable CapEx, following historical trends and rebounding from 2024

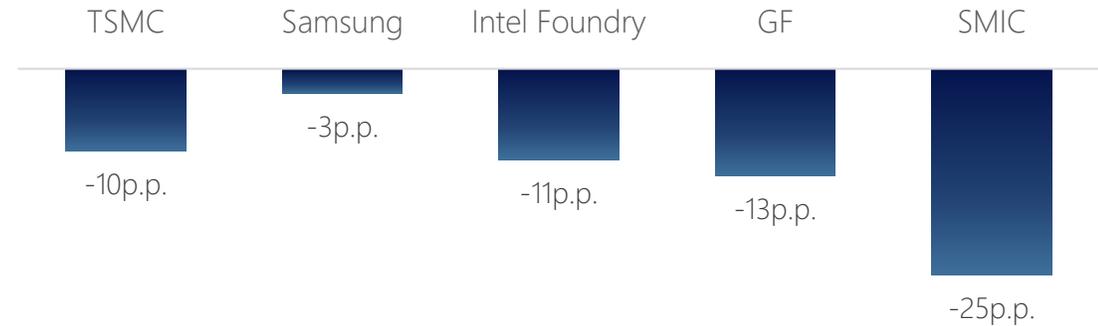
1 Our forecast is compatible with the history...

Capex; as a % of Rev.; as a % of CFO



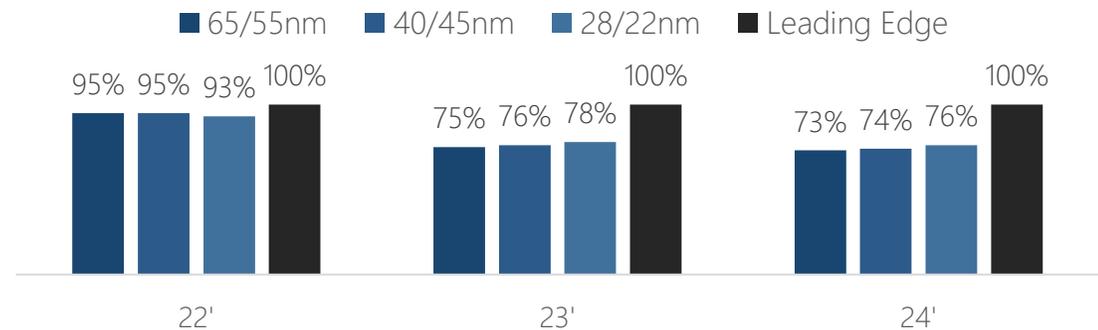
2 ...recovering from 2024, when CapEx was smaller all across the industry...

Change in CapEx %Rev 2024 vs 2023 [p.p]



3 ...which can be explained by a cycle of high inventories for trailing-edge, which disincentivized expansions in production

Capacity utilization [%]

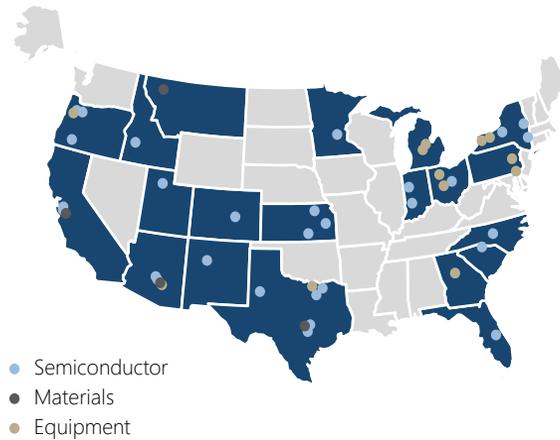
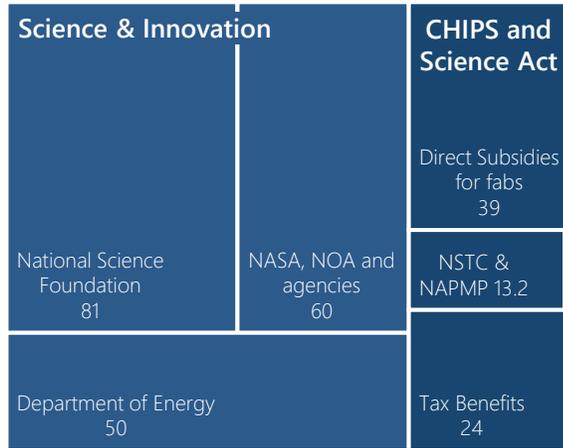




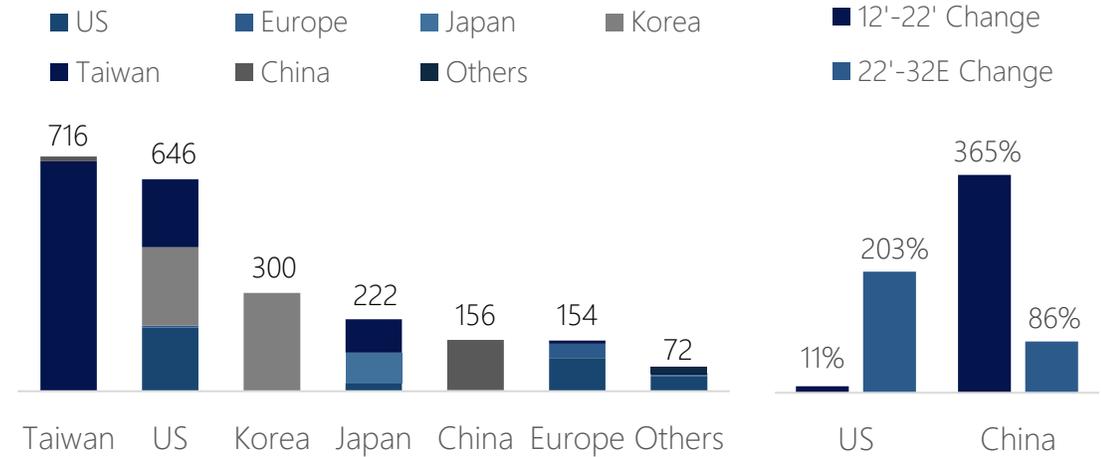
Appendix - CHIPS Act

US' bet to steal the leadership from the East

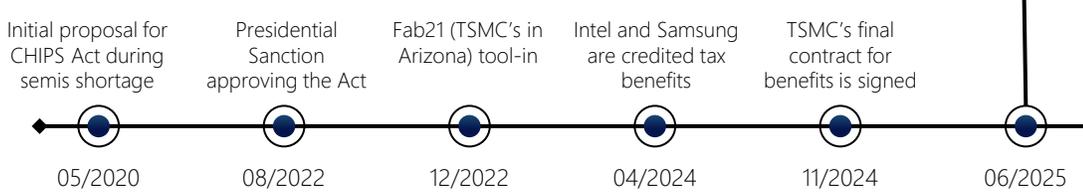
1 Since its signing in 2022, the CHIPS Act has assigned USD 277 bn on investments to the semis chain, ranging from gov. agencies to direct funding
Budget allocated [USD bn]



2 The objective is to place the US competitively against the Asian countries and to derisk TSMC and other crucial companies
Future CapEx flows from company HQ region to destination; capacity increase [USD bn; %]



The CHIPS Act Has Already Sparked \$200 Billion in Private Investments for U.S. Semiconductor Production



	US	China	EU	Japan	South Korea	Taiwan
Target	Resiliency in the supply chain	70% self-sufficiency by 2025	20% of global share by 2030	USD112 bn in sales by 2030	Secure foothold in Logic	1nm chips by 2030
Guiding Policy	CHIPS Act	National IC Outline	Digital Compass 2030	Strategy for Semis and the Digital Industry	K-Belt Semiconductor Strategy	Angstrom Initiative, Moonshot Program
Incentive Amounts	USD77 bn	USD 142 bn	USD47 bn	USD17.5 bn	USD55 bn	USD16 bn
New Fabs since 2020	26	30	8	4	3	7

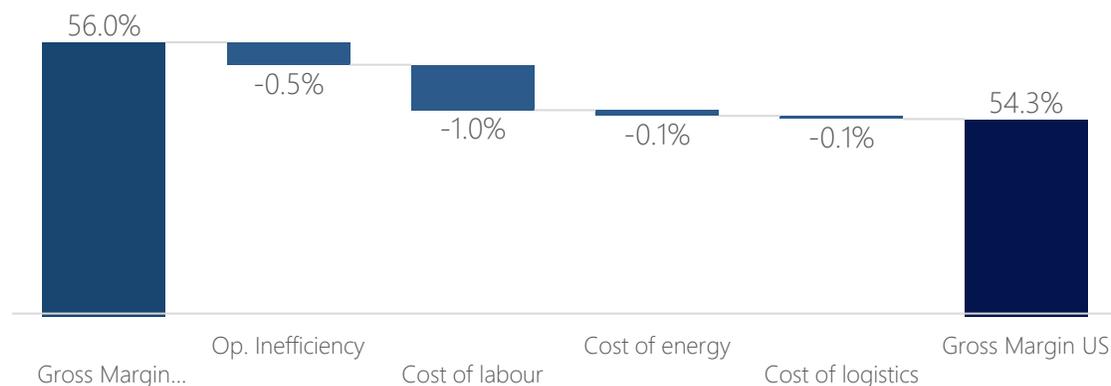


Appendix - Friendshoring

Even though the international expansion has its price, we believe the impact is limited

1 Friendshoring is expected to impact the loss of a few p.p. in gross margin,

Loss of gross margin breakdown [%]



2 But the US Gov. has the incentives to cover that and, even if it doesn't, TSMC has the pricing power to not suffer much consequence from repassing prices

"We're investing USD 6.5bn, they are investing more than USD 65bn. So our money is a small fraction of their investment, not to mention a dozen suppliers [...] and we need to make it in our country to fight the biggest digital risk we've ever faced."



Gina Raimondo, US Sec. of Commerce to NBC in 2024

Upside [%]

CapEx %Beg. PP&E

	48%	53%	58%	63%	68%	73%	78%
1.7%	38%	37%	36%	35%	34%	33%	32%
2.2%	36%	36%	35%	34%	33%	32%	31%
2.7%	35%	34%	33%	33%	31%	30%	29%
3.2%	33%	33%	32%	31%	30%	29%	28%
3.7%	32%	31%	30%	29%	28%	28%	27%
4.2%	31%	30%	29%	28%	27%	26%	25%
4.7%	29%	28%	27%	27%	26%	25%	24%



"We are prepared to pay whatever it takes to get our chips. TSMC is not just a supplier — it's an irreplaceable partner."

Jensen Huang, NVIDIA CEO at interview to Financial Times in 2023

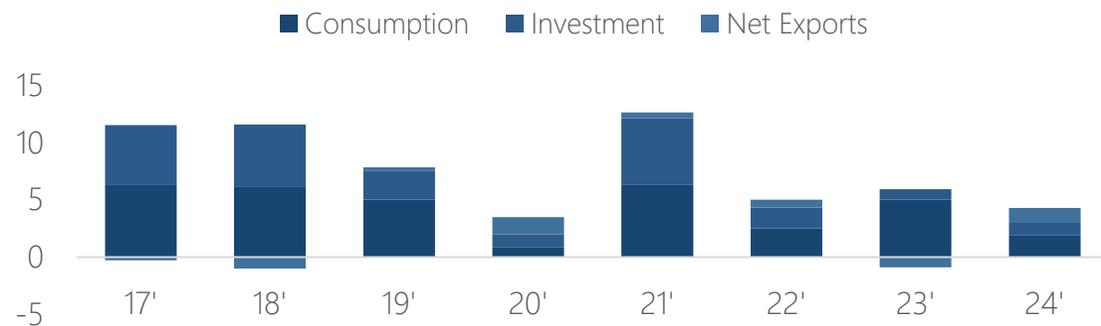


Appendix - China's internal issues

The plan of a Great China is hampered by economic and social conditions

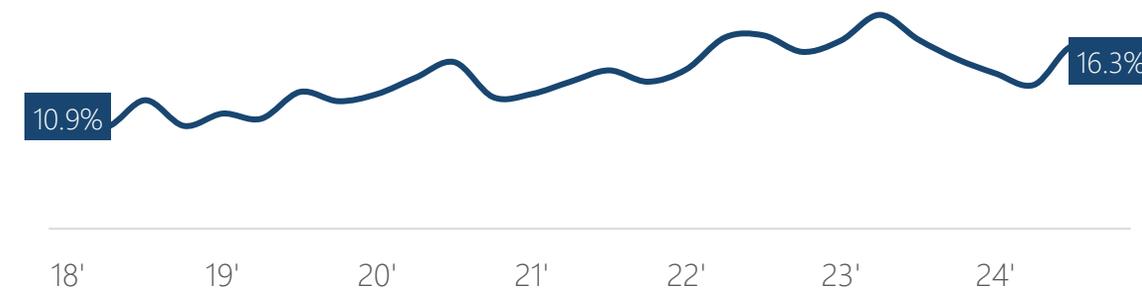
1 China's impressive GDP growth is in the past; now, it has downshifted and worries the local economic elites.

GDP Growth YoY [p.p]



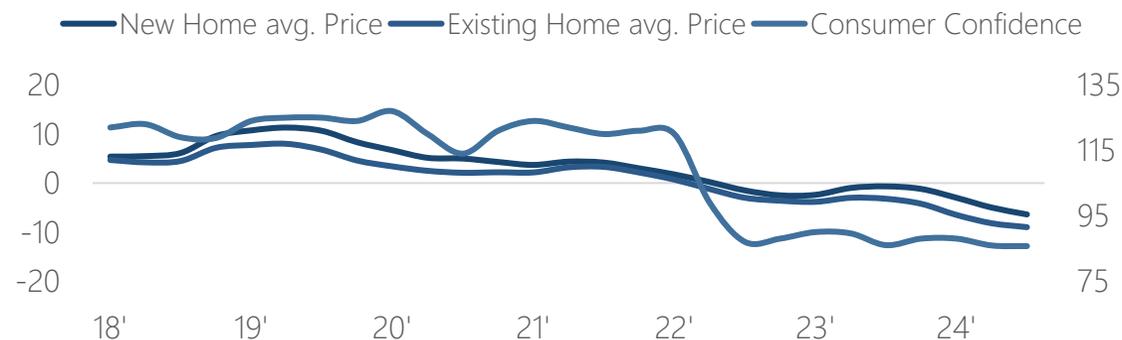
3 ...and an everlasting unemployment crisis, especially for the young.

Unemployment 16-24y [%]



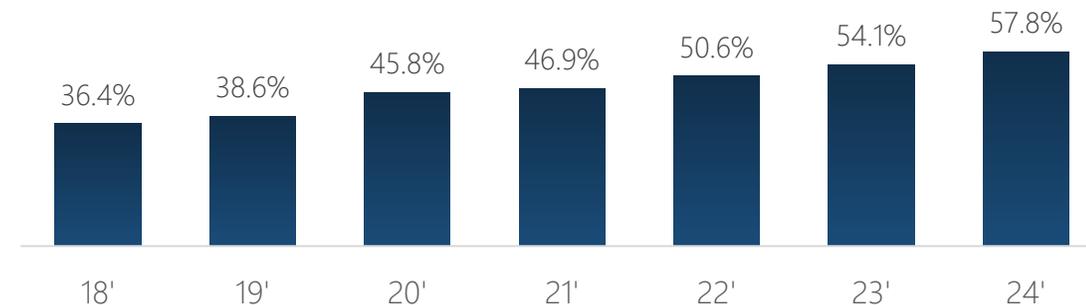
2 Facing a huge crisis in Real Estate sector...

Change in housing prices; consumer confidence index [%; %]



4 While the government still deals with rapidly rising public debt

Public debt % GDP [%]





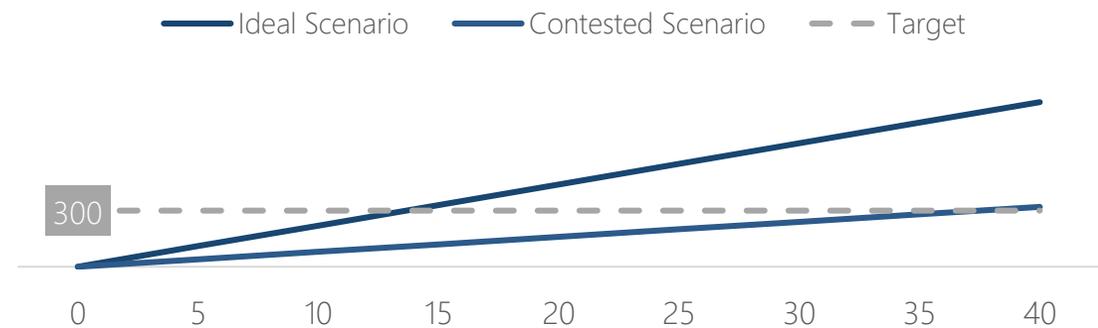
Appendix - China's incapacity to invade now

In spite of great military power, it doesn't have the readiness for an immediate attack

1 Even though the PLA is obviously more powerful than Taiwan's army, it has few transport and amphibious vehicles, necessary to get the troops in the island

3 Even if they were available, because of the overflow, it would take weeks for the invasion to be completed...

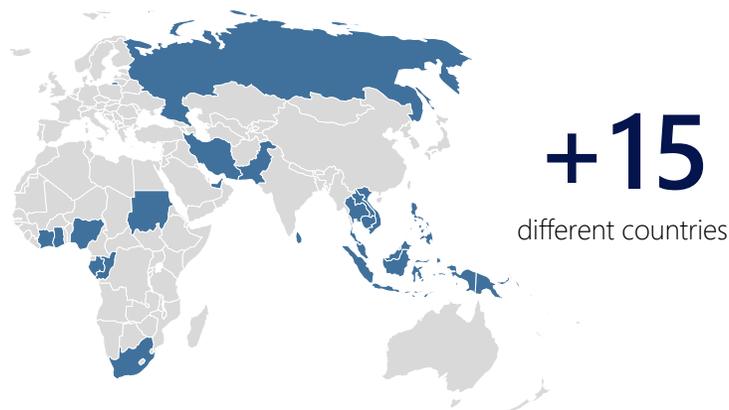
Number of men transported from Mainland China to Taiwan ['000]



	PLA		Taiwan
	Total	Eastern and South Theater	Total
Total Ground Force Personnel	1,040,000	427,000	104,000
Tanks	3,800	1,000	800
Aircraft Carriers	3	1	0
Amphibious Ships	3	3	1
Landing Ships	58	51	51

2 And many are spread around the world combating manufacturing piracy, unavailable for immediate action

Places with official Chinese antipiracy missions



4 ...which would go against what the interests of China are believed to be



“ If war breaks out in the Strait, the PLA must end the conflict within just a few hours, delivering a swift, fierce and decisive blow. ”

Hu Xijin, semi-official mouthpiece for the Chinese CP in a press conference to Weibo in 2023

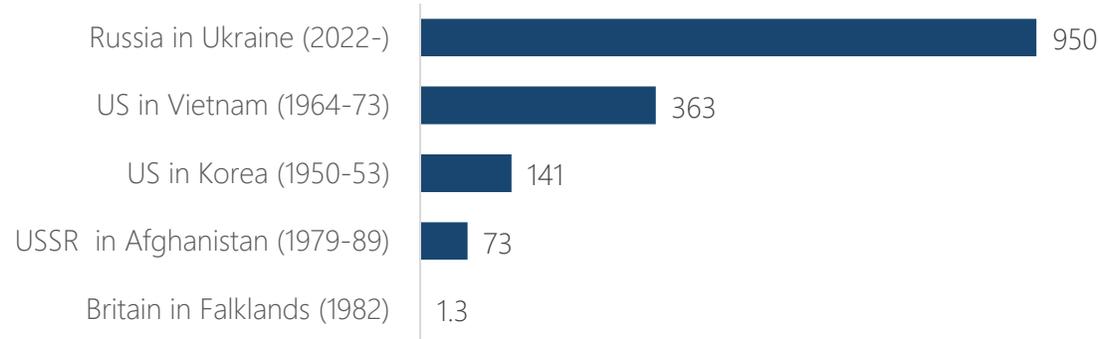


Appendix - China's allies will likely not act

Despite the ideological alignment, China's main allies are fighting their own battles

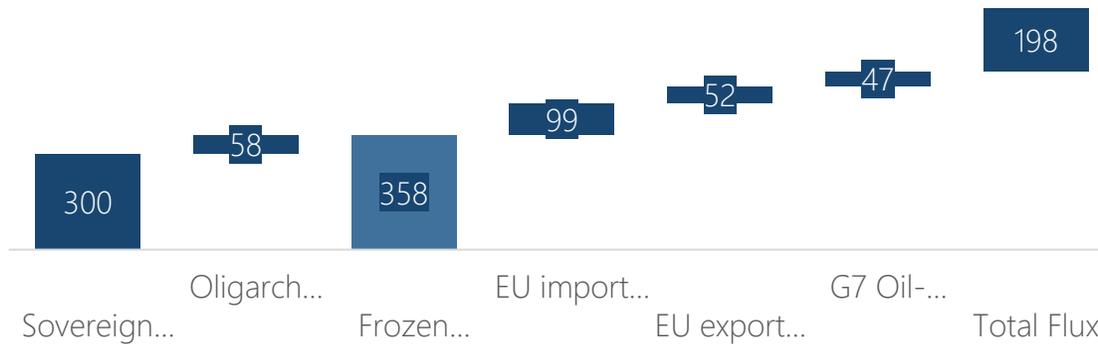
1 Russia's contingent is suffering too many casualties...

Military casualties by war ['000]

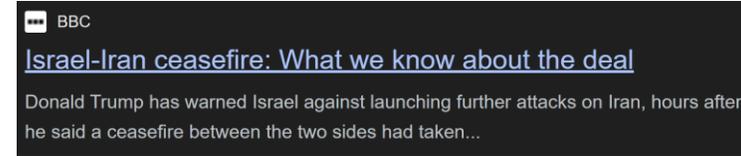


2 ...and the sanctions are already having enough of an impact

Sanctions frozen assets and loss of flux [USD bn]

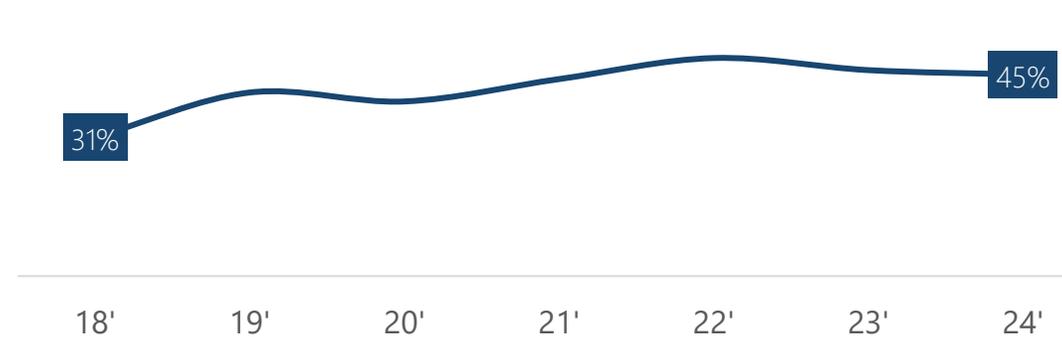


3 ...and Iran is already capitulating to Israel and US offenses



4 In the economic realm, Iran still faces a very high inflation

Iranian yearly inflation [%]



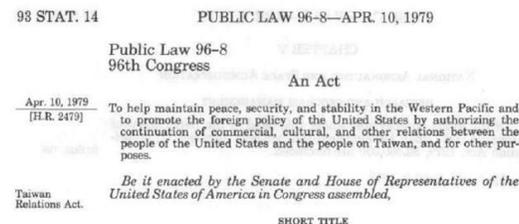


Appendix - The West will act

The West has all the incentives to fight for the island's independence

1 The US is legally bound to protect Taiwan in the event of any threat to National Security

Taiwan Relations Act (1979)

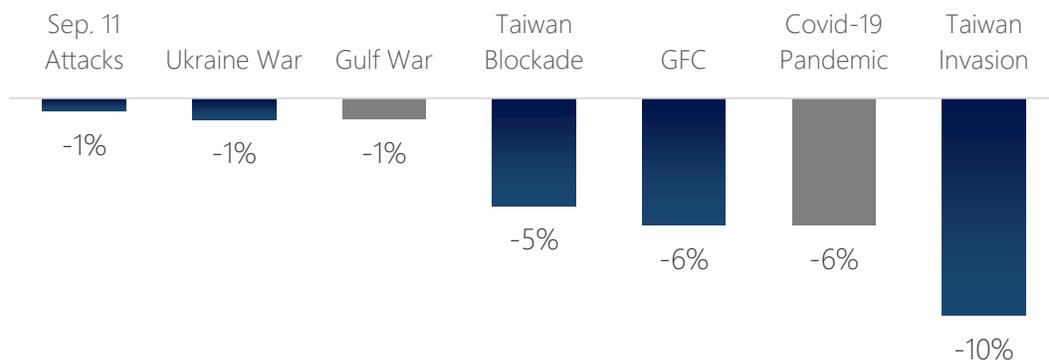


§ 2(b)(3): "Make available to Taiwan such defense articles and services in such quantity as may be necessary to enable Taiwan to maintain a sufficient self-defense capability."

§ 2(b)(4): "Maintain the capacity of the United States to resist any resort to force or other forms of coercion that would jeopardize the security, or the social or economic system, of the people on Taiwan."

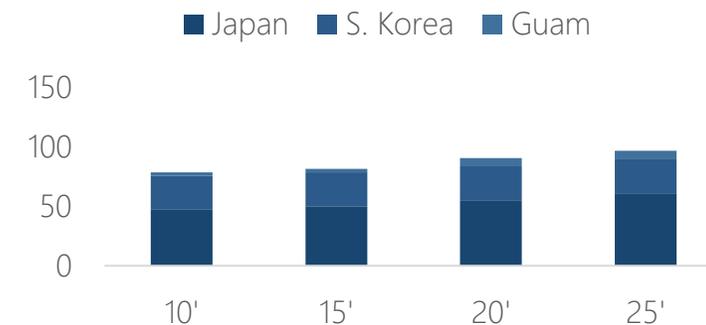
2 Aside from the great economic impact, which ranges from the direct absence of chips to indirect effects as the outlays in defense

Estimated impact to global economies [USD tn]



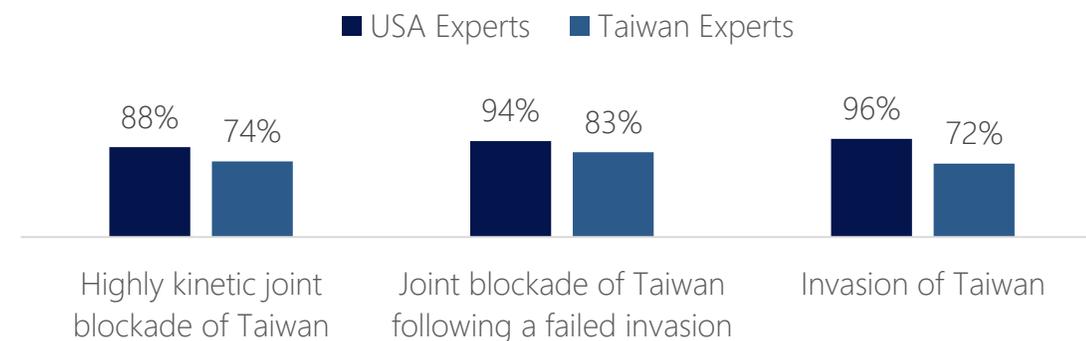
3 And from already having dispatched a big contingent to nearby bases

US military bases and deployed soldiers in the southeastern Pacific [‘000]



4 So most experts believe it to be certain that the US would intervene

How experts from the US and Taiwan evaluate the chance of US intervening [%]





Appendix - War simulation: Tabulating scenarios

In late 2023, CSIS simulated a wargame, finding little probability of a successful invasion

- 1 They added and varied multiple parameters including military power, coalitions, supply availability and more
- 2 Sensitizing the factors that could influence the war at most

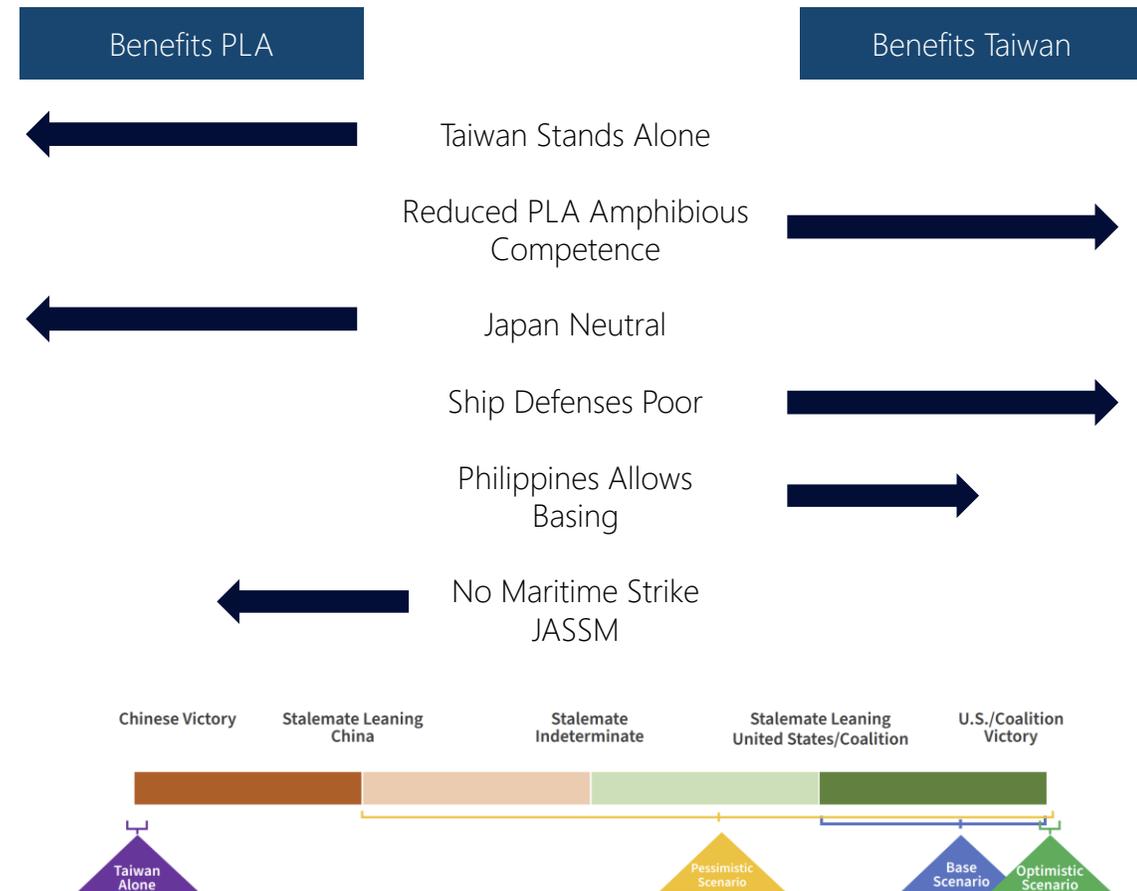


W	W	PW	PW	S	PW
W	W	PW	PW	S	PW
W	W	PW	PW	S	W
W	W	PW	PW	S	W

66%

Of scenarios favor Taiwan

- Taiwan Coalition Win
- Full Stalemate
- PRC Win
- Stalemate Favoring Taiwan
- Stalemate Favoring PRC





Appendix - What changes with ISR x IRN?

 Al Jazeera

Israel-Iran conflict exposed China's 'limited leverage', say analysts

China called for a ceasefire. But despite its recent history of mediation in the region, its role was limited this time.

há 4 horas



 France 24

Russia and China push for a ceasefire as UN Security Council meets on Iran

The UN Security Council met on Sunday at Tehran's request to discuss overnight US strikes launched on three sites connected to Iran's...

3 dias atrás



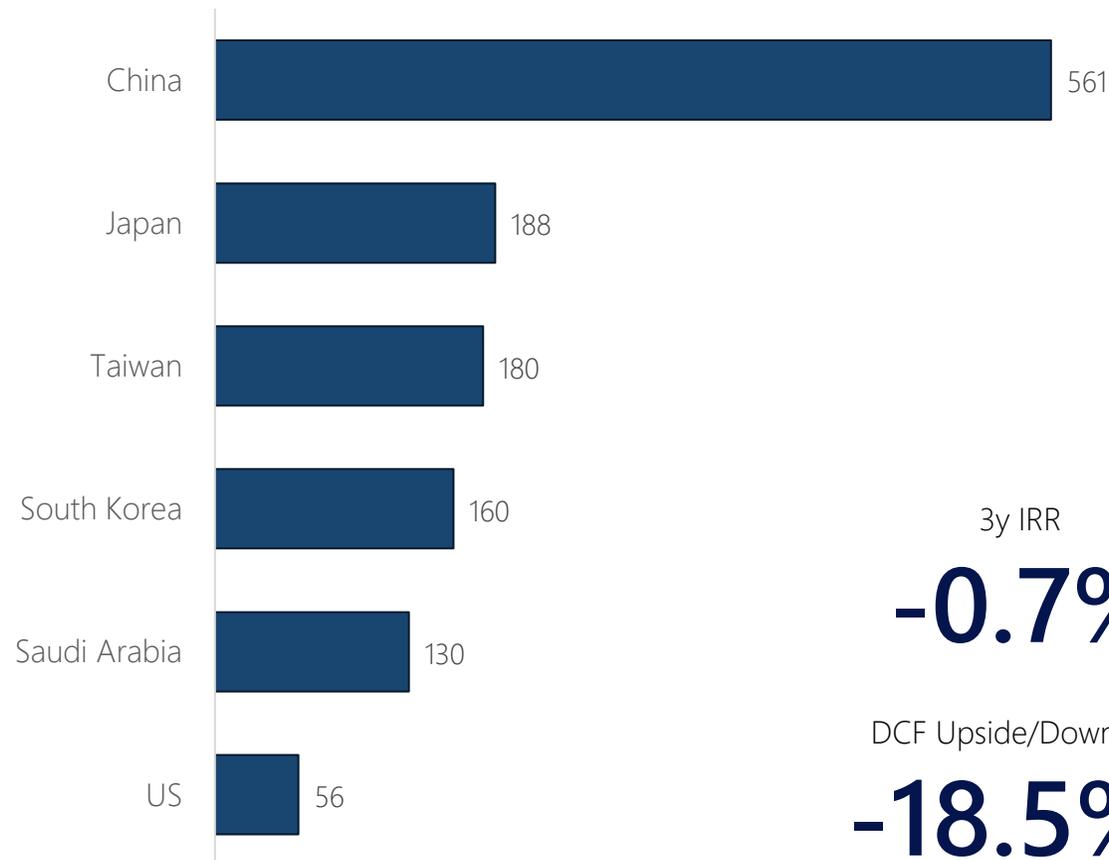


Appendix - Bear Scenario: 1y inflow blockade

China stops Taiwan from receiving matters from aboard

1 If China adopts a strategy like the Cuba Quarantine from 1962, the impact on international trade would be great...

International trade inflowing the Taiwan Strait [USD bn]



3y IRR
-0.7%
 DCF Upside/Downside
-18.5%

2 ...and the thesis for TSMC is mitigated, but not completely destroyed

Immediately

Revenue:	COGS:	CapEx:
-60%	-52%	-50%
Production is significantly hampered	Gases for lithography are imported; without them the line idles. D&A remains unchanged	No reason in expanding in Taiwan, investments abroad remain

Long Term

Slowly building up revenue in fabs outside Taiwan, at higher COGS and resulting of higher CapEx. Projections match US Scenario.

Upside/downside [%]

	11.7%	11.2%	10.7%	10.2%	9.7%	9.2%	8.7%
2.0%	-25.0%	-23.3%	-21.6%	-19.8%	-17.9%	-16.0%	-13.9%
2.5%	-24.7%	-23.0%	-21.3%	-19.4%	-17.5%	-15.4%	-13.2%
3.0%	-24.4%	-22.7%	-20.9%	-19.0%	-17.0%	-14.8%	-12.5%
3.5%	-24.1%	-22.3%	-20.5%	-18.5%	-16.4%	-14.1%	-11.6%
4.0%	-23.7%	-21.9%	-19.9%	-17.9%	-15.7%	-13.2%	-10.6%
4.5%	-23.3%	-21.4%	-19.4%	-17.2%	-14.8%	-12.2%	-9.3%
5.0%	-22.8%	-20.8%	-18.7%	-16.3%	-13.8%	-10.9%	-7.6%

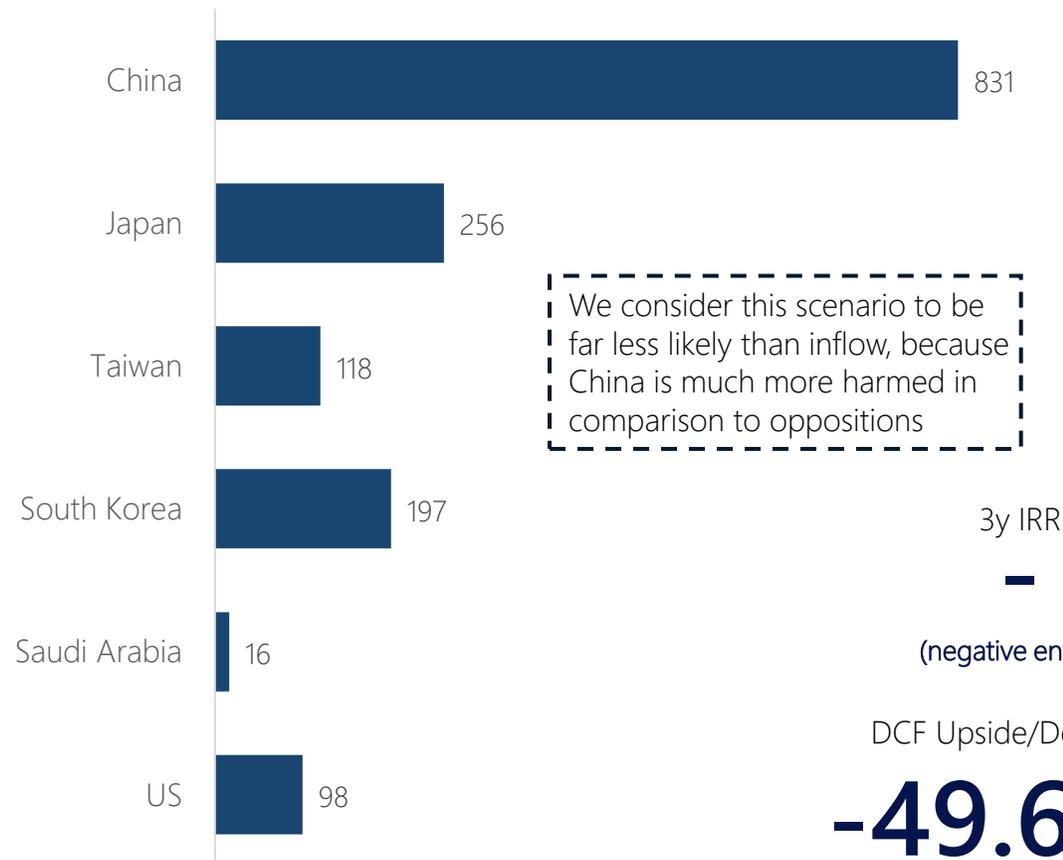


Appendix - Bear Scenario: Outflow blockade

China stops Taiwan from exporting through the Strait, like the Berlin blockade

1 Once again, the the impact on trade would be great...

International trade outflowing the Taiwan Strait [USD bn]



2 ...hurting the company significantly

Immediately

Revenue:

-95%

As more than 90% of production is exported overseas and only 5% is produced abroad

COGS:

No Change

The blockade would not affect production

CapEx:

-50%

Less demand and urgency for new fabs, but remains to some degree in the hope of ending the blockade

Long Term

Slowly building up revenue in fabs outside Taiwan, at higher COGS and resulting of higher CapEx. Projections match US Scenario.

	11.7%	11.2%	10.7%	10.2%	9.7%	9.2%	8.7%
2.0%	-55.3%	-53.9%	-52.5%	-51.0%	-49.4%	-47.7%	-45.8%
2.5%	-55.0%	-53.6%	-52.1%	-50.6%	-48.9%	-47.1%	-45.2%
3.0%	-54.7%	-53.3%	-51.7%	-50.1%	-48.4%	-46.5%	-44.5%
3.5%	-54.4%	-52.9%	-51.3%	-49.6%	-47.8%	-45.8%	-43.6%
4.0%	-54.0%	-52.5%	-50.8%	-49.0%	-47.1%	-44.9%	-42.6%
4.5%	-53.6%	-52.0%	-50.2%	-48.3%	-46.2%	-43.9%	-41.3%
5.0%	-53.1%	-51.4%	-49.5%	-47.5%	-45.2%	-42.6%	-39.6%

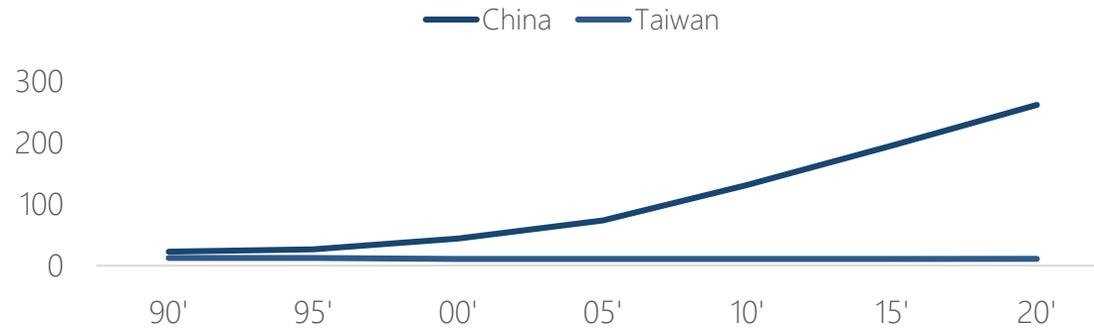


Appendix - Bear Scenario: Invasion (open war)

Unlikely ≠ impossible; What if China actually invades Taiwan?

1 It is undeniable that China has the power and the will to at some point take military action in the island

Defense spending [USD bn]



2 If military action really comes to play, the loss is as big as it can possibly be



If TSMC gets operated by China

-100%
Unlimited loss

The few fabs abroad will face an intense competition of the now Chinese-owned Taiwanese.

If no one uses the facilities

-86%
(Downside)

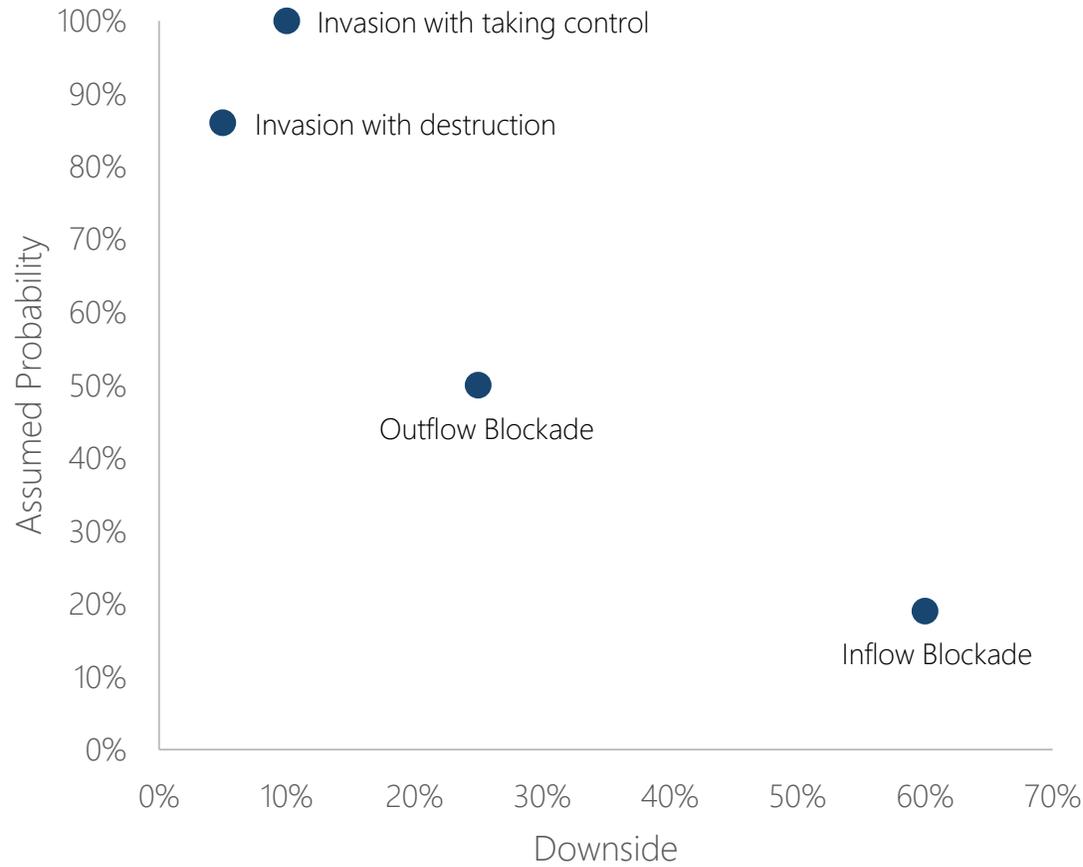
Rapid shift for friendshoring



Appendix – Consolidated China Bear

1 We believe blockades are more likely than a full invasion, at least for now

2



	24'	Bear	Base	Bull	China Bear
4y Rev. CAGR	21%	12%	19%	23%	5%
Gross Margin %	56%	54%	57%	59%	15%
4y EPS CAGR	23%	12%	19%	23%	8%
P/E	17x	11x	16x	20x	8x
IRR	-	3%	21%	38%	-19%



Appendix - Nodes and Ramps

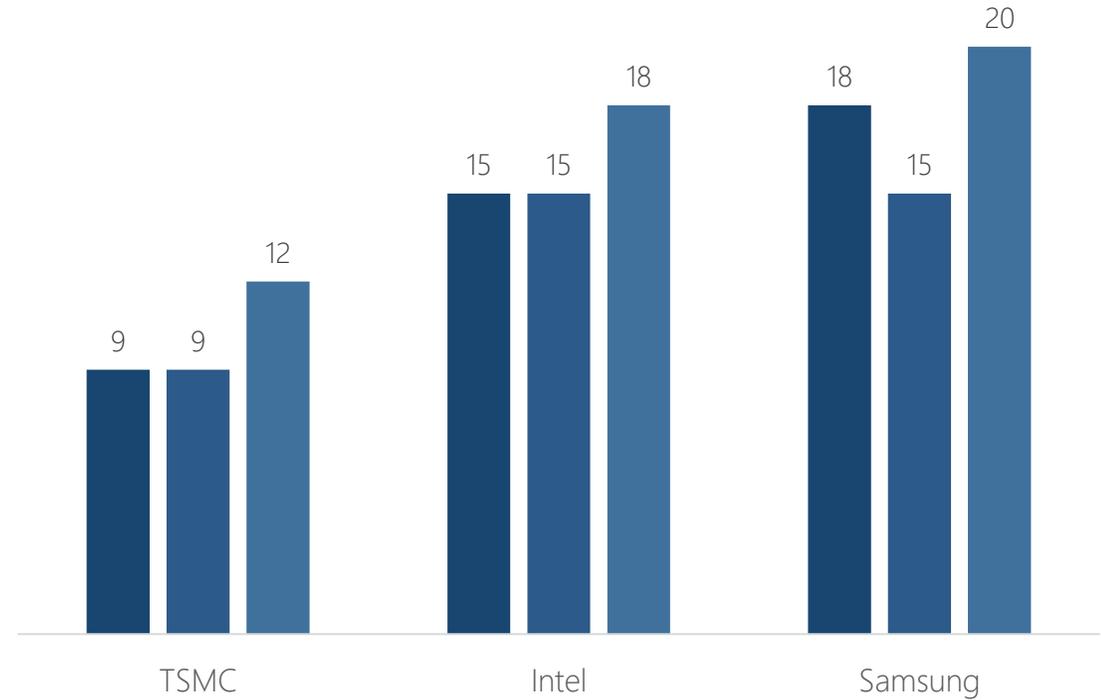
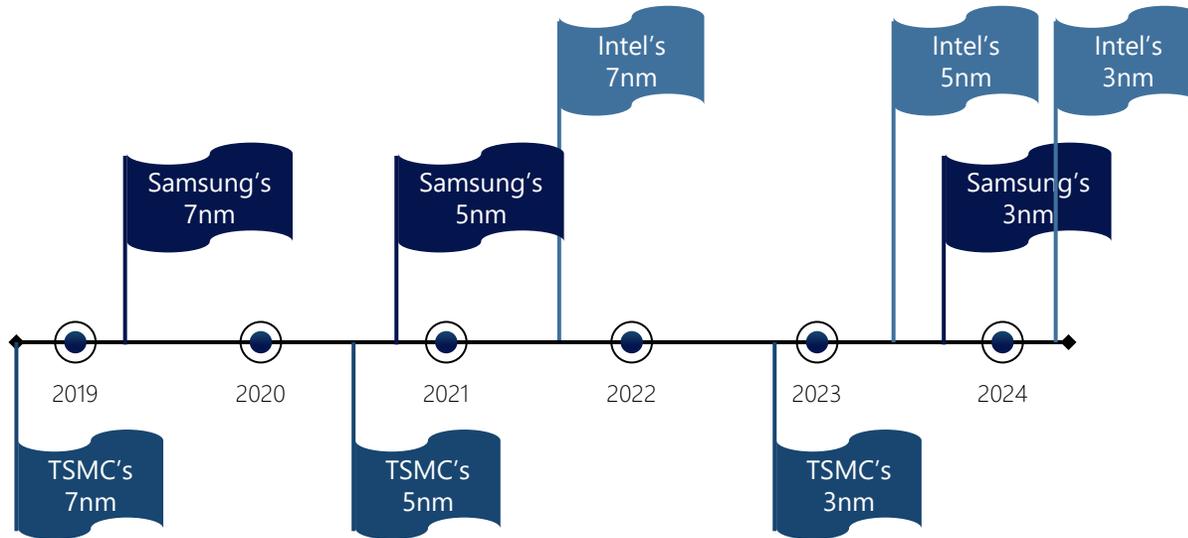
TSMC's process power and scale allows it to be upfront of every major node launch

1 TSMC has anticipated the new-gen node developments...

2 ...and has consistently has the fastest ramp-up

Node ramp-up [months]

7nm 5nm 3nm



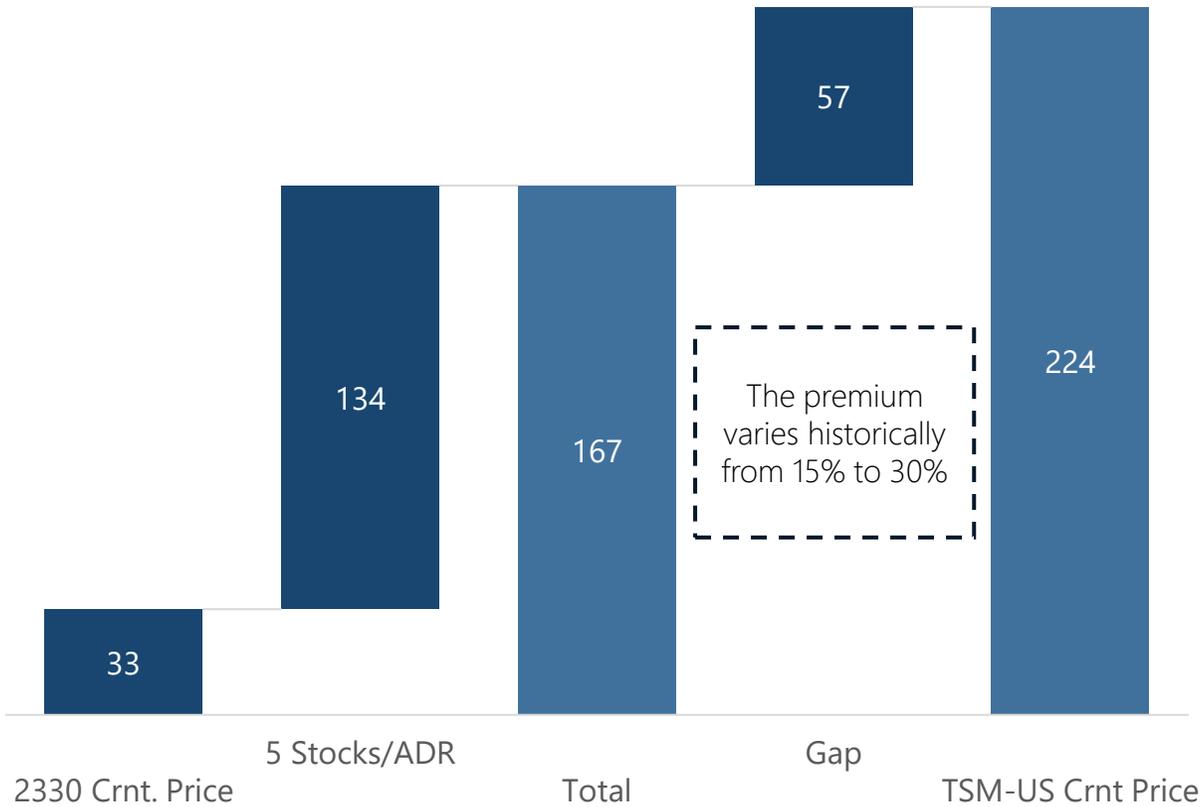


Appendix - ADR

TSM-US trades with a premium

1 The US TSM ADR trades at above the expected for Taiwan TSMC due to a premium imposed on the stock
Current price breakdown [NT\$/USD]

2 This premium is due to a few conveniences offered by trading in a stock exchange situated in the US as opposed to Taiwan



1- Liquidity

ETF's and certain global equity funds are not allowed to trade outside of the US, which increases the demand (and liquidity) for TSM-US

2- Taiwan Bureaucracy

Taiwan charges 0.3% stock transaction + tax + fee and limits shorts and volume traded. Also, trading in there requires investors from abroad to use international bank accounts

3- Indirect buyback flux

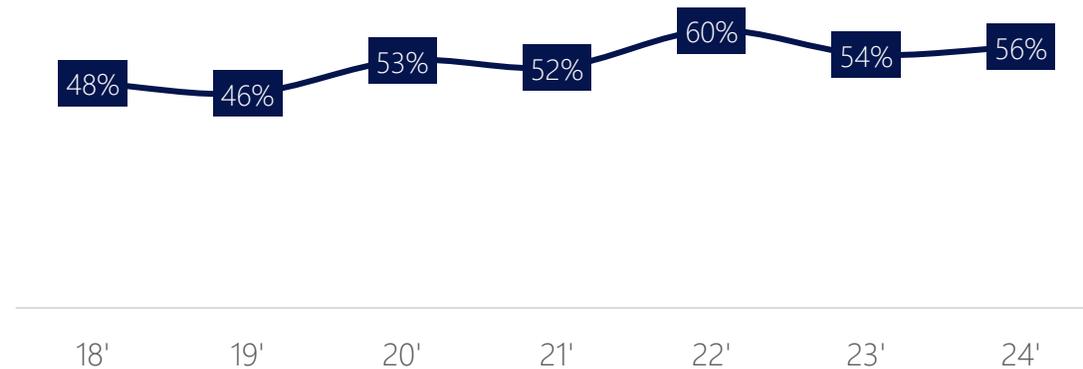
TSMC does not buyback in significant amounts or frequency, but the slight unbalance between 2330/TSM-US when it does allows for arbitrage strategies



Appendix - Pricing power and margins

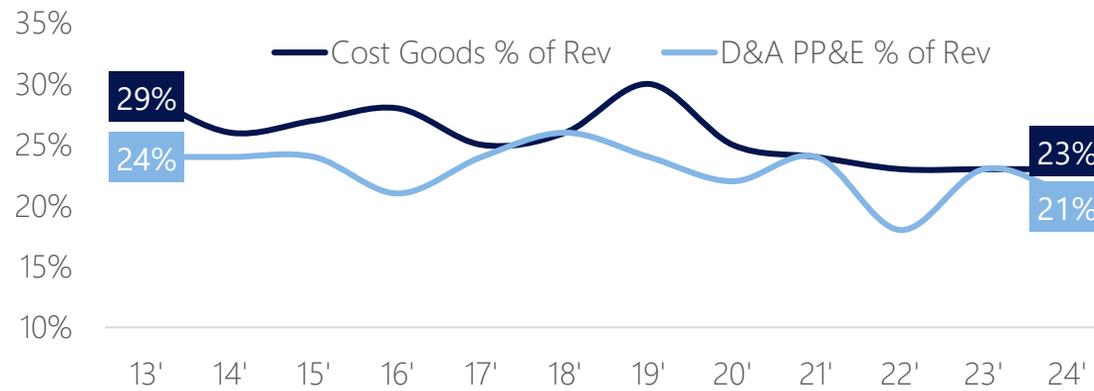
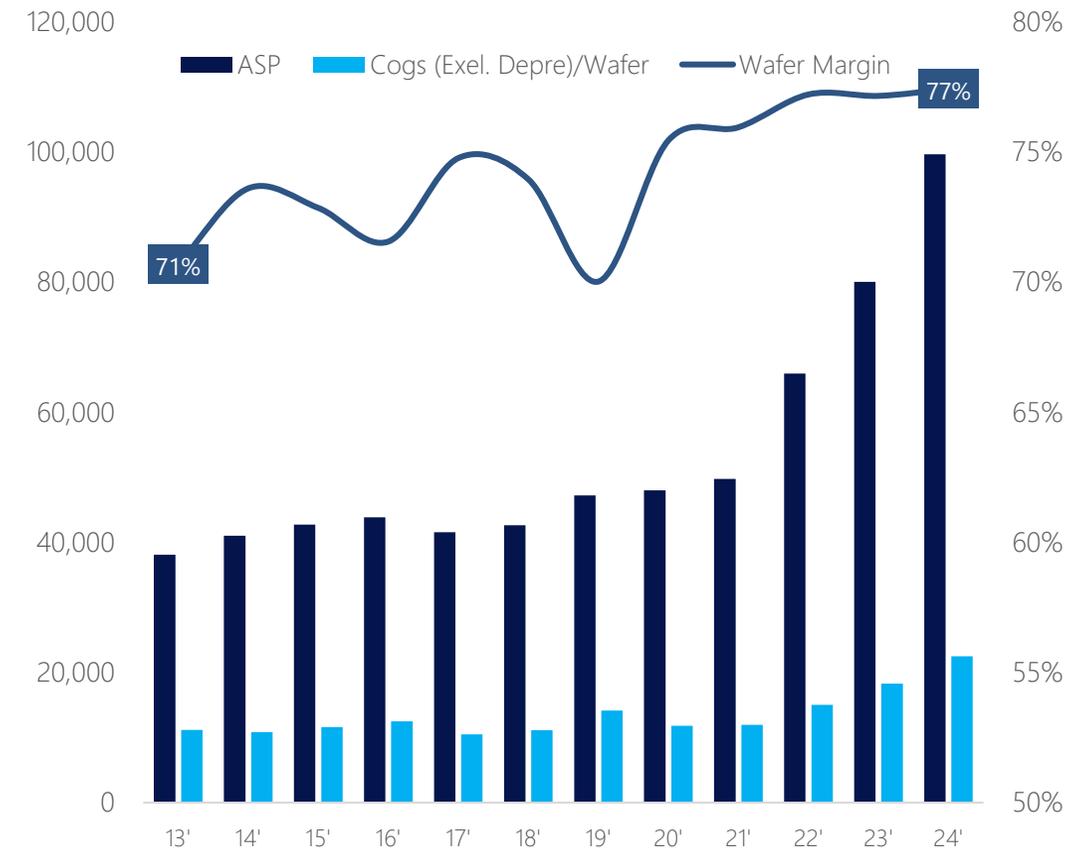
1 TSMC maintains high margins...

TSMC gross margin



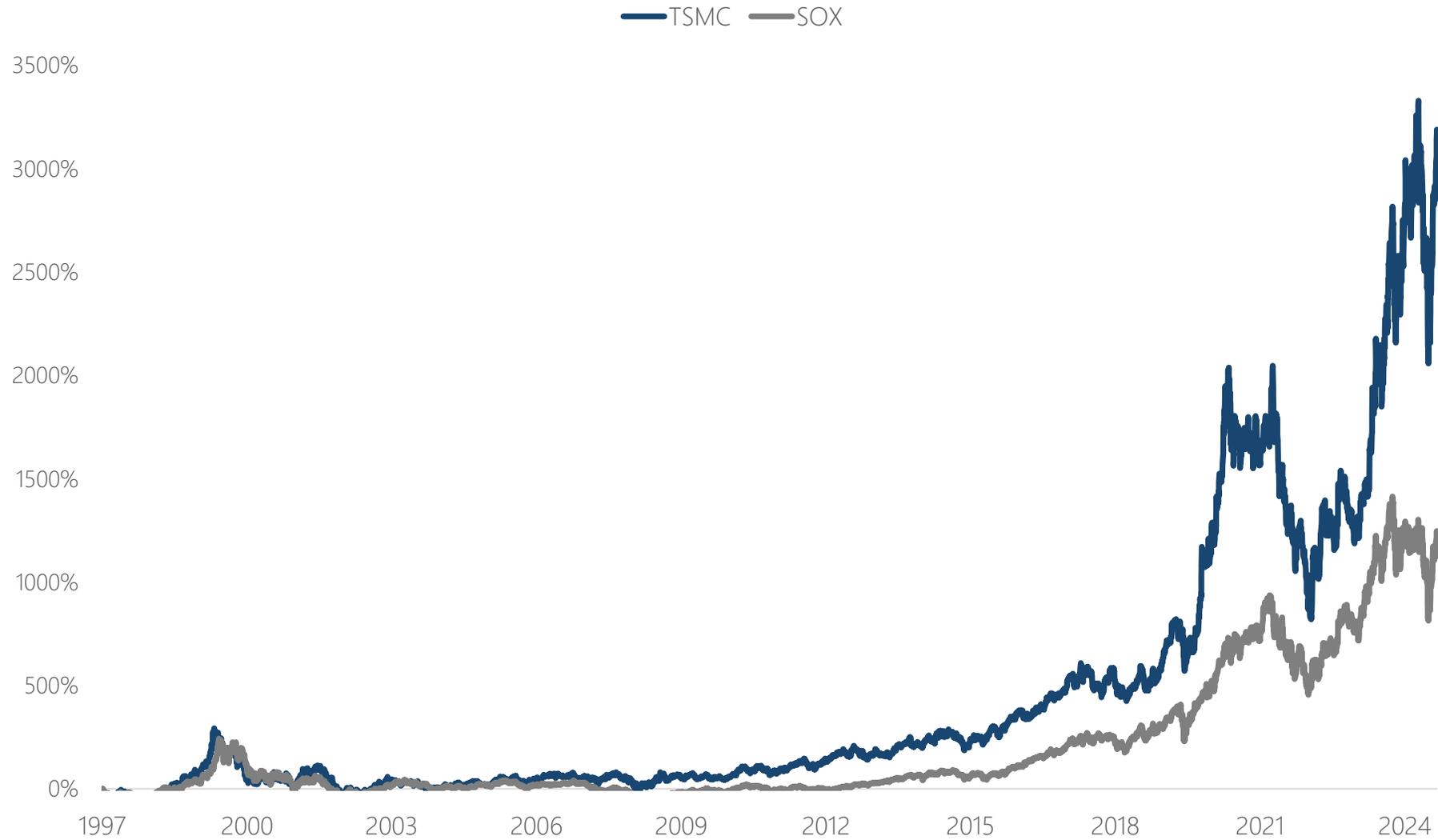
2 ...thanks to its pricing power allowing it to preserve and escalate margins

ASP, 8" equivalent per node and Cogs (Excl. Depre)/Wafer [NS\$]



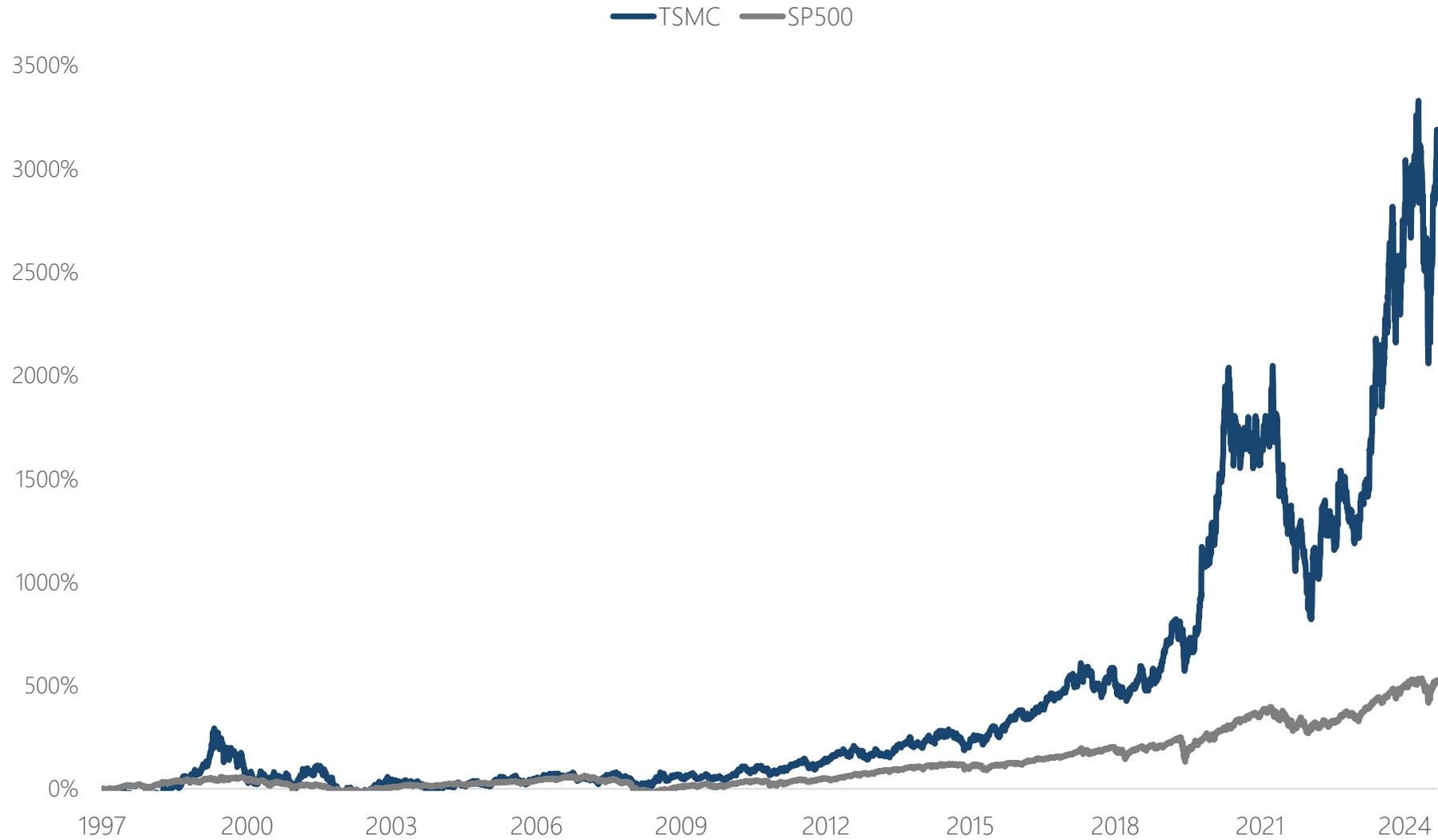


Appendix - TSM x SOX stock performance





Appendix - TSM x S&P500 stock performance





Appendix - P/E sensitivity analysis

Exit P/E fwd 1y

	21%	10x	12x	14x	16x	18x	20x	22x
Gross Margin	50%	0%	6%	11%	16%	20%	25%	29%
	52%	2%	8%	13%	18%	22%	27%	31%
	54%	3%	9%	15%	20%	24%	28%	32%
	56%	5%	11%	16%	21%	26%	30%	34%
	58%	6%	12%	18%	23%	28%	32%	36%
	60%	7%	14%	19%	25%	29%	34%	38%
	62%	9%	15%	21%	26%	31%	35%	40%

Exit P/E fwd 1y

	21.4%	10x	12x	14x	16x	18x	20x	22x
Revenue CAGR	13%	0%	5%	11%	16%	20%	24%	28%
	15%	1%	7%	13%	18%	22%	26%	30%
	17%	3%	9%	15%	20%	24%	28%	32%
	19%	5%	11%	16%	21%	26%	30%	35%
	21%	6%	13%	18%	24%	28%	33%	37%
	23%	8%	15%	20%	26%	30%	35%	39%
	25%	10%	16%	22%	28%	32%	37%	41%

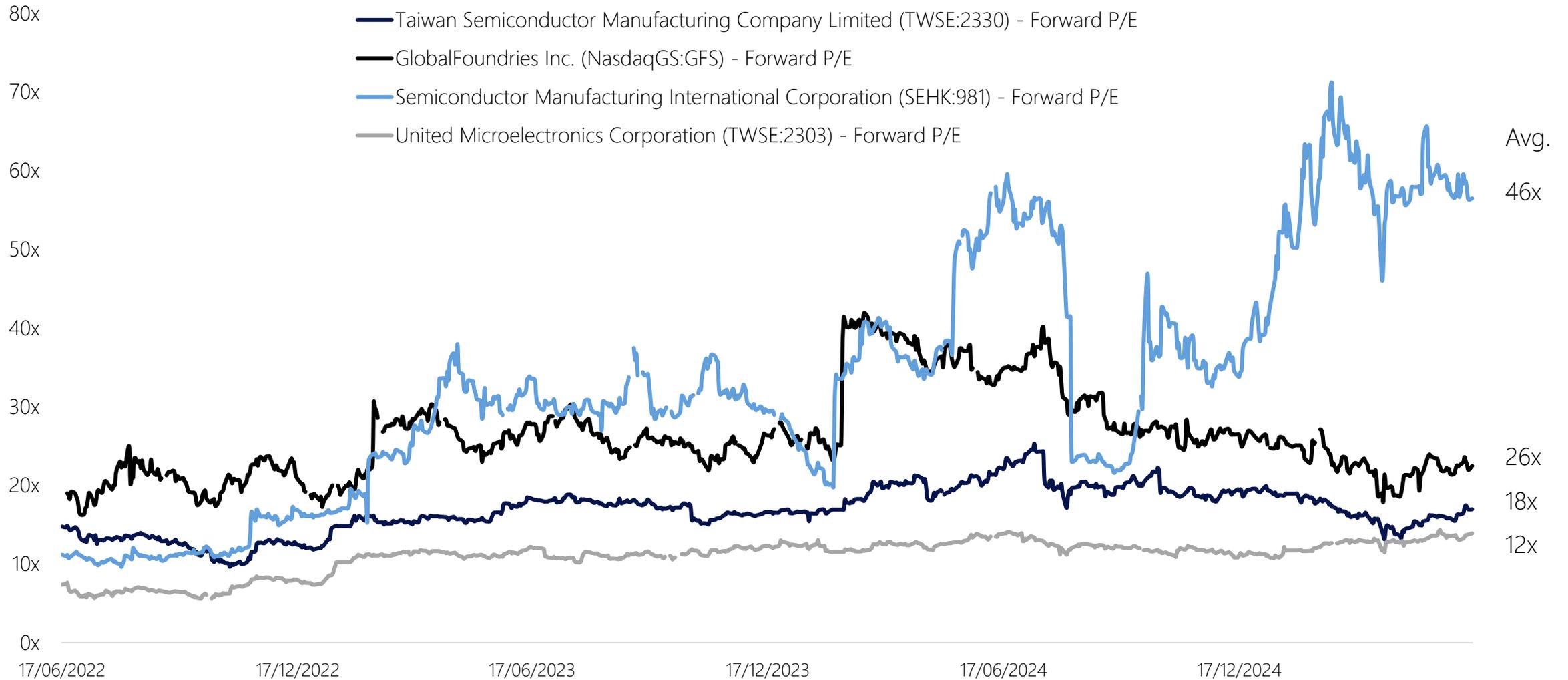


Appendix - P/E FWD Comparison IDM





Appendix - P/E FWD Comparison Foundries



Appendix - Multiple Comparable Table Asian

LTS CHALLENGE 2025

June 3rd, 2025		Market Cap	Net Debt	EV	P/E			PEG			Revenue CAGR	EPS Growth	EBITDA Margin	ROE
	Country	Local Currency	Local Currency	Local Currency	25E	26E	27E	25E	26E	27E	25E-27E	25E-27E	25E	25E
Asian Peers														
TSMC	TWS	25,802,937	-1,384,775	24,418,162	16.7x	13.8x	11.6x	0.5x	0.6x	0.6x	18%	19%	68%	26%
Samsung	USD	371,013,358	-83,236,439	287,776,919	11.4x	9.5x	8.5x	0.5x	0.4x	0.4x	7%	10%	25%	27%
SMIC	HKD	421,873	106,247	528,120	53.9x	41.4x	33.4x	23.3x	N.A.	N.A.	16%	44%	43%	13%
UMC	TWD	9,314	20,220	29,534	14.1x	11.9x	10.6x	1.5x	1.2x	1.1x	-	-	4%	-
Advantest	JPY	5,188,089	-169,041	5,019,048	25.1x	22.7x	21.2x	0.7x	0.6x	0.6x	9%	21%	33%	9%
Amkor	USD	4,474	-126	4,348	16.6x	11.0x	11.3x	N.A.	N.A.	N.A.	3%	7%	16%	4%
Tokyo Eletron	JPY	10,355,587	-496,238	9,859,349	18.9x	16.2x	14.4x	1.5x	1.3x	1.1x	7%	8%	31%	10%
Novatek	TWD	299,692	-52,755	246,937	14.2x	12.8x	12.1x	0.9x	0.8x	0.8x	8%	8%	22%	15%
SK Hynix	KRW	143,246,490	11,468,764	154,715,254	5.0x	4.6x	4.5x	0.2x	0.2x	0.2x	22%	27%	54%	26%
Micron Technology	USD	109,723	5,433	115,156	14.1x	9.0x	8.9x	3.1x	2.0x	2.0x	34%	190%	36%	7%
Kioxia	JPY	1,075,430	831,720	1,907,150	8.9x	5.2x	4.6x	N.A.	N.A.	N.A.	-1%	-15%	45%	2%
PSMC	TWD	61,987	40,646	102,633	N.A.	N.A.	47.1x	N.A.	N.A.	N.A.	4%	-	3%	1%
MediaTek	TWD	2,008,269	-161,621	1,846,648	17.6x	14.8x	12.4x	1.8x	1.5x	1.3x	16%	13%	23%	15%
Hitachi High-Tech	JPY	18,210,843	205,779	18,416,622	23.2x	19.9x	17.4x	1.4x	1.2x	1.0x	7%	22%	14%	6%
Screen Holdings	JPY	937,116	-195,782	741,334	10.9x	9.7x	9.1x	2.6x	2.3x	2.2x	-	-	-	-
ASE Technology Holding	TWD	584,544	150,086	734,630	13.3x	10.2x	8.5x	0.5x	0.4x	0.3x	11%	34%	16%	13%
ChipMOS TECHNOLOGIES INC.	TWD	19,760	-6,083	13,677	10.9x	9.7x	N.A.	N.A.	N.A.	N.A.	10%	21%	26%	0%
Realtek Semiconductor	TWD	269,253	-54,531	214,722	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	12%	11%	14%	11%
First Quartile					11.0x	9.5x	8.6x	0.5x	0.5x	0.4x	7%	8%	15%	5%
Median					14.2x	11.4x	11.4x	1.4x	1.0x	0.9x	9%	19%	25%	11%
Third Quartile					18.6x	15.8x	16.7x	2.2x	1.5x	1.2x	9%	19%	25%	11%
Average					17.2x	13.9x	14.7x	3.0x	1.0x	1.0x	11%	28%	28%	12%



Appendix - Multiple Comparable Table EU

June 3rd, 2025		Market Cap	Net Debt	EV		P/E			PEG			Revenue CAGR	EPS Growth	EBITDA Margin	ROE	
	Country	Local Currency	Local Currency	Local Currency		25E	26E	27E	25E	26E	27E	25E-27E	25E-27E	25E	25E	
EU Peers																
ASML	EUR	254,140	-5,423	248,717		27.8x	24.3x	20.0x	1.5x	1.3x	1.1x	12%	18%	35%	12%	
ASM	EUR	23,283	-1,125	22,158		32.9x	25.5x	21.3x	1.5x	1.2x	1.0x	15%	16%	31%	11%	
Arm	USD	133,179	-2,469	130,710		70.8x	52.6x	42.7x	2.6x	1.9x	1.6x	21%	25%	25%	8%	
First Quartile						27.8x	24.3x	20.0x	1.5x	1.2x	1.0x	12%	16%	25%	8%	
Median						32.9x	25.5x	21.3x	1.5x	1.3x	1.1x	15%	18%	31%	11%	
Third Quartile						70.8x	52.6x	42.7x	2.6x	1.9x	1.6x	15%	18%	31%	11%	
Average						43.8x	34.1x	28.0x	1.8x	1.5x	1.2x	16%	20%	30%	10%	

Appendix - Multiple Comparable Table US

LTS CHALLENGE 2025

June 3rd, 2025		Market Cap	Net Debt	EV	P/E			PEG			Revenue CAGR	EPS Growth	EBITDA Margin	ROE
	Country	Local Currency	Local Currency	Local Currency	25E	26E	27E	25E	26E	27E	25E-27E	25E-27E	25E	25E
USA Peers														
Intel	USD	86,106	35,219	121,325	65.3x	24.03	13.7x	0.5x	N.A.	N.A.	0%		14%	7%
GlobalFoundries	USD	19,926	-2,016	17,910	22.2x	16.3x	13.2x	0.8x	0.6x	0.5x	6%	19%	33%	10%
Teradyne	USD	12,752	-553	12,199	23.4x	17.3x	13.6x	1.8x	1.4x	1.1x	11%	20%	24%	6%
Applied Materials	USD	126,209	-77	126,132	16.6x	15.6x	15.6x	1.9x	1.8x	1.6x	6%	8%	30%	9%
Cadence	USD	79,873	-430	79,443	43.5x	37.9x	33.4x	3.2x	2.8x	2.4x	12%	14%	34%	5%
Synopsys	USD	72,328	-3,522	68,807	30.8x	27.6x	23.7x	2.2x	2.0x	1.7x	11%	13%	25%	5%
Nvidia	USD	3,352,072	-43,406	3,308,666	32.12	24.0x	20.9x	1.1x	0.8x	0.7x	39%	38%	64%	11%
AMD	USD	185,862	-2,579	183,283	28.7x	20.0x	16.6x	1.1x	0.8x	0.6x	20%	31%	20%	8%
Qualcomm	USD	159,887	777	160,664	12.5x	12.3x	12.1x	1.7x	1.7x	1.7x	7%	8%	31%	7%
Broadcom	USD	1,169,422	57,272	1,226,694	37.4x	31.5x	27.2x	1.8x	1.5x	1.3x	19%	27%	49%	10%
Marvell Technology	USD	52,999	3,626	56,626	22.0x	17.2x	14.2x	0.5x	0.4x	0.3x	30%	51%	23%	5%
Silicon Labs	USD	3,978	-425	3,553	191.9x	46.5x	28.4x	N.A.	N.A.	N.A.	28%	-	-20%	3%
KLA Corporation	USD	100,826	2,061	102,887	23.5x	22.9x	20.5x	1.6x	1.6x	1.4x	13%	18%	41%	11%
Lam Research	USD	105,502	-966	104,535	20.6x	20.5x	17.6x	1.3x	1.3x	1.1x	12%	15%	31%	10%
Alphabet	USD	2,058,452	-66,830	1,991,622	17.6x	16.6x	14.7x	1.2x	1.1x	1.0x	11%	13%	37%	12%
Tesla	USD	1,103,790	-23,103	1,080,687	179.6x	119.0x	91.1x	8.6x	5.7x	4.3x	10%	9%	13%	14%
Microsoft	USD	3,433,612	25,401	3,459,013	34.5x	30.6x	26.2x	2.8x	2.5x	2.2x	14%	13%	53%	13%
Meta	USD	1,686,862	-20,711	1,666,151	26.3x	23.5x	20.5x	1.5x	1.3x	1.1x	14%	9%	51%	11%
Amazon	USD	2,193,869	63,388	2,257,257	33.3x	28.5x	23.1x	1.9x	1.7x	1.4x	9%	15%	19%	11%
Apple	USD	3,012,556	-34,736	2,977,820	28.05x	25.6x	23.2x	2.6x	2.4x	2.2x	5%	8%	34%	5%
First Quartile					22.0x	17.2x	14.3x	1.1x	1.0x	0.9x	7%	9%	21%	5%
Median					28.7x	23.7x	20.5x	1.7x	1.6x	1.3x	12%	14%	31%	10%
Third Quartile					37.4x	30.1x	25.5x	2.2x	2.1x	1.8x	12%	14%	31%	10%
Average					45.4x	28.9x	23.5x	2.0x	1.7x	1.5x	14%	18%	30%	9%

Appendix - Multiple Comparable Table Taiwan

LTS CHALLENGE 2025

June 3rd, 2025		Market Cap	Net Debt	EV	P/E			PEG			Revenue CAGR	EPS Growth	EBITDA Margin	ROE
	Country	Local Currency	Local Currency	Local Currency	25E	26E	27E	25E	26E	27E	25E-27E	25E-27E	25E	25E
Taiwan Peers														
TSMC	TWS	25,802,937	-1,384,775	24,418,162	16.7x	13.8x	11.6x	0.5x	0.6x	0.6x	18%	19%	68%	26%
UMC	TWD	9,314	20,220	29,534	14.1x	11.9x	10.6x	1.5x	1.2x	1.1x	-	-	4%	-
Novatek	TWD	299,692	-52,755	246,937	14.2x	12.8x	12.1x	0.9x	0.8x	0.8x	8%	8%	22%	15%
PSMC	TWD	61,987	40,646	102,633	N.A.	N.A.	47.1x	N.A.	N.A.	N.A.	4%	-	3%	1%
MediaTek	TWD	2,008,269	-161,621	1,846,648	17.6x	14.8x	12.4x	1.8x	1.5x	1.3x	16%	13%	23%	15%
ASE Technology Holding	TWD	584,544	150,086	734,630	13.3x	10.2x	8.5x	0.5x	0.4x	0.3x	11%	34%	16%	13%
ChipMOS TECHNOLOGIES INC.	TWD	19,760	-6,083	13,677	10.9x	9.7x	N.A.	N.A.	N.A.	N.A.	10%	21%	26%	0%
Realtek Semiconductor	TWD	269,253	-54,531	214,722	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	12%	11%	14%	11%
First Quartile					12.7x	10.1x	10.1x	0.5x	0.5x	0.5x	8%	10%	7%	1%
Median					14.2x	12.3x	11.8x	0.9x	0.8x	0.8x	11%	16%	19%	13%
Third Quartile					16.9x	14.0x	21.1x	1.6x	1.4x	1.2x	11%	16%	19%	13%
Average					14.4x	12.2x	17.0x	1.0x	0.9x	0.8x	11%	18%	22%	12%

Appendix - Multiple Comparable Table Foundries

June 3rd, 2025		Market Cap	Net Debt	EV	P/E			PEG			Revenue CAGR	EPS Growth	EBITDA Margin	ROE
	Country	Local Currency	Local Currency	Local Currency	25E	26E	27E	25E	26E	27E	25E-27E	25E-27E	25E	25E
Foundry Peers														
TSMC	TWS	25,802,937	-1,384,775	24,418,162	16.7x	13.8x	11.6x	0.5x	0.6x	0.6x	18%	19%	68%	26%
Samsung	USD	371,013,358	-83,236,439	287,776,919	11.4x	9.5x	8.5x	0.5x	0.4x	0.4x	7%	10%	25%	27%
Intel	USD	86,106	35,219	121,325	65.3x	24.03	13.7x	0.5x	N.A.	N.A.	0%		14%	7%
SMIC	HKD	421,873	106,247	528,120	53.9x	41.4x	33.4x	23.3x	N.A.	N.A.	16%	44%	43%	13%
GlobalFoundries	USD	19,926	-2,016	17,910	22.2x	16.3x	13.2x	0.8x	0.6x	0.5x	6%	19%	33%	10%
UMC	TWD	9,314	20,220	29,534	14.1x	11.9x	10.6x	1.5x	1.2x	1.1x	-	-	4%	-
PSMC	TWD	61,987	40,646	102,633	N.A.	N.A.	47.1x	N.A.	N.A.	N.A.	4%	-	3%	1%
First Quartile					13.4x	11.3x	10.6x	0.5x	0.4x	0.4x	3%	12%	4%	6%
Median					19.4x	15.0x	13.2x	0.7x	0.6x	0.6x	6%	19%	25%	12%
Third Quartile					56.7x	28.4x	33.4x	6.9x	1.1x	1.0x	6%	19%	25%	12%
Average					30.6x	19.5x	19.7x	4.5x	0.7x	0.6x	8%	23%	27%	14%



Appendix - Implied Multiple

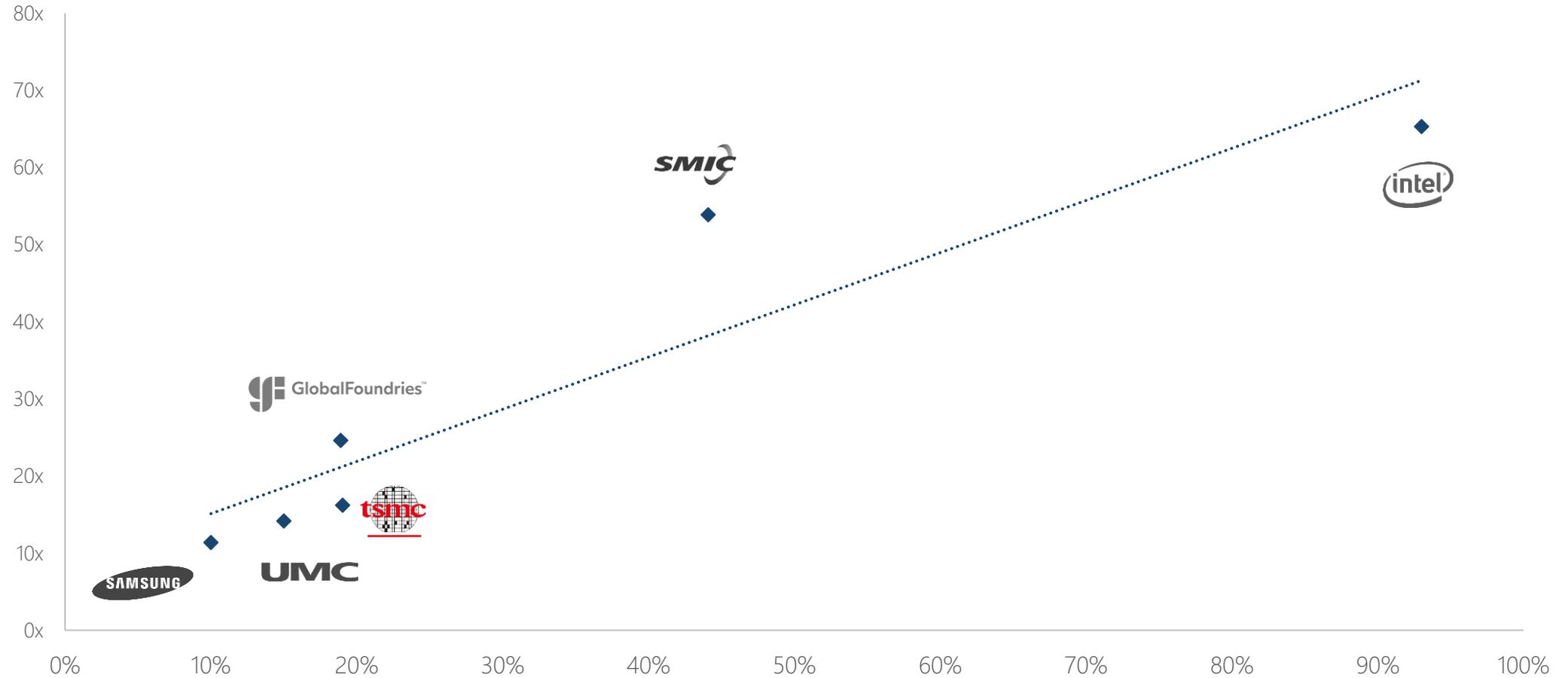
To be more confident about our exit P/E, we made a sanity check, so we calculated the implied multiple from our model

Free Cash Flow to Equity (Million)	2025E	2026E	2027E	2028E	2029E	Perpetuity
(=) Net Income	1,552,741	1,863,901	2,209,045	2,626,636	3,133,392	48,091,654
(+/-) Net Borrowing	424,811	266,286	318,869	384,131	462,413	7,097,162
(+) D&A	715,027	824,573	990,475	1,186,630	1,418,623	21,773,181
(+/-) Delta WC	(152,513)	(136,059)	(164,305)	(205,063)	(251,394)	(3,858,423)
(-) Maintenance Capex	(715,027)	(824,573)	(990,475)	(1,186,630)	(1,418,623)	(21,773,181)
(-) Expansion Capex	(604,330)	(783,448)	(921,711)	(1,086,538)	(1,290,768)	0.0
(=) Free Cash Flow to Equity	1,220,709	1,210,680	1,441,899	1,719,166	2,053,642	51,330,393
USD Flows	41,949	41,248	52,628	63,438	71,705	1,792,262
31/12/2025	31/12/2025	31/12/2026	31/12/2027	31/12/2028	31/12/2029	
Period	0.00	1.00	2.00	3.00	4.00	
NPV of Cash Flows	41,949	37,416	43,302	47,347	48,544	1,213,360

	2028	2029
	1,719,166	53,384,036
	1,719,166	48,423,749
Fair P/E fwd	16.0x	

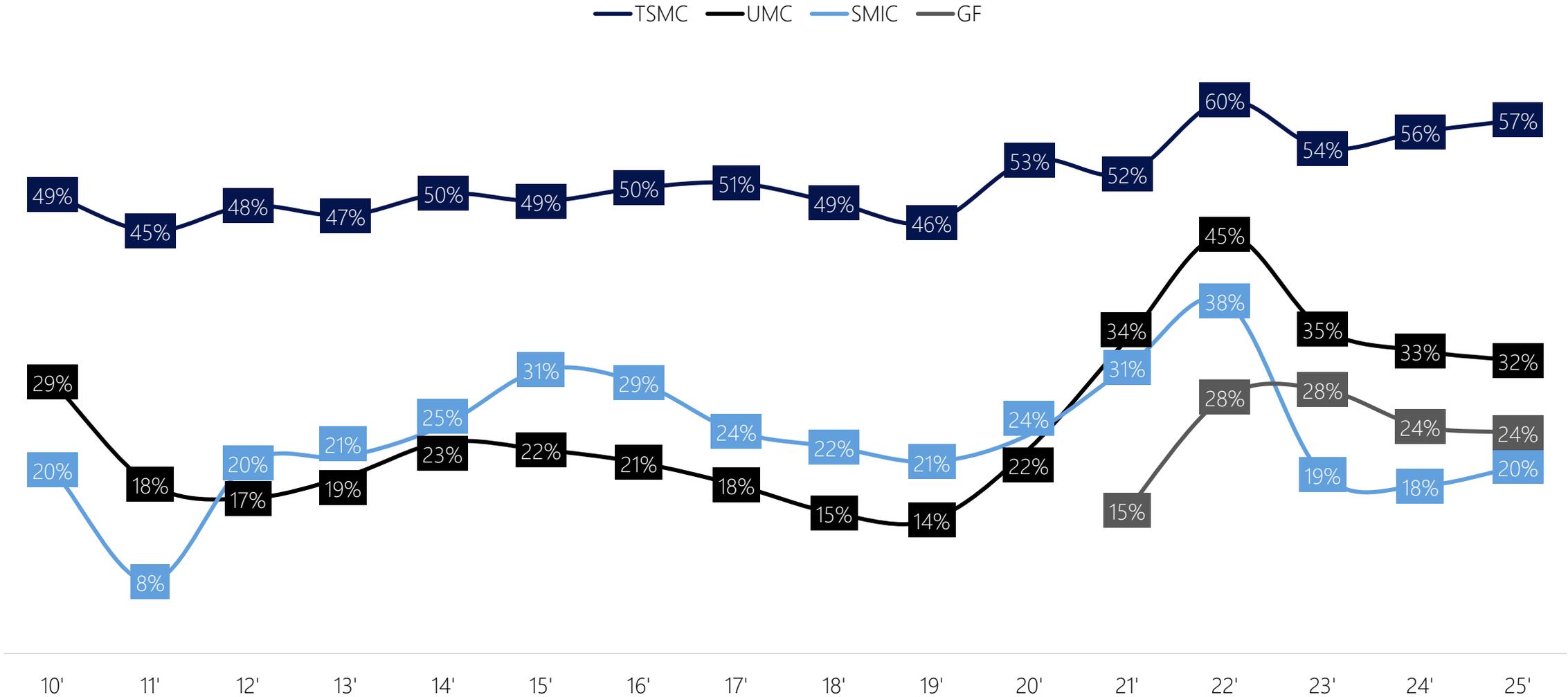


Appendix - P/E 1Y fwd vs. EPS CAGR 25E-27E



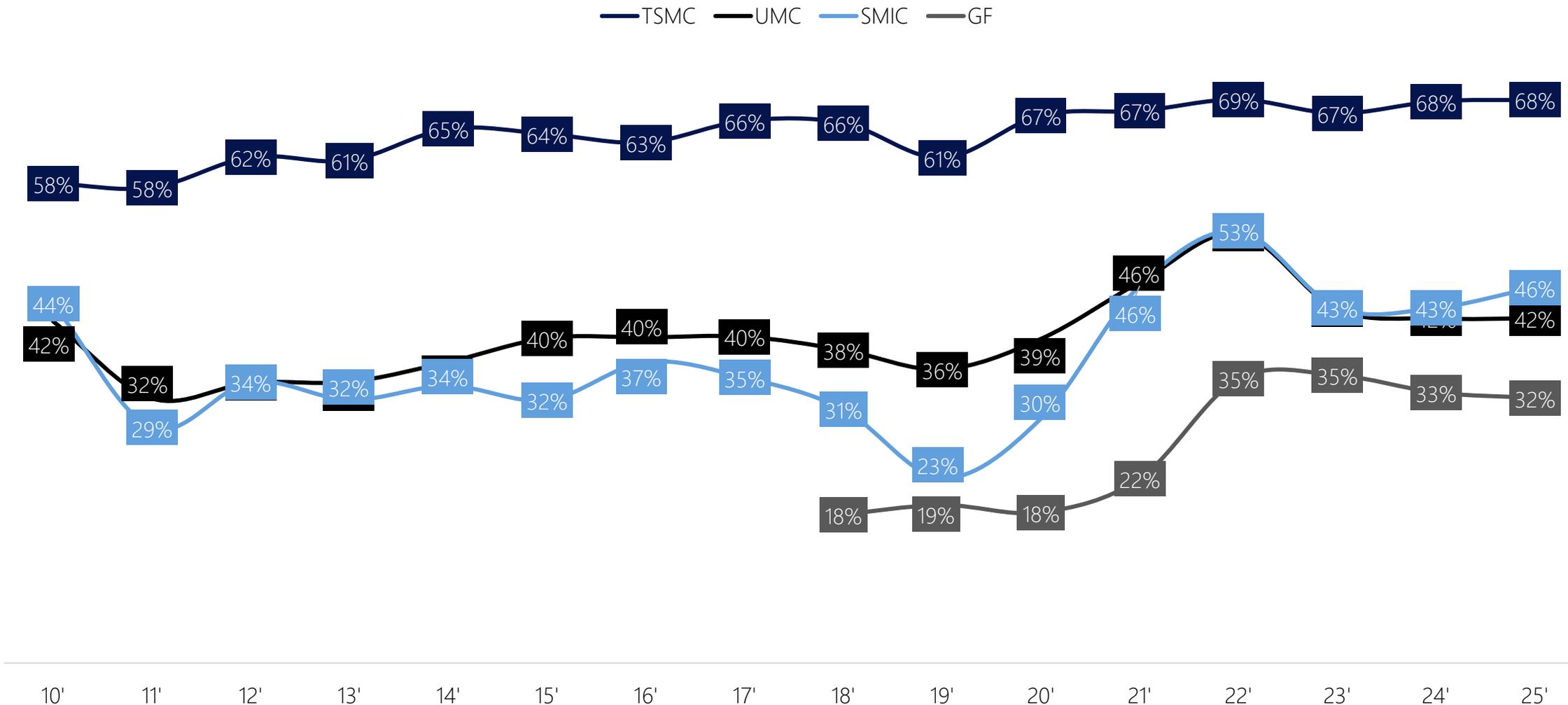


Appendix TSMC vs Competitors: Gross Margin



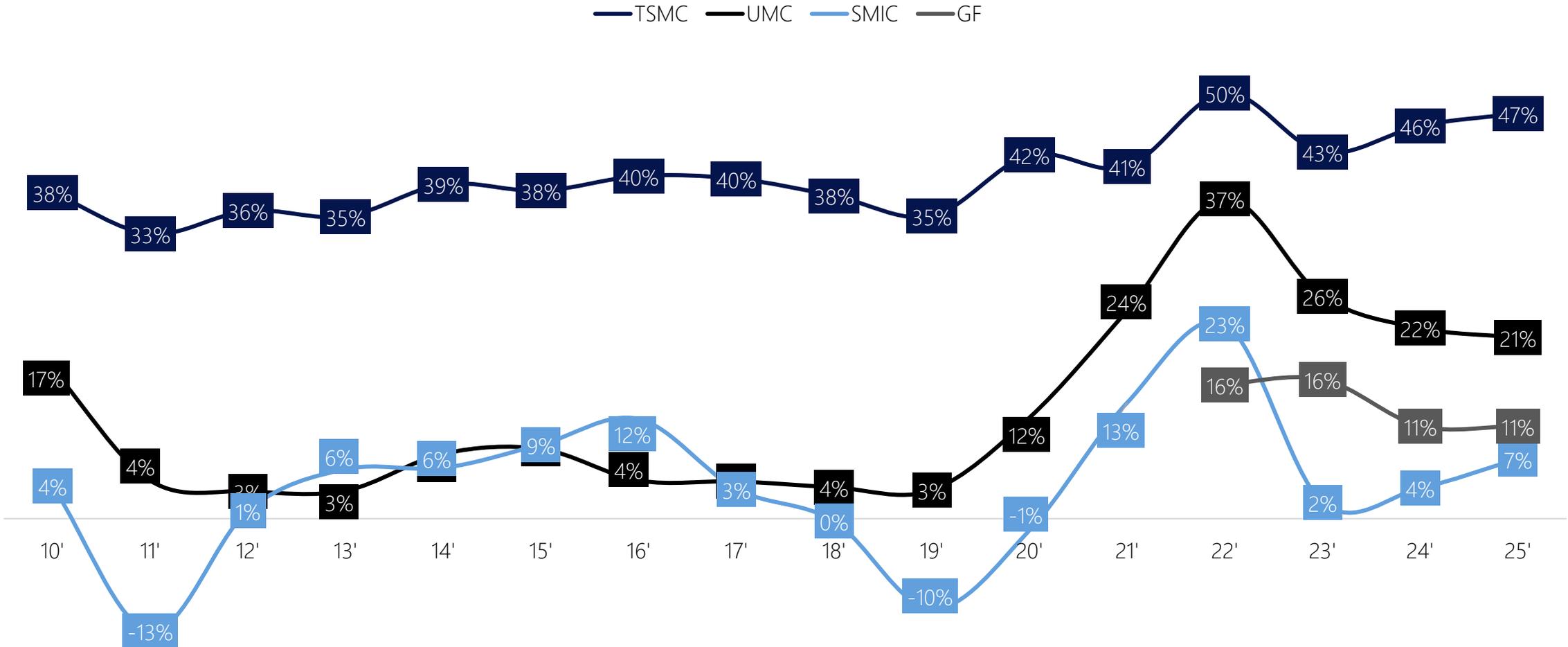


Appendix TSMC vs Competitors: EBITDA Margin



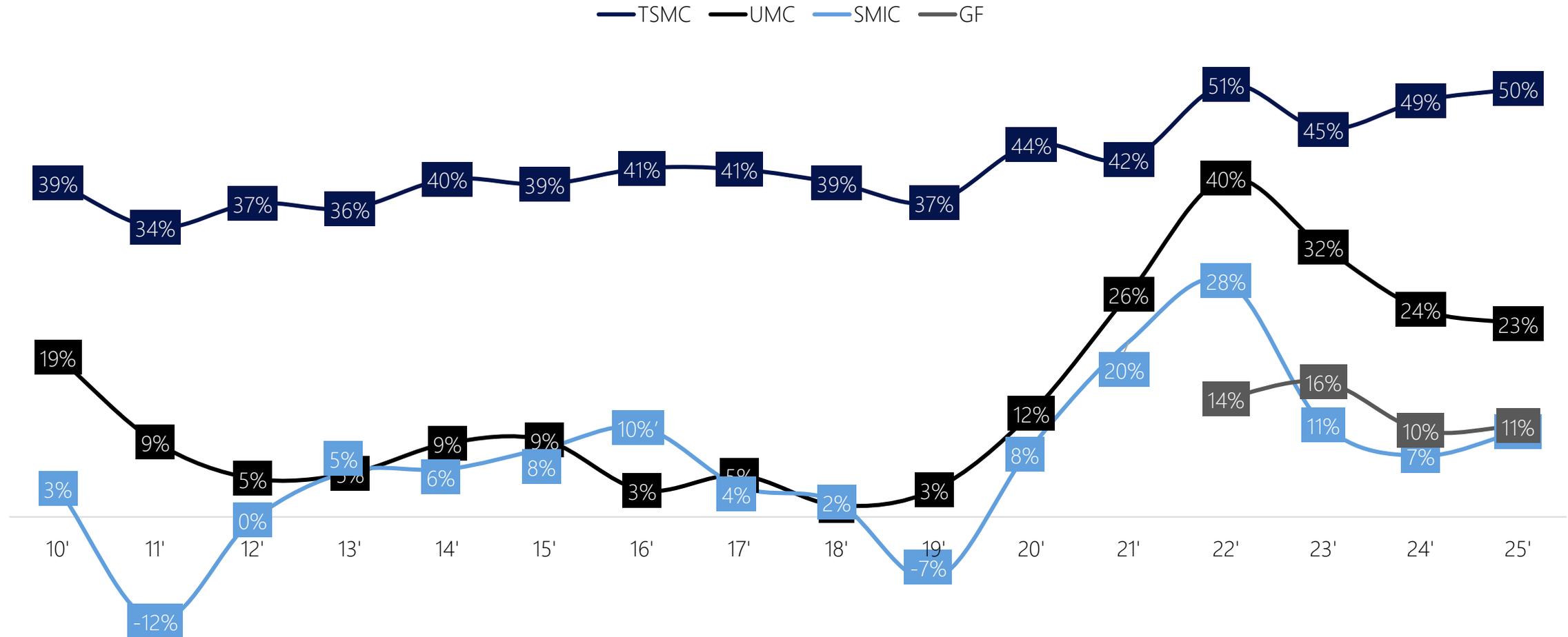


Appendix TSMC vs Competitors: EBIT Margin



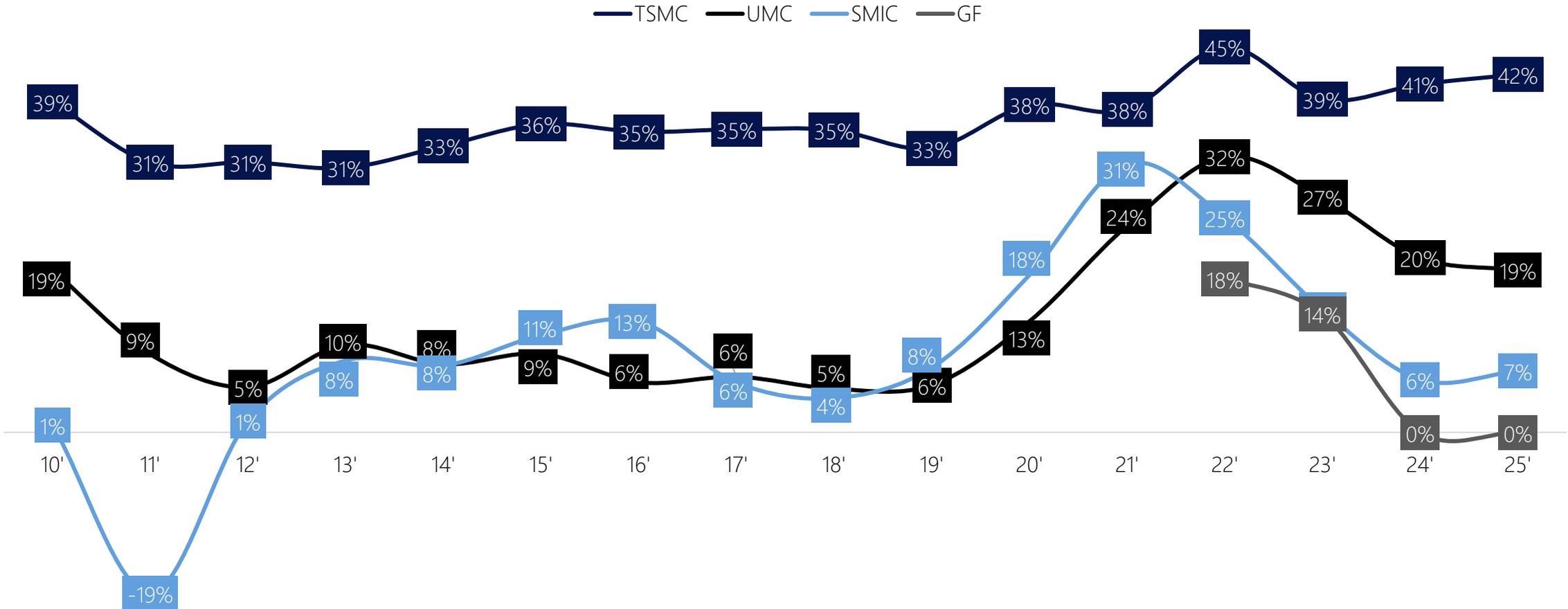


Appendix TSMC vs Competitors: EBT Margin



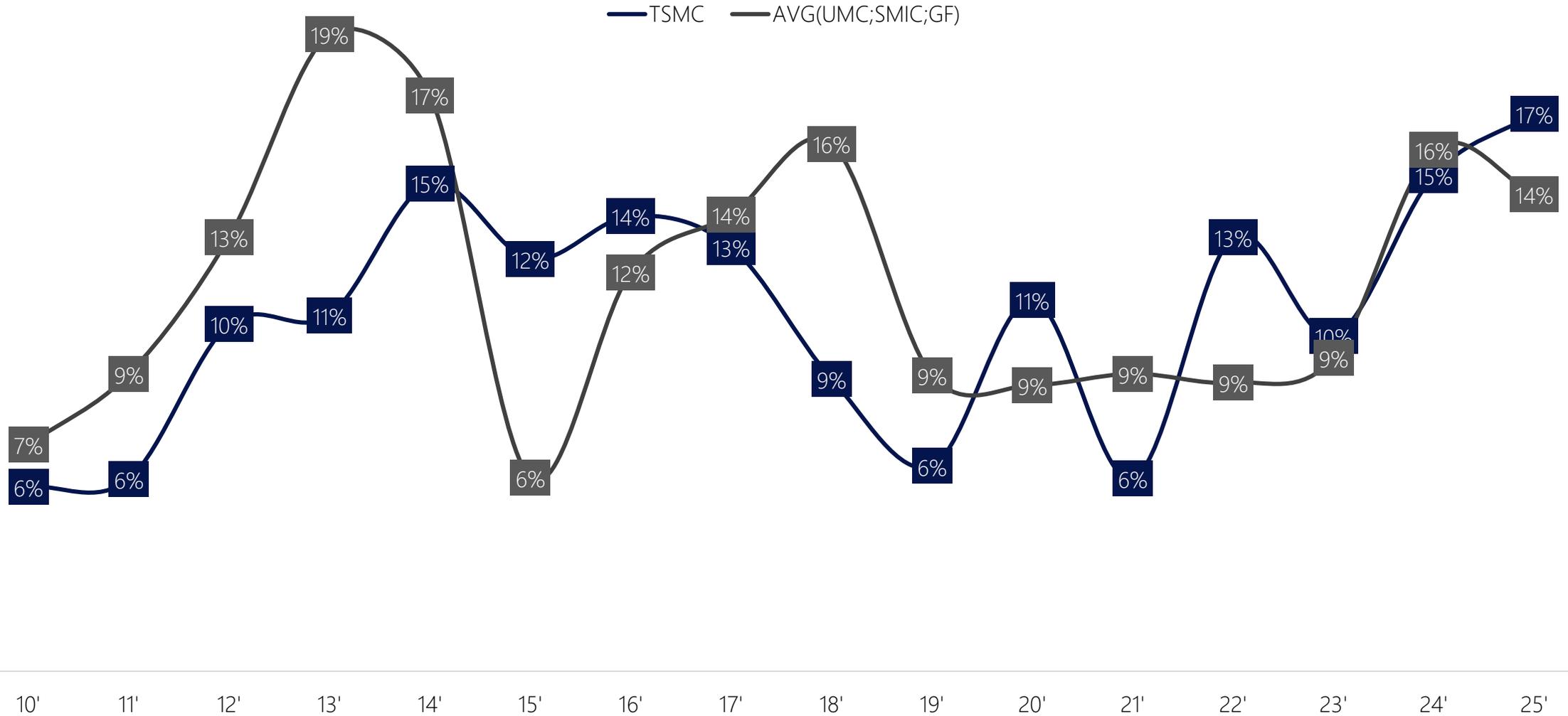


Appendix TSMC vs Competitors: Net Margin



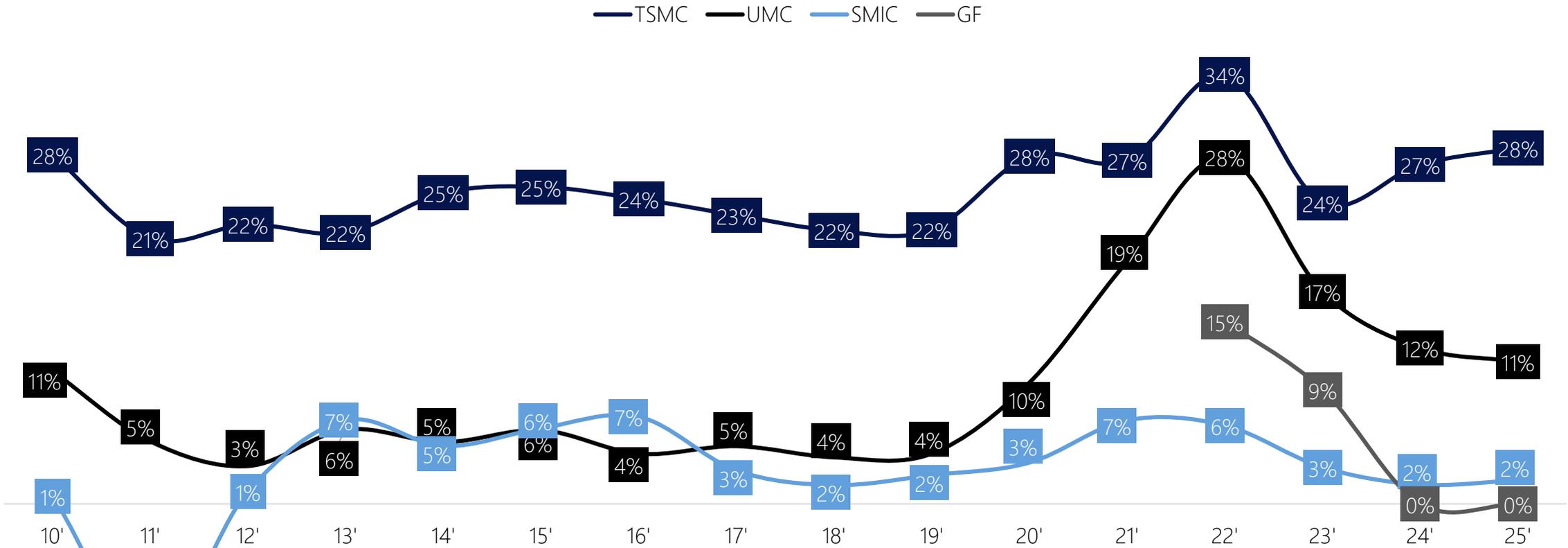


Appendix TSMC vs Competitors: Tax



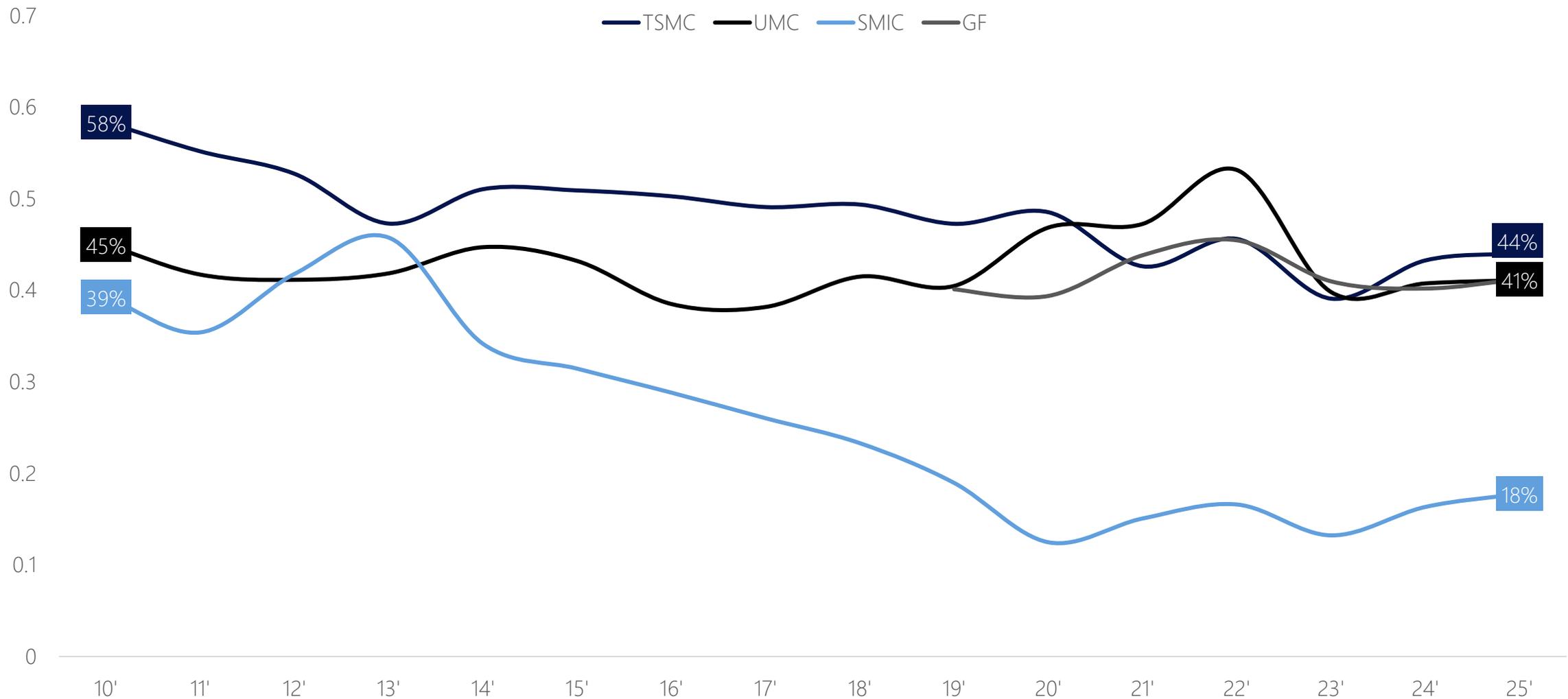


Appendix TSMC vs Competitors: ROE



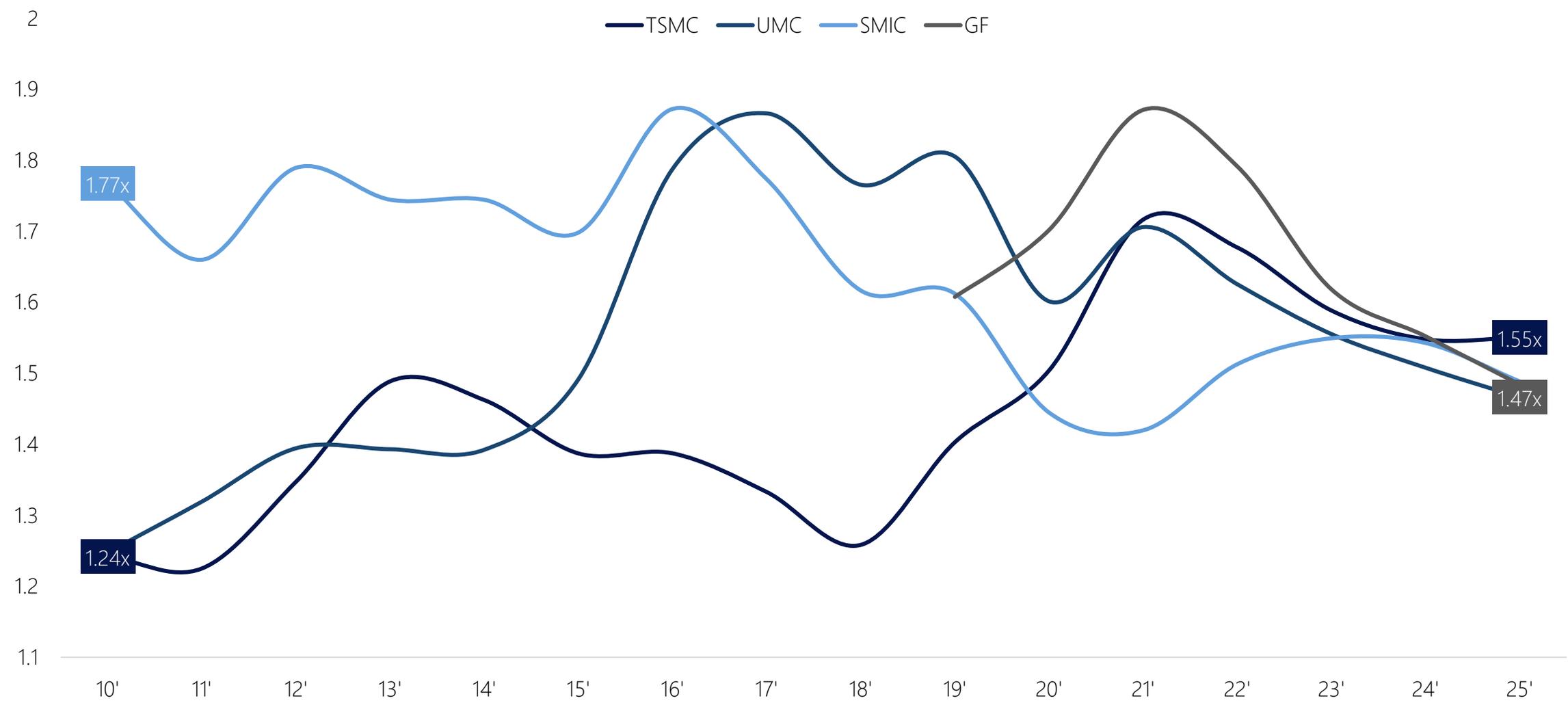


Appendix TSMC vs Competitors: Asset Turnover (Revenue/Assets)



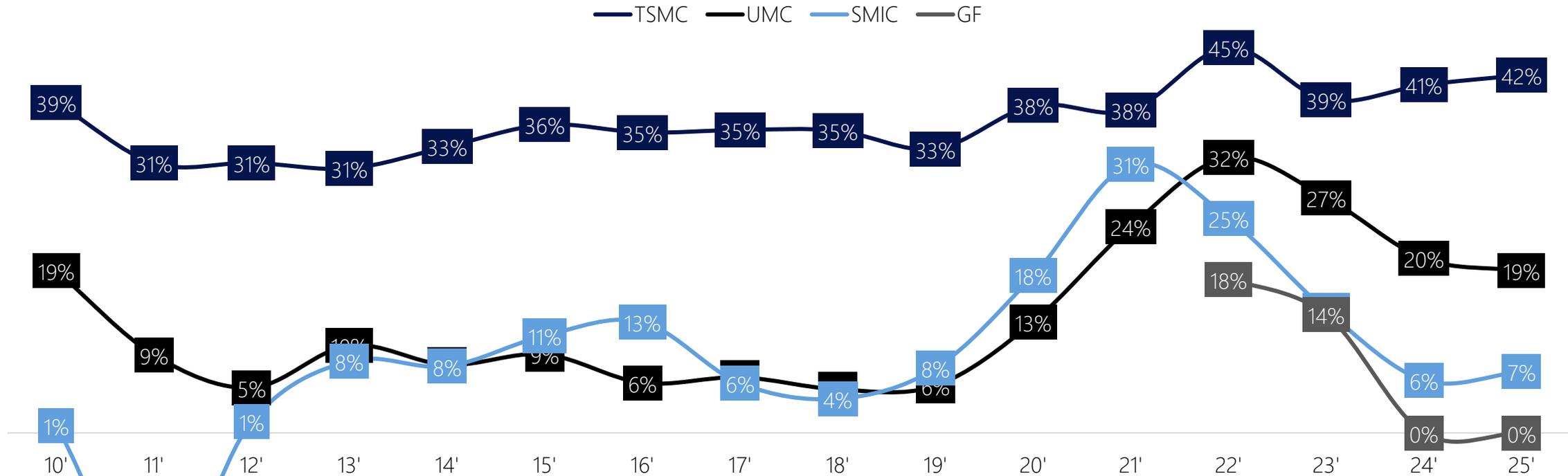


Appendix TSMC vs Competitors: Leverage (Assets/Equity)



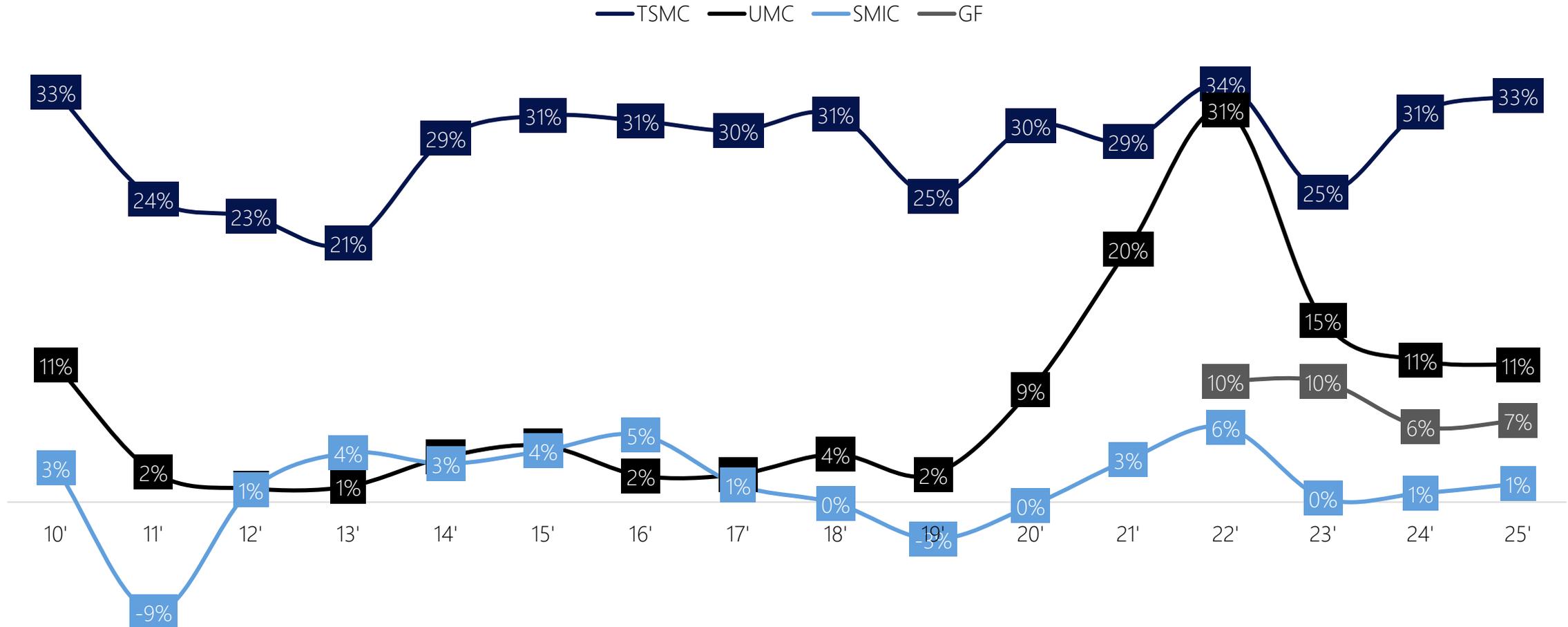


Appendix TSMC vs Competitors: Net Margin



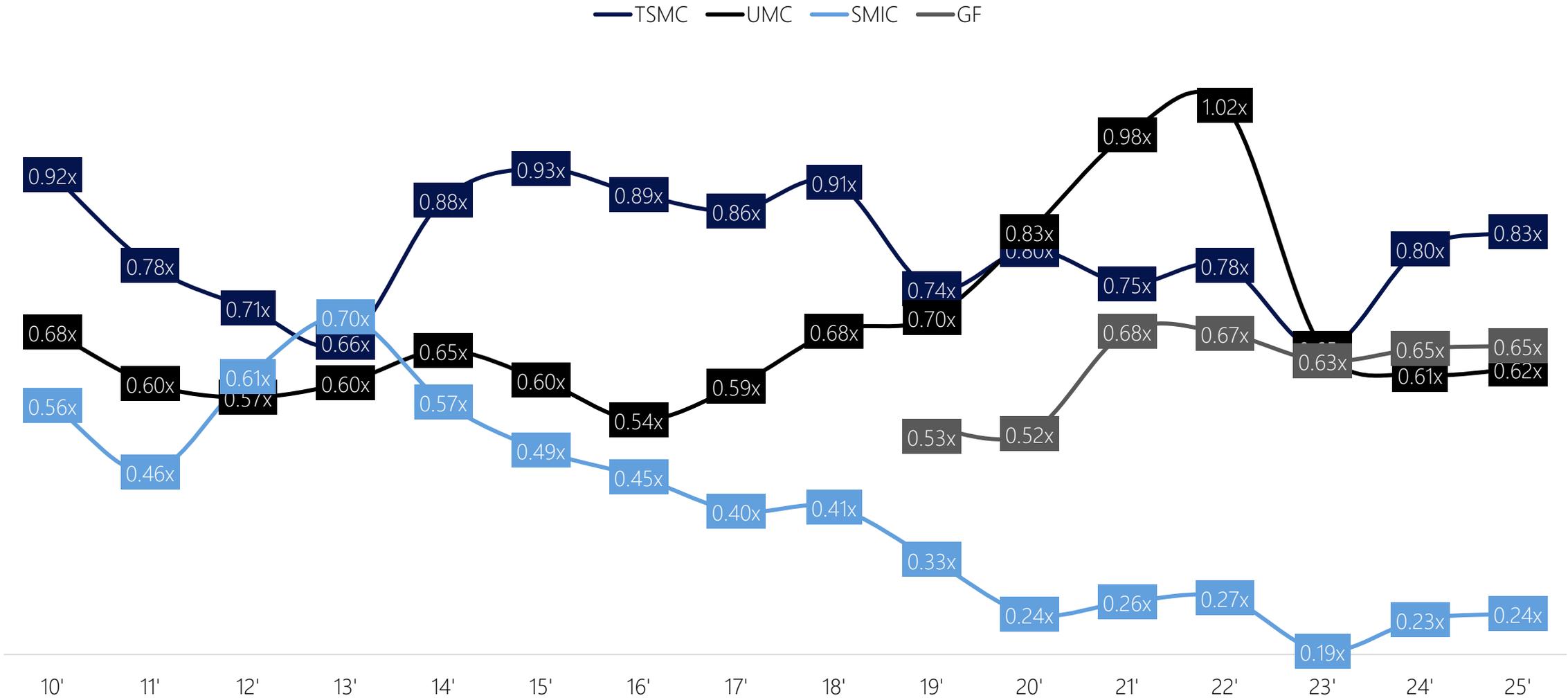


Appendix TSMC vs Competitors: ROIC



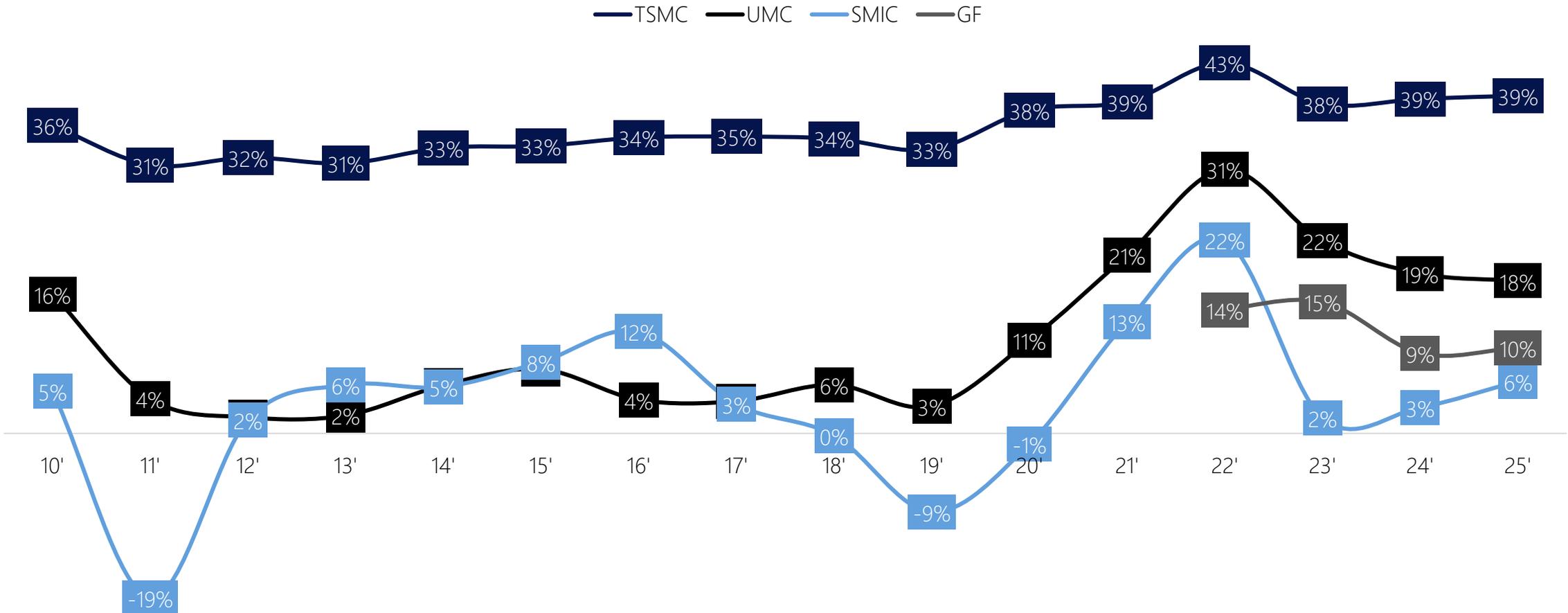


Appendix TSMC vs Competitors: IC Turnover



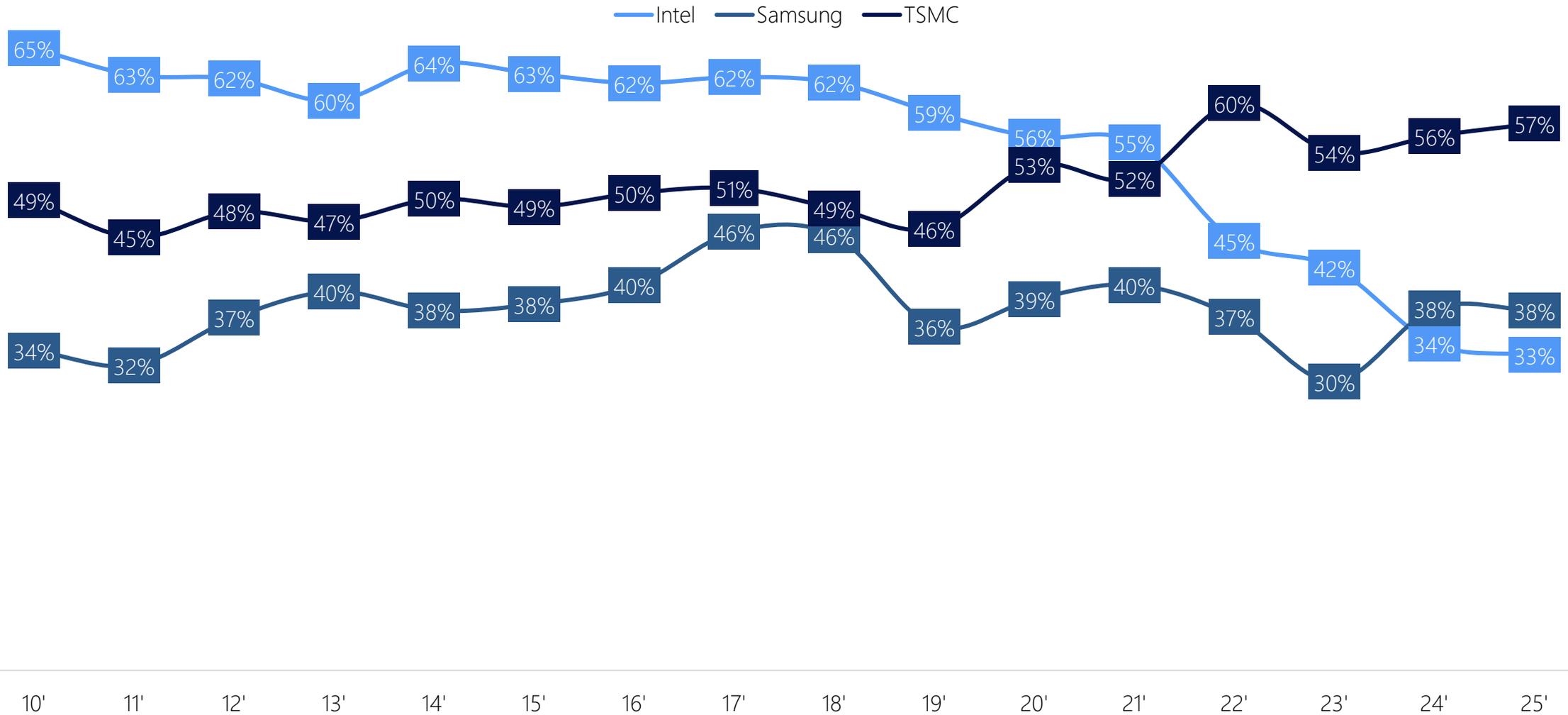


Appendix TSMC vs Competitors: NOPAT Margin



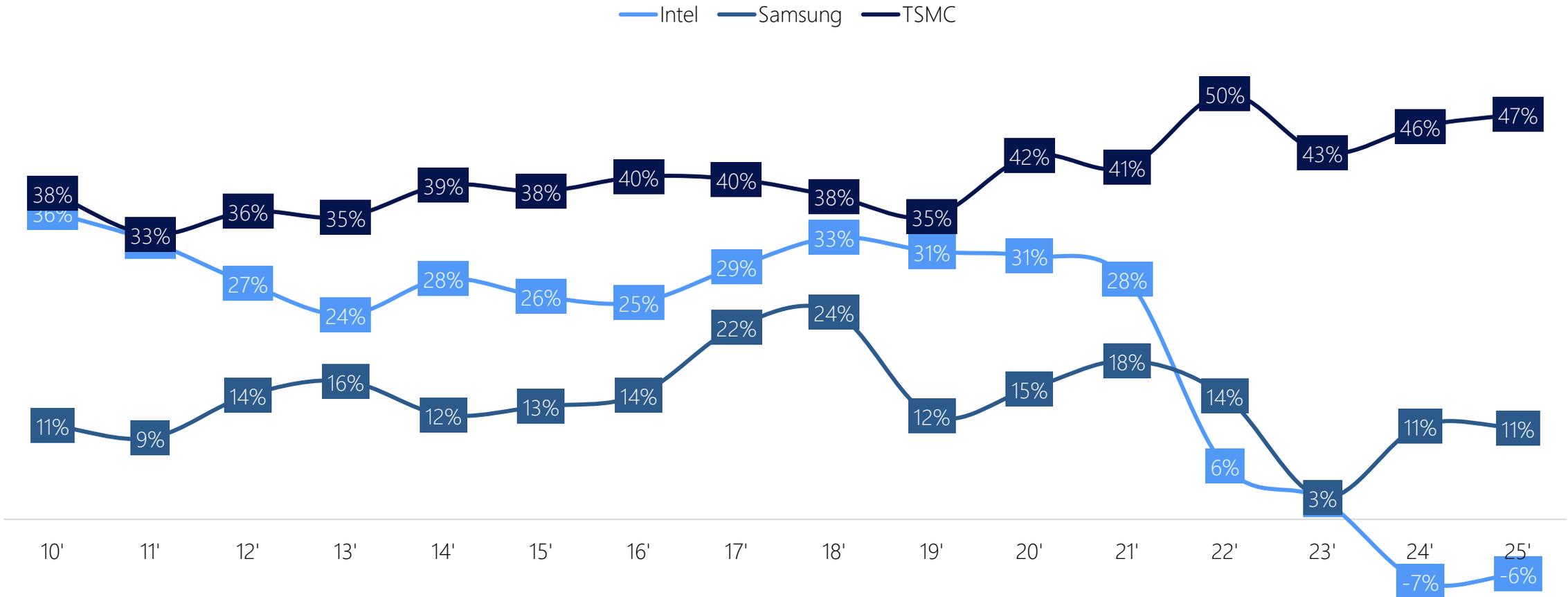


Appendix TSMC vs Competitors: Gross Margin





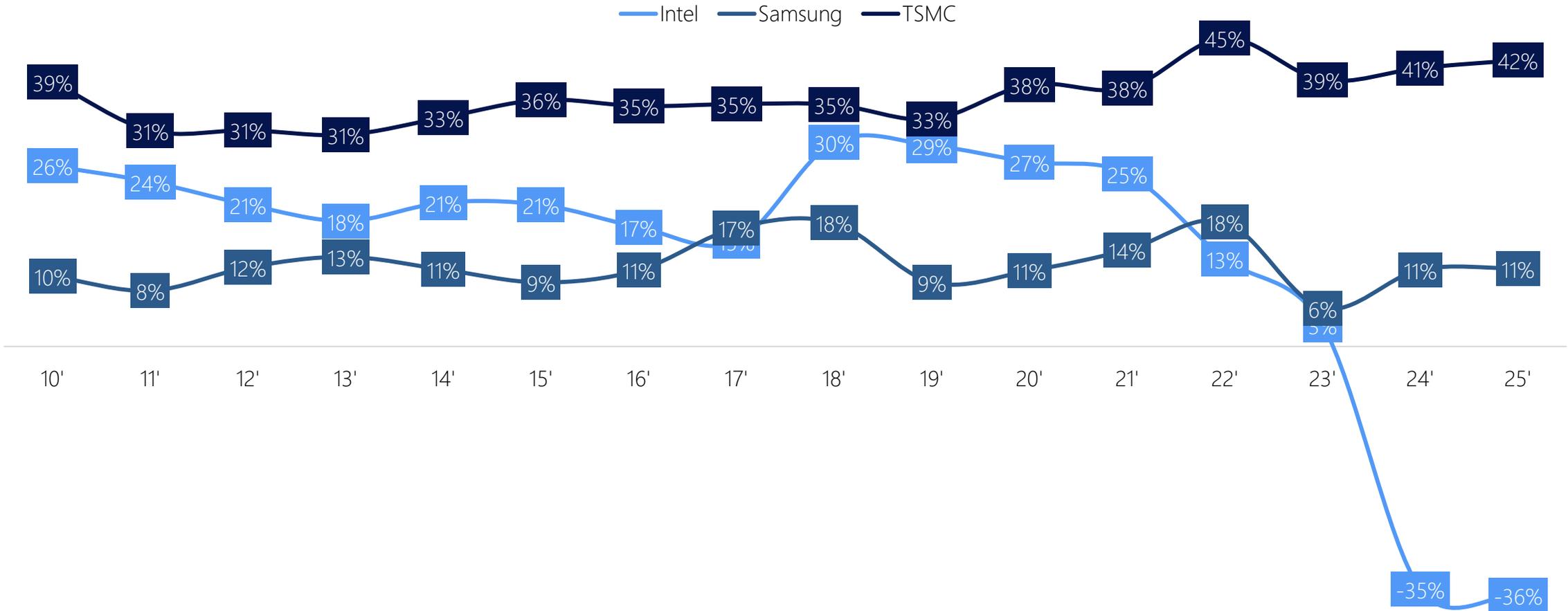
Appendix TSMC vs Competitors: EBIT Margin





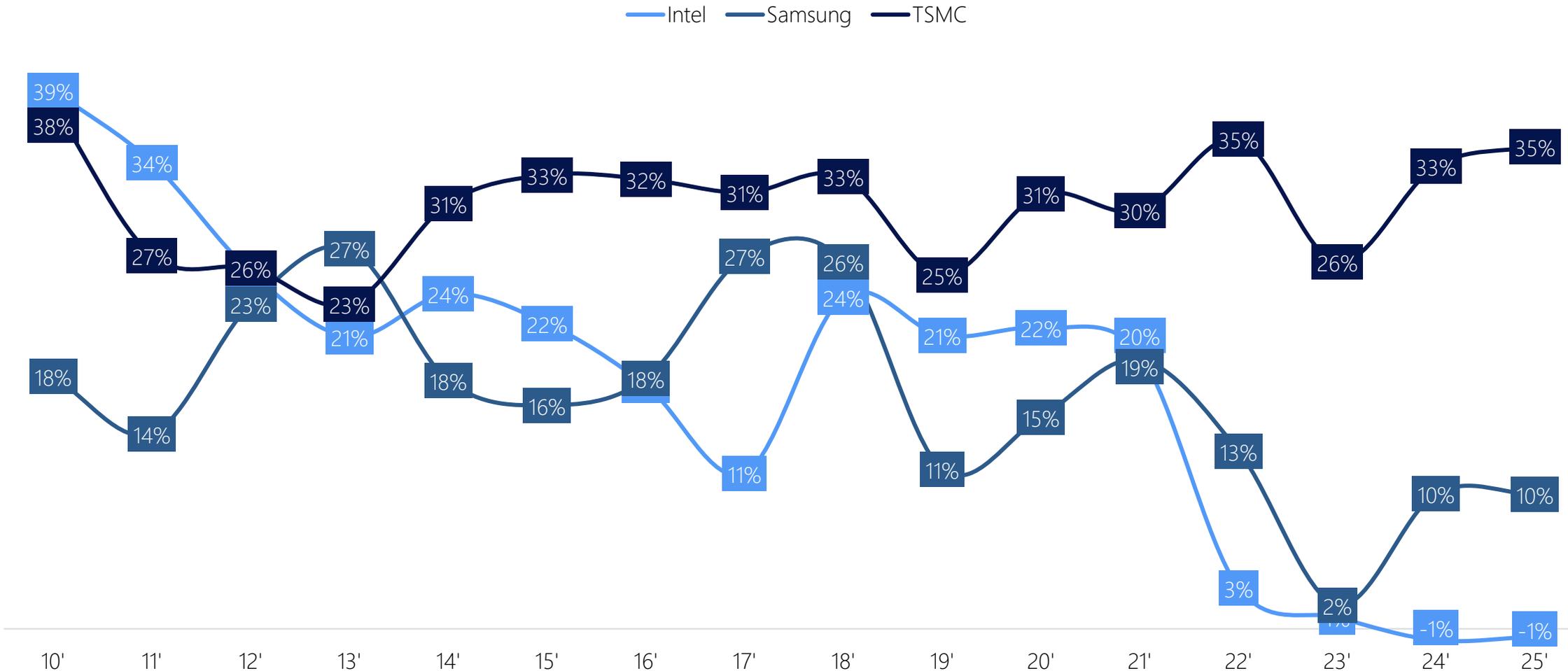
Appendix TSMC vs Competitors: Net Margin

LTS CHALLENGE 2025



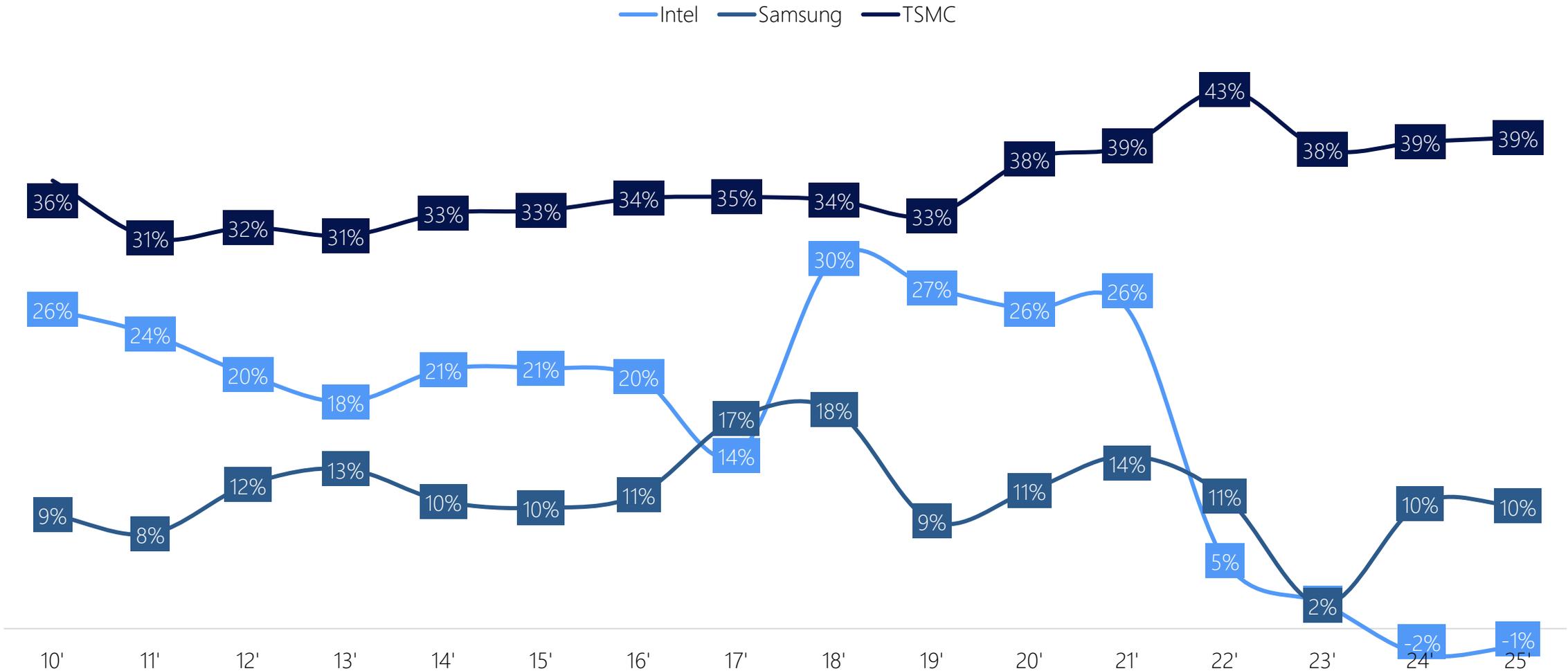


Appendix TSMC vs Competitors: ROIC



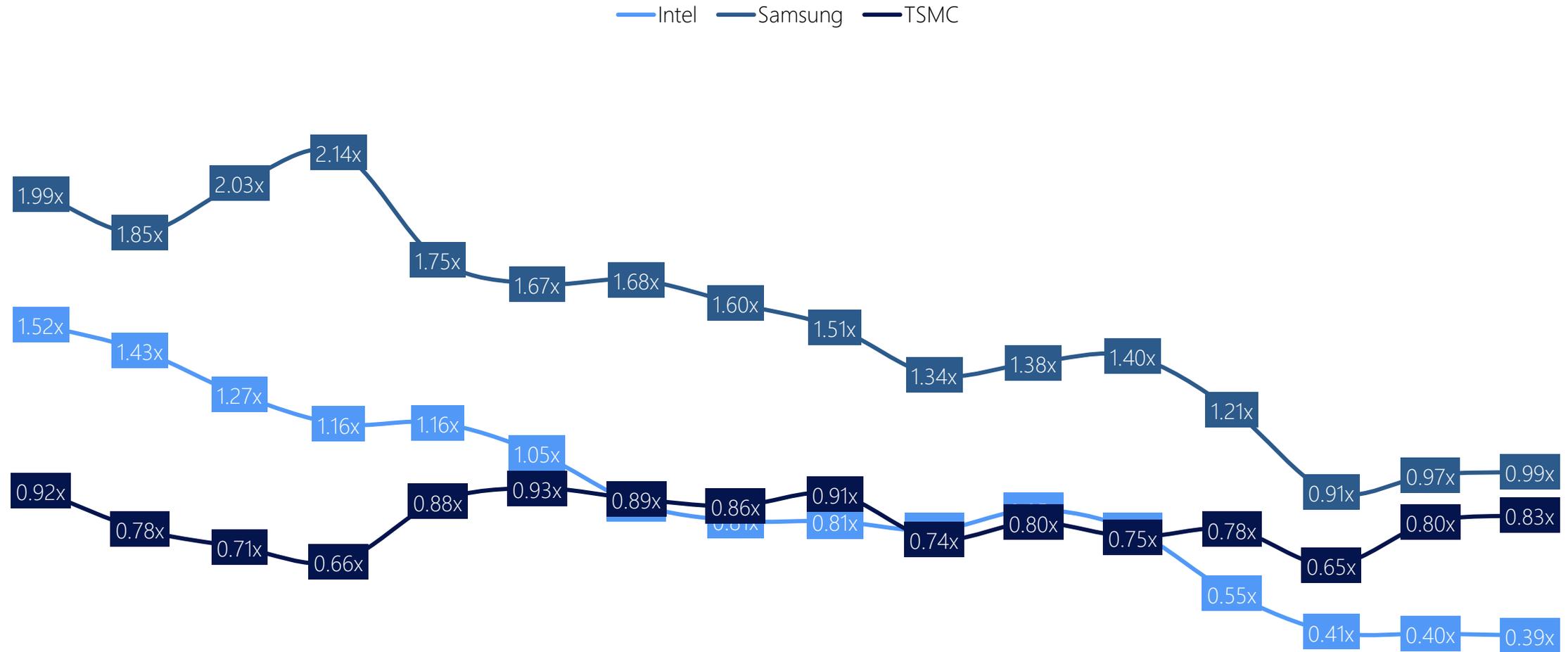


Appendix TSMC vs Competitors: NOPAT Margin





Appendix TSMC vs Competitors: IC Turnover



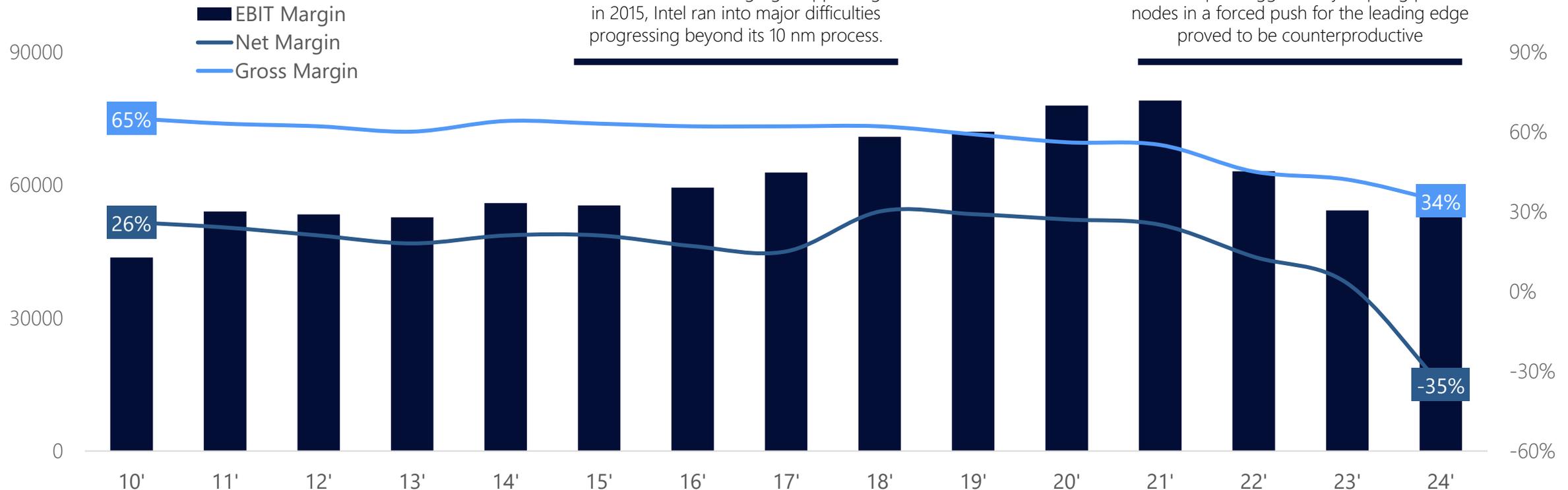


Appendix - Intel

Intel's manufacturing market share per node [%]



Outsourcing production to TSMC, having been unable to manufacture chips under 5nm



10 nm Fiasco:

With the first warning signs appearing in 2015, Intel ran into major difficulties progressing beyond its 10 nm process.

4 nodes in 5 Years:

The attempt to aggressively leapfrog process nodes in a forced push for the leading edge proved to be counterproductive

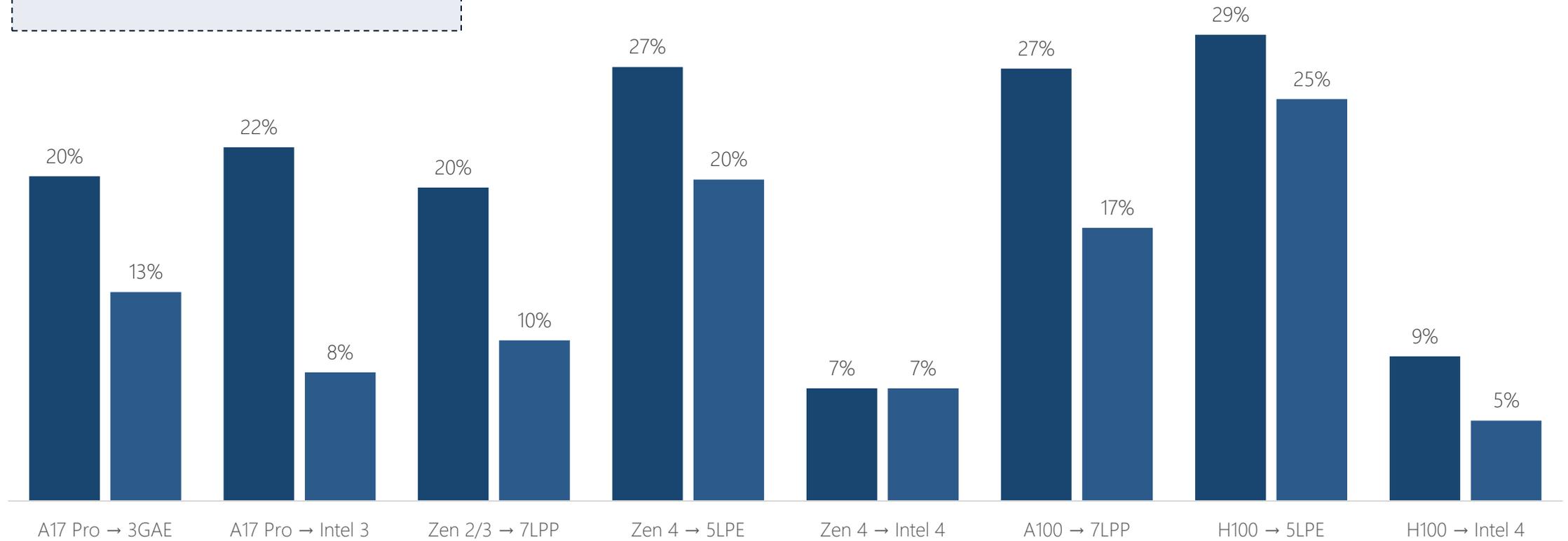


Appendix - Cost to substitute TSMC

Necessary increase in chip area and reduction on PPA to substitute TSMC [%; %]

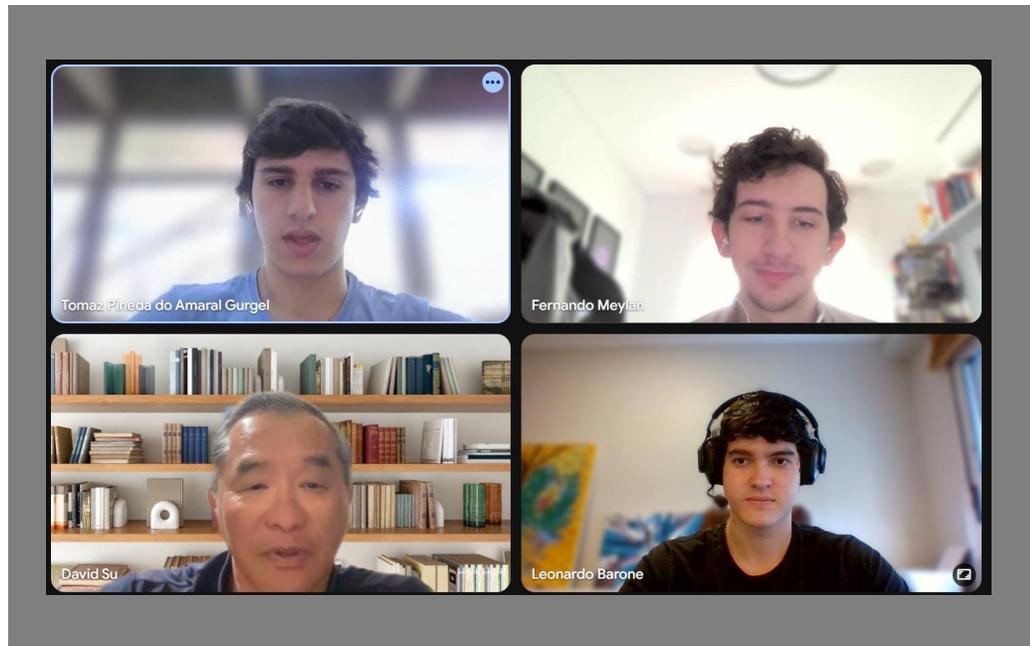
■ Area ■ PPA

PPA (Power-Performance-Area) is a good proxy for the battery consumption of the device





Summing up...

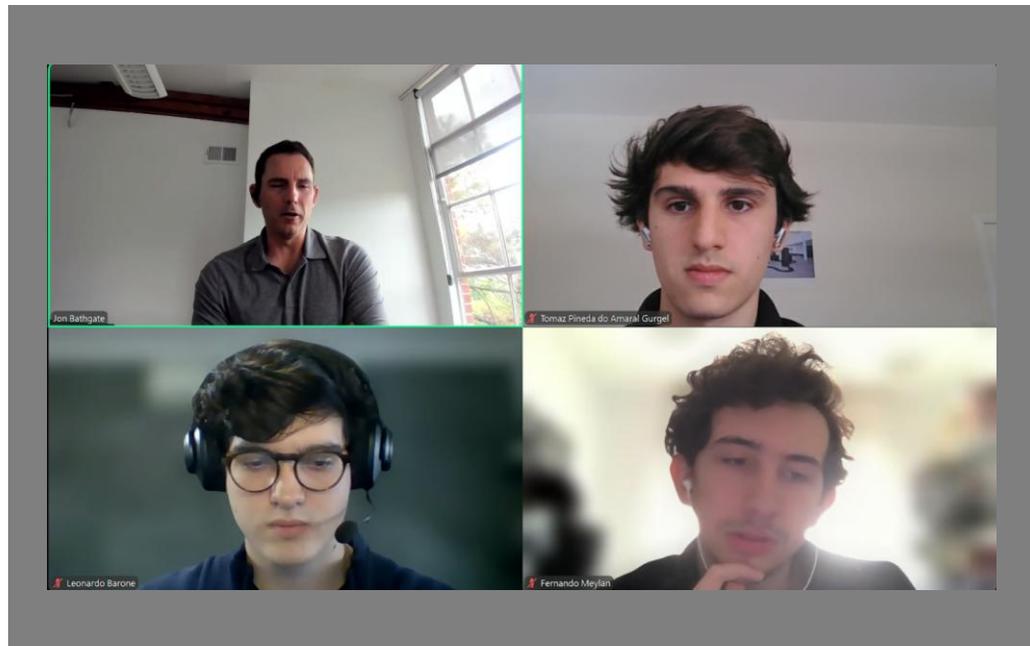


On May 28 we had the opportunity to talk to David Su, a former TSMC engineer who spent 18 years at the company. We discussed TSMC's culture of relentless excellence and the meticulous process controls that underpin its manufacturing leadership. David also highlighted the foundry's central importance to Taiwan's economy and explained how founder Morris Chang deliberately nurtured strong, trust-based relationships with suppliers and employees, turning their satisfaction into a lasting competitive edge.



Call with Jon Bathgate

Summing up...



On May 29 we had the opportunity to talk to Jon Bathgate, an investor at NZS Capital. We discussed NZS's view of TSMC's resilient pricing power, the company's long-term strategic roadmap, and the structural tailwinds that keep its technology leadership intact. Jon emphasized that customers effectively grant TSMC a unique form of sovereignty: they align their product cycles to the foundry's node cadence and willingly pay premium prices because no alternative can match TSMC's scale, yields, and execution reliability.



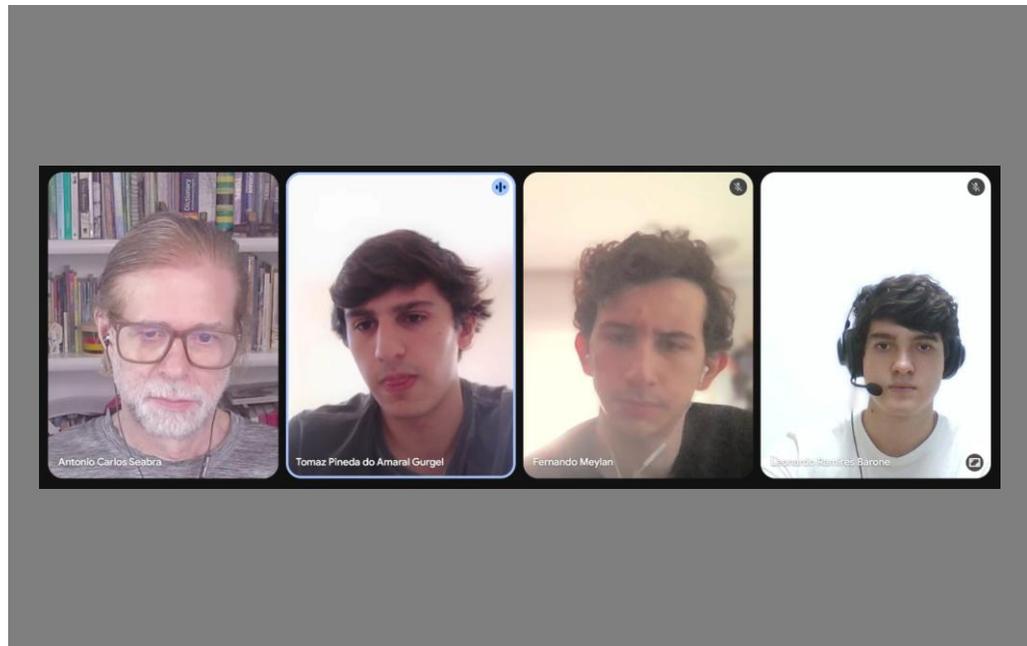
Summing up...



On May 19 we spoke with Professor Marcelo Zuffo, who walked us through every stage of wafer fabrication, lithography, etching, deposition, and final inspection, highlighting the extreme precision and contamination control required. He then weighed China's fast-growing but equipment-constrained chip industry against TSMC's mature, vertically integrated ecosystem. The key takeaway: TSMC routinely posts high-90 % yields on leading-edge nodes, while most Chinese and other international rivals still hover in the mid-80 % range, underscoring the gulf in process know-how and economic efficiency.



Summing up...



On May 15 we spoke with Professor Antonio Carlos Seabra, who mapped out the entire semiconductor supply chain showing how each link amplifies the next. He dove into the foundry model's quirks: titanic capex, wafer-pricing opacity, and the razor-thin margin for process error. We also explored looming physical limits (sub-1 nm lithography, heat dissipation, quantum tunneling) and the frontiers that could push them back, including new channel materials (GaN, SiC, 2D semiconductors) and heterogeneous integration.

Appendix - Income Statement

LTS CHALLENGE 2025

INCOME STATEMENT	[Unit]	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Net Revenue	[NTD mn]	1,069,985	1,339,255	1,587,415	2,263,891	2,161,736	2,894,308	3,638,906	4,377,717	5,188,352	6,169,142	7,359,352
<i>Growth YoY</i>	[%]	-	25%	19%	43%	-5%	34%	26%	20%	19%	19%	19%
Cost of Sales	[NTD mn]	(577,284)	(628,125)	(767,878)	(915,536)	(986,625)	(1,269,953)	(1,560,908)	(1,899,929)	(2,251,745)	(2,677,408)	(3,193,959)
<i>growth YoY</i>	[%]	-	9%	22%	19%	8%	29%	23%	22%	19%	19%	19%
<i>% Net Revenue</i>	[%]	54%	47%	48%	40%	46%	44%	43%	43%	43%	43%	43%
Gross Profit	[NTD mn]	492,702	711,130	819,537	1,348,355	1,175,111	1,624,354	2,077,998	2,477,788	2,936,607	3,491,734	4,165,393
<i>growth YoY</i>	[%]	-	44%	15%	65%	-13%	38%	28%	19%	19%	19%	19%
<i>% Net Revenue</i>	[%]	46%	53%	52%	60%	54%	56.12%	57.1%	56.6%	56.6%	56.6%	56.6%
OPEX	[NTD mn]	(120,001)	(144,346)	(169,556)	(227,076)	(253,645)	(302,301)	(368,851)	(441,793)	(523,601)	(622,581)	(742,695)
<i>growth YoY</i>	[%]	-	20%	17%	34%	12%	19%	22%	20%	19%	19%	19%
<i>% Net Revenue</i>	[%]	11%	11%	11%	10%	12%	10%	10%	10%	10%	10%	10%
EBIT	[NTD mn]	372,701	566,784	649,981	1,121,279	921,466	1,322,053	1,709,147	2,035,995	2,413,006	2,869,154	3,422,698
<i>growth YoY</i>	[%]	-	52%	15%	73%	-18%	43%	29%	19%	19%	19%	19%
<i>% Net Revenue</i>	[%]	35%	42%	41%	50%	43%	46%	47%	47%	47%	47%	47%
Financial Result	[NTD mn]	17,144	17,993	13,145	22,912	57,706	83,785	107,804	131,332	155,651	185,074	220,781
<i>growth YoY</i>	[%]	-	5%	-27%	74%	152%	45%	29%	22%	19%	19%	19%
<i>% Cash</i>		4%	3%	1%	2%	4%	4%	4%	4%	4%	4%	4%
<i>% Net Revenue</i>	[%]	2%	1%	1%	1%	3%	3%	3%	3%	3%	3%	3%
EBT	[NTD mn]	389,845	584,777	663,126	1,144,191	979,171	1,405,839	1,816,951	2,167,327	2,568,657	3,054,228	3,643,479
<i>growth YoY</i>	[%]	-	50%	13%	73%	-14%	44%	29%	19%	19%	19%	19%
<i>% Net Revenue</i>	[%]	36%	44%	42%	51%	45%	49%	50%	50%	50%	50%	50%
Taxes	[NTD mn]	(44,502)	(66,619)	(66,053)	(127,290)	(141,404)	(233,407)	(264,210)	(303,426)	(359,612)	(427,592)	(510,087)
<i>Tax rate</i>	[%]	11%	11%	10%	11%	14%	17%	15%	14%	14%	14%	14%
Net Income	[NTD mn]	345,344	518,158	597,073	1,016,901	837,768	1,172,432	1,552,741	1,863,901	2,209,045	2,626,636	3,133,392
<i>growth YoY</i>	[%]	-	50%	15%	70%	-18%	40%	32%	20%	19%	19%	19%
<i>% Net Revenue</i>	[%]	32%	39%	38%	45%	39%	41%	43%	43%	43%	43%	43%

Appendix - Balance Sheet

LTS CHALLENGE 2025

Balance Sheet	[Unit]	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
ASSETS	[NTD mn]	2,264,805	2,760,711	3,725,503	4,964,779	5,532,371	6,691,938	8,269,770	9,672,100	11,337,776	13,317,727	15,681,996
Current assets	[NTD mn]	822,614	1,092,185	1,607,073	2,052,897	2,194,033	3,088,352	4,043,643	4,662,526	5,406,490	6,299,903	7,373,404
Cash and cash equivalents	[NTD mn]	455,399	660,171	1,064,990	1,342,814	1,465,428	2,127,627	2,893,855	3,358,975	3,917,256	4,585,768	5,386,053
Marketable security	[NTD mn]	128,049	131,306	123,465	218,671	222,217	294,392	308,281	308,281	308,281	308,281	308,281
Trade accounts receivables	[NTD mn]	139,771	146,038	198,301	231,340	201,938	272,088	370,326	437,994	519,708	618,682	738,917
Inventory	[NTD mn]	82,981	137,353	193,102	221,149	250,997	287,869	390,526	461,884	548,056	652,428	779,221
Prepaid & Advance	[NTD mn]	-	-	-	-	-	-	-	-	-	-	-
Other Short-term assets	[NTD mn]	16,414	17,317	27,214	38,922	53,453	106,376	80,655	95,392	113,189	134,745	160,932
Non-current assets	[NTD mn]	1,442,191	1,668,526	2,118,431	2,911,882	3,338,338	3,603,586	4,226,127	5,009,575	5,931,285	7,017,823	8,308,592
Long-term Investments	[NTD mn]	30,172	27,728	29,385	68,928	129,442	149,040	160,793	160,793	160,793	160,793	160,793
Property, plant and equipment	[NTD mn]	1,352,377	1,555,589	1,975,119	2,693,837	3,064,475	3,234,980	3,839,310	4,622,758	5,544,468	6,631,006	7,921,775
Other Long-term assets	[NTD mn]	59,642	85,209	113,927	149,117	144,421	219,566	226,024	226,024	226,024	226,024	226,024
LIABILITIES	[NTD mn]	642,710	910,089	1,554,770	2,004,290	2,049,108	2,368,362	2,952,941	3,236,931	3,577,179	3,981,149	4,465,383
Current liabilities	[NTD mn]	590,736	617,151	739,503	944,227	913,583	1,264,525	1,442,742	1,476,423	1,516,934	1,559,819	1,609,386
Loans and financing	[NTD mn]	150,322	91,159	119,488	19,314	9,293	59,858	84,676	100,654	119,786	142,834	170,578
Accounts Payable	[NTD mn]	40,206	41,095	48,723	56,522	57,293	74,227	96,888	114,592	135,971	155,809	177,630
Other liabilities	[NTD mn]	400,207	484,897	571,293	868,391	846,997	1,130,440	1,261,177	1,261,177	1,261,177	1,261,177	1,261,177
Non-current liabilities	[NTD mn]	51,974	292,938	815,267	1,060,063	1,135,525	1,103,837	1,510,199	1,760,508	2,060,246	2,421,329	2,855,997
Loans and financing	[NTD mn]	25,100	256,073	613,380	839,096	918,283	926,604	1,326,596	1,576,905	1,876,643	2,237,726	2,672,394
Other liabilities	[NTD mn]	26,874	36,866	201,887	220,967	217,242	177,233	183,603	183,603	183,603	183,603	183,603
SHAREHOLDERS' EQUITY	[NTD mn]	1,622,095	1,850,622	2,170,733	2,960,489	3,483,263	4,323,576	5,316,829	6,435,169	7,760,596	9,336,578	11,216,613
Common Stocks	[NTD mn]	259,304	259,304	259,304	259,304	259,321	259,327	259,326	259,326	259,326	259,326	259,326
Preferred Stocks	[NTD mn]	-	-	-	-	-	-	-	-	-	-	-
Capital Reserve	[NTD mn]	56,340	56,347	64,762	69,330	69,876	73,261	73,307	73,307	73,307	73,307	73,307
Retained earnings	[NTD mn]	1,305,767	1,534,006	1,844,221	2,617,019	3,129,717	3,955,957	4,946,734	6,065,074	7,390,501	8,966,483	10,846,518
Treasury Stock	[NTD mn]	-	-	-	-	-	-	-	-	-	-	-
Minority Equity	[NTD mn]	685	965	2,447	14,836	24,349	35,031	37,462	37,462	37,462	37,462	37,462

Appendix - Cash Flow Statement

LTS CHALLENGE 2025

Cash Flow	[Unit]	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
(=) Net Income	[NTD mn]	518,158	597,073	1,016,901	837,768	1,172,432	1,552,741	1,863,901	2,209,045	2,626,636	3,133,392
(+/-) D&A	[NTD mn]	331,725	422,395	437,254	532,191	662,796	715,027	824,573	990,475	1,186,630	1,418,623
(+/-) ΔWC	[NTD mn]	(60,654)	(110,281)	(64,994)	(14,207)	(143,011)	(152,513)	(136,059)	(164,305)	(205,063)	(251,394)
(+/-) change in other current assets	[NTD mn]	(3,257)	7,841	(95,206)	(3,545)	(72,175)	(13,889)	-	-	-	-
(+/-) change in other non-current assets	[NTD mn]	(23,123)	(30,375)	(74,733)	(55,818)	(94,743)	(18,211)	-	-	-	-
(+/-) change in other current liabilities	[NTD mn]	84,690	86,396	297,098	(21,394)	283,443	130,737	-	-	-	-
(+/-) change in other non-current liabilities	[NTD mn]	9,992	165,021	19,080	(3,724)	(40,009)	6,370	-	-	-	-
(=) CFO	[NTD mn]	857,530	1,138,070	1,535,399	1,271,270	1,768,733	2,220,262	2,552,415	3,035,216	3,608,202	4,300,621
(-) Maintenance CAPEX	[NTD mn]	(331,725)	(422,395)	(437,254)	(532,191)	(662,796)	(715,027)	(824,573)	(990,475)	(1,186,630)	(1,418,623)
(-) Expansion CAPEX	[NTD mn]	(203,212)	(419,530)	(718,718)	(370,638)	(170,505)	(604,330)	(783,448)	(921,711)	(1,086,538)	(1,290,768)
(=) CFI	[NTD mn]	(534,936)	(841,924)	(1,155,973)	(902,829)	(833,301)	(1,319,356)	(1,608,022)	(1,912,186)	(2,273,168)	(2,709,391)
(+/-) Change in Debt	[NTD mn]	171,809	385,636	125,543	69,166	58,886	424,811	266,286	318,869	384,131	462,413
(-) Dividends and IoE	[NTD mn]	(259,304)	(265,786)	(285,234)	(291,722)	(332,582)	(550,110)	(745,560)	(883,618)	(1,050,654)	(1,253,357)
(-) Others	[NTD mn]	287	9,896	16,958	10,077	14,073	2,476	-	-	-	-
(=) CFF	[NTD mn]	(87,207)	129,746	(142,734)	(212,480)	(259,623)	(122,824)	(479,274)	(564,749)	(666,523)	(790,944)

Appendix - Revenue Build-Up

LTS CHALLENGE 2025

	[Unit]	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
By Platform	[NTD mn]	1,069,985	1,339,255	1,587,415	2,263,891	2,161,736	2,894,308	3,638,906	4,377,717	5,188,352	6,169,142	7,359,352
HPC	[NTD mn]	317,526	439,663	587,538	932,871	933,974	1,470,569	2,205,375	2,781,022	3,408,418	4,183,265	5,141,836
Growth YoY	[%]		38%	34%	59%	0%	57%	50%	26%	23%	23%	23%
% of total revenue	[%]	30%	33%	37%	41%	43%	51%	61%	64%	66%	68%	70%
Smartphone	[NTD mn]	522,968	646,559	694,644	888,494	813,816	1,009,720	975,804	1,077,105	1,188,923	1,312,348	1,448,587
%rev	[%]		24%	7%	28%	-8%	24%	-3%	10%	10%	10%	10%
Growth YoY	[%]	49%	60%	65%	83%	76%	94%	91%	101%	111%	123%	135%
IOT	[NTD mn]	86,342	110,195	139,146	193,374	164,727	172,571	178,193	208,461	243,870	285,293	333,752
%rev	[%]		28%	26%	39%	-15%	5%	3%	17%	17%	17%	17%
Growth YoY	[%]	8%	10%	13%	18%	15%	16%	17%	19%	23%	27%	31%
DCE	[NTD mn]	53,939	56,219	54,968	55,530	48,043	41,605	34,077	35,461	36,901	38,399	39,958
%rev	[%]		4%	-2%	1%	-13%	-13%	-18%	4%	4%	4%	4%
Growth YoY	[%]	5%	5%	5%	5%	4%	4%	3%	3%	3%	4%	4%
Automotive	[NTD mn]	47,396	42,826	63,497	119,450	132,685	141,957	177,302	204,747	236,440	273,039	315,303
%rev	[%]		-10%	48%	88%	11%	7%	25%	15%	15%	15%	15%
Growth YoY	[%]	4%	4%	6%	11%	12%	13%	17%	19%	22%	26%	29%
Others	[NTD mn]	41,814	43,793	47,622	74,172	68,492	57,886	68,154	70,921	73,801	76,798	79,916
%rev	[%]		5%	9%	56%	-8%	-15%	18%	4%	4%	4%	4%
Growth YoY	[%]	4%	4%	4%	7%	6%	5%	6%	7%	7%	7%	7%



Appendix - COGS Build-Up

Cost of Sales	[Unit]	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Cost of Sales	[NTD mn]	(577,284)	(628,125)	(767,878)	(915,536)	(986,625)	(1,269,953)	(1,560,908)	(1,899,929)	(2,251,745)	(2,677,408)	(3,193,959)
<i>growth YoY</i>	[%]	-	9%	22%	19%	8%	29%	23%	22%	19%	19%	19%
% Net Revenue	[%]	54%	47%	48%	40%	46%	44%	43%	43%	43%	43%	43%

Appendix - OPEX

LTS CHALLENGE 2025

OPEX	[Unit]	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Operational Expenses	[NTD mn]	(120,001)	(144,346)	(169,556)	(227,076)	(253,645)	(302,301)	(368,851)	(441,793)	(523,601)	(622,581)	(742,695)
<i>growth YoY</i>	[%]	-	20%	17%	34%	12%	19%	22%	20%	19%	19%	19%
% Net Revenue	[%]	11%	11%	11%	10%	12%	10%	10%	10%	10%	10%	10%
R&D	[NTD mn]	(91,419)	(109,486)	(124,735)	(163,262)	(182,370)	(204,182)	(249,723)	(302,063)	(357,996)	(425,671)	(507,795)
<i>growth YoY</i>	[%]	-	20%	14%	31%	12%	12%	22%	21%	19%	19%	19%
% Net Revenue	[%]	9%	8%	8%	7%	8%	7%	7%	7%	7%	7%	7%
SG&A Expenses and others	[NTD mn]	(28,582)	(34,860)	(44,822)	(63,814)	(71,275)	(98,119)	(119,128)	(139,730)	(165,605)	(196,910)	(234,900)
<i>growth YoY</i>	[%]	-	22%	29%	42%	12%	38%	21%	17%	19%	19%	19%
% Net Revenue	[%]	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%

Appendix - Working Capital Dynamics

LTS CHALLENGE 2025

Working Capital	[Unit]	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Days in the period	[days]	360	360	360	360	360	360	360	360	360	360	360
Net Revenue	[NTD mn]	1,069,985	1,339,255	1,587,415	2,263,891	2,161,736	2,894,308	3,638,906	4,377,717	5,188,352	6,169,142	7,359,352
COS	[NTD mn]	(577,284)	(628,125)	(767,878)	(915,536)	(986,625)	(1,269,953)	(1,560,908)	(1,899,929)	(2,251,745)	(2,677,408)	(3,193,959)
COGS (Ex-PP&E D&A)	[NTD mn]											
Change in WC	[NTD mn]	-	60,654	110,281	64,994	14,207	143,011	152,513	136,059	164,305	205,063	251,394
% of Net Revenue		#VALUE!	5%	7%	3%	1%	5%	4%	3%	3%	3%	3%
WC	[NTD mn]	198,959	259,614	369,895	434,889	449,095	592,106	744,619	880,678	1,044,983	1,250,046	1,501,440
Cash conversion cycle	[days]	79	83	99	99	109	95	97	100	99	100	101
Current Assets	[NTD mn]											
Receivables	[NTD mn]	139,771	146,038	198,301	231,340	201,938	272,088	370,326	437,994	519,708	618,682	738,917
Days Receivables	[days]	47	38	39	34	36	29	32	33	33	33	33
Inventory	[NTD mn]	82,981	137,353	193,102	221,149	250,997	287,869	390,526	461,884	548,056	652,428	779,221
Days of Revenue	[days]	52	63	77	81	86	76	78	81	81	81	81
Other current assets	[NTD mn]	16,414	17,317	27,214	38,922	53,453	106,376	80,655	95,392	113,189	134,745	160,932
Days of Revenue	[days]	6	5	5	5	8	10	9	7	7	7	7
Current Liabilities	[NTD mn]											
Suppliers	[NTD mn]	40,206	41,095	48,723	56,522	57,293	74,227	96,888	114,592	135,971	155,809	177,630
% of COGS	[%]	7%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Days Payable		25	24	23	22	21	21	22	22	22	21	20

Appendix - PP&E

LTS CHALLENGE 2025

PP&E	[Unit]	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Beginning PP&E	[NTD mn]	1,072,050	1,352,377	1,555,589	1,975,119	2,693,837	3,064,475	3,234,980	3,839,310	4,622,758	5,544,468	6,631,006
CapEx	[NTD mn]	460,422	507,239	839,196	1,082,672	949,817	981,037	1,309,218	1,608,022	1,912,186	2,273,168	2,709,391
% of Net Revenue	[%]	43%	38%	53%	48%	44%	34%	36%	37%	37%	37%	37%
% of D&A		160%	153%	199%	248%	178%	148%	183%	195%	193%	192%	191%
% of CFO	[%]	#DIV/0!	59%	74%	71%	75%	55%	59%	63%	63%	63%	63%
% of BOP PP&E	[%]											
Depreciation	[NTD mn]	(286,884)	(331,725)	(422,395)	(437,254)	(532,191)	(662,796)	(715,027)	(824,573)	(990,475)	(1,186,630)	(1,418,623)
% of BOP PP&E	[%]	-27%	-25%	-27%	-22%	-20%	-22%	-22%	-21%	-21%	-21%	-21%
% of Capex	[%]	-62%	-65%	-50%	-40%	-56%	-68%	-55%	-51%	-52%	-52%	-52%
PP&E Adj.	[NTD mn]	106,789	27,698	2,729	73,300	(46,988)	(147,736)	10,138	-	-	-	-
Final PP&E	[NTD mn]	1,352,377	1,555,589	1,975,119	2,693,837	3,064,475	3,234,980	3,839,310	4,622,758	5,544,468	6,631,006	7,921,775

Appendix - Debt

Debt		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Gross debt BOP	[NTD mn]	180,555	175,422	347,232	732,868	858,410	927,576	986,462	1,411,273	1,677,559	1,996,428	2,380,560
Net add in gross debt	[NTD mn]	(5,132)	171,809	385,636	125,543	69,166	58,886	424,811	266,286	318,869	384,131	462,413
Gross debt EOP	[NTD mn]	175,422	347,232	732,868	858,410	927,576	986,462	1,411,273	1,677,559	1,996,428	2,380,560	2,842,972
% Short term	[%]	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Gross debt/EBITDA		0.3x	0.4x	0.7x	0.6x	0.6x	0.5x	0.6x	0.6x	0.6x	0.6x	0.6x
Net debt	[NTD mn]	(279,977)	(312,939)	(332,122)	(484,404)	(537,852)	(1,141,165)	(1,482,583)	(1,681,416)	(1,920,827)	(2,205,208)	(2,543,081)
EBITDA	[NTD mn]	659,585	898,508	1,072,376	1,558,533	1,453,657	1,984,849	2,424,174	2,860,569	3,403,481	4,055,783	4,841,321
Net debt/EBITDA	[X]	-0.4x	-0.3x	-0.3x	-0.3x	-0.4x	-0.6x	-0.6x	-0.6x	-0.6x	-0.5x	-0.5x



Appendix - Payout Evolution

Payout		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Net income	[NTD mn]	345,344	518,158	597,073	1,016,901	837,768	1,172,432	1,552,741	1,863,901	2,209,045	2,626,636	3,133,392
Payout	[%]	75%	50%	45%	28%	35%	28%	35%	40%	40%	40%	40%
Dividend Paid	[NTD mn]	259,304	259,304	265,786	285,234	291,722	332,582	550,110	745,560	883,618	1,050,654	1,253,357

Appendix - FCFE

Free Cash Flow to Equity (Million)	2025E	2026E	2027E	2028E	2029E	Perpetuity
(=) Net Income	1,552,741	1,863,901	2,209,045	2,626,636	3,133,392	42,326,868
(+/-) Net Borrowing	424,811	266,286	318,869	384,131	462,413	6,246,419
(+) D&A	715,027	824,573	990,475	1,186,630	1,418,623	19,163,212
(+/-) Delta WC	(152,513)	(136,059)	(164,305)	(205,063)	(251,394)	(3,395,910)
(-) Maintenance Capex	(715,027)	(824,573)	(990,475)	(1,186,630)	(1,418,623)	(19,163,212)
(-) Expansion Capex	(604,330)	(783,448)	(921,711)	(1,086,538)	(1,290,768)	0.0
(=) Free Cash Flow to Equity	1,220,709	1,210,680	1,441,899	1,719,166	2,053,642	45,177,377
31/12/2025	31/12/2025	31/12/2026	31/12/2027	31/12/2028	31/12/2029	
Period	0.00	1.00	2.00	3.00	4.00	
NPV of Cash Flows	1,220,709	1,094,400	1,178,227	1,269,869	1,371,238	30,165,393

FCFE	
Cashflow	6,134,443
Perpetuity	30,165,393
Equity Value	36,299,836
Number of shares (mn)	25,933
Target Price	1,399.78
Current Price	1,070.00
Variation	30.81%

Ke
10.2%

Growth Rate
3.5%

Structure	
5y	17%
Perpetuity	83%

Appendix - FCFE ADR

Free Cash Flow to Equity (Million)	2025E	2026E	2027E	2028E	2029E	Perpetuity
(=) Net Income	1,552,741	1,863,901	2,209,045	2,626,636	3,133,392	43,825,144
(+/-) Net Borrowing	424,811	266,286	318,869	384,131	462,413	6,467,529
(+) D&A	715,027	824,573	990,475	1,186,630	1,418,623	19,841,547
(+/-) Delta WC	(152,513)	(136,059)	(164,305)	(205,063)	(251,394)	(3,516,118)
(-) Maintenance Capex	(715,027)	(824,573)	(990,475)	(1,186,630)	(1,418,623)	(19,841,547)
(-) Expansion Capex	(604,330)	(783,448)	(921,711)	(1,086,538)	(1,290,768)	0.0
(=) Free Cash Flow to Equity	1,220,709	1,210,680	1,441,899	1,719,166	2,053,642	46,776,555
USD Flows	46,950	43,239	51,496	61,399	73,344	1,682,610
31/12/2025	31/12/2025	31/12/2026	31/12/2027	31/12/2028	31/12/2029	
Period	0.00	1.00	2.00	3.00	4.00	
NPV of Cash Flows	46,950	38,989	41,871	45,016	48,489	1,112,390

FCFE	
Cashflow	221,315
Perpetuity	1,112,390
Equity Value	1,333,705
Number of shares (mn)	5,186
Target Price	257.20
Current Price	224.01
Variation	14.82%

Ke
10.9%

Growth Rate
3.5%

Structure	
5y	17%
Perpetuity	83%



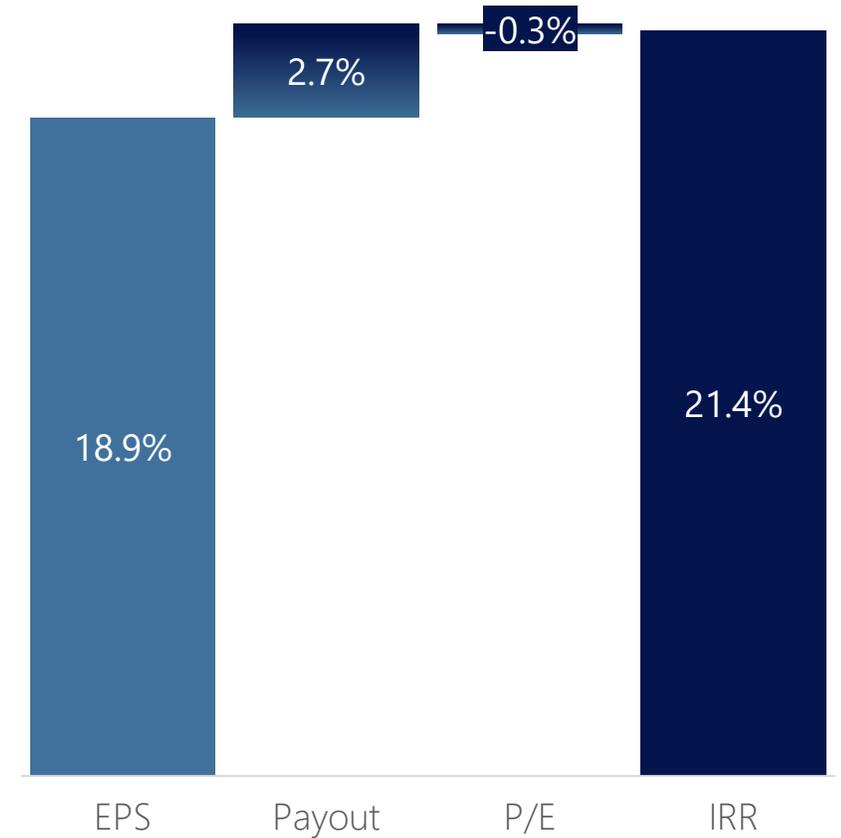
Appendix - Ke

Debt	1,301,792.88
Equity	25,673,288.90
D/E	5%
Levered B	1.35
10yrs Treasury Bond	4.3%
US Equity Risk	4.3%
Country Risk	0.8%
Ke US	10.9%
CPI	2.6%
Taiwan Inflation	2.0%
Real Ke US	8.1%
Ke TWD	10.2%



Appendix - 3y IRR

IRR	2024	2025E	2026E	2027E	2028E	2029E
Net Revenue	2,894,308	3,638,906	4,377,717	5,188,352	6,169,142	7,359,352
Sensitivity GR	2,894,308	3,638,906	4,377,717	5,205,291	6,189,311	7,359,352
Net Income		1,552,741	1,863,901	2,216,257	2,635,223	3,133,392
Payout Ratio		0%	40%	40%	40%	40%
Payout		0	745,560	886,503	1,054,089	
Forward P/E					16.0x	
CAGR	18.90%					
Sensitivity CAGR	18.90%					
Shares Outstanding	25,933	25,933	25,933	25,933	25,933	
Share Price		1010.1			1933	
EPS		59.9	71.9	85.5	101.6	
Dividends per Share		0.00	28.75	34.18	40.65	
Market Cap		26,194,519			50,134,272	
Cash Flow to Equity		(26,194,519)	745,560	886,503	51,188,361	



IRR 21.4%

Spread_{TIR-Ke} 11.2%

Ke 2029E 10.24%



Inside the chip: Semis at a glance

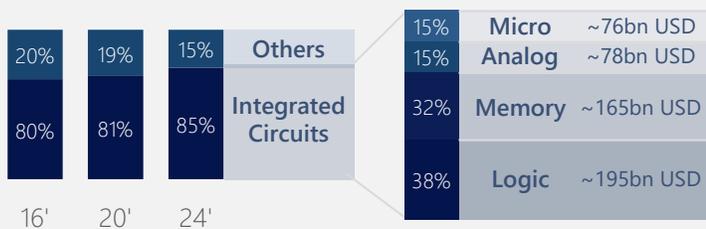
The semiconductor industry has delivered strong and profitable growth in recent years, driven by AI, EVs, and IoT

The semiconductor industry has experienced substantial revenue growth in recent years...



...driven primarily by the integrated circuits segment, which accounts for the largest share of the industry's revenue...

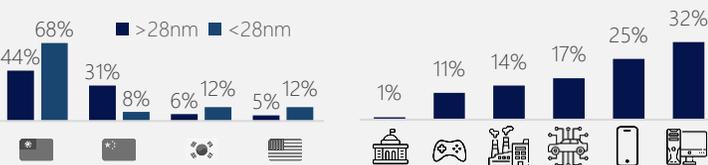
Semiconductor world revenue breakdown [%]



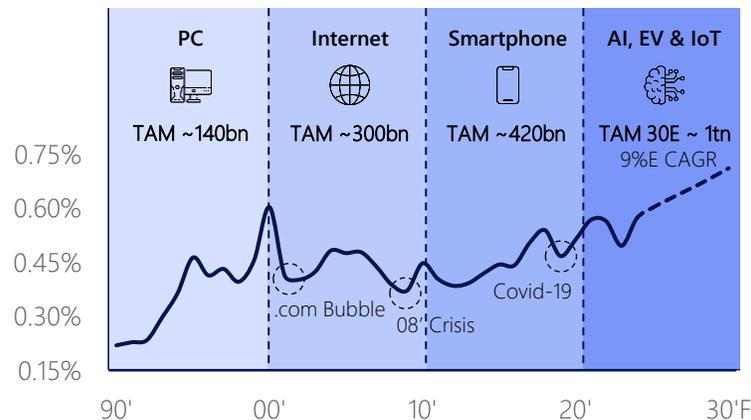
...the production of these components is largely concentrated in Asian countries, supplying a broad spectrum of industries.

Manufacturing share by country [%]

End users [%]

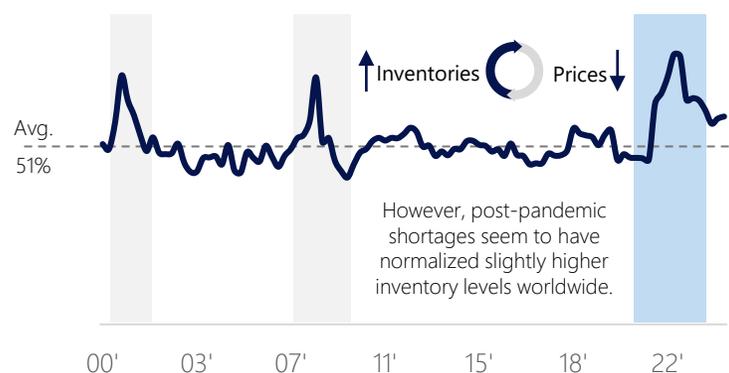


2 Semis have expanded their addressable market over time by powering each wave of technological disruption...
Semiconductor sales as % of global nominal GDP [%]

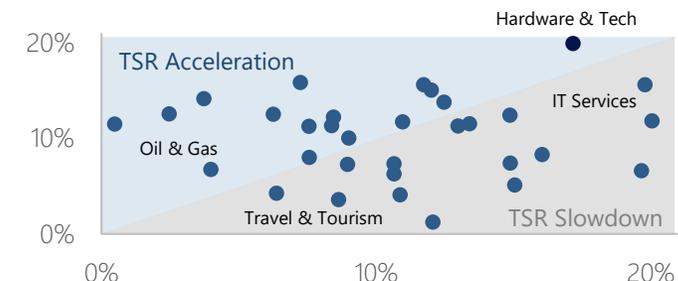


...despite the long-term growth, semis remain cyclical, mainly because of inventory fluctuations, memory being most volatile.

Inventory¹ as share of next-quarter revenue [%]

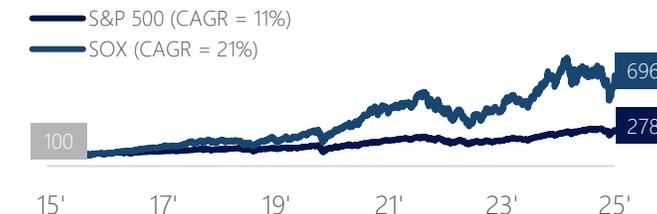


3 In addition to strong top-line growth, the sector has sustained outstanding value creation for shareholders...
Median five-year TSR 15'-19' and 20'-24' [% x axis; % y axis]



...with stock prices compounding at 21% annually...

S&P 500 and PHLX Semiconductor Index (SOX) [Base 100]



...mainly fueled by new markets like AI, which have driven rising valuations and stronger profits in recent years

Economic Profit² and Avg³ P/E LTM [USD bn; x]



Appendix

Source: McKinsey, IMF, ASML, WPR, BCG, CIQ, WSTS

¹Comprises 329 public semis: IDM, fabless, foundry, MCU, and P&A players; ²Economic profit = NOPAT - (invested capital incl. goodwill × WACC); ³Weighted Avg. using P/E LTM and Market Cap, considers (NVIDIA; TSMC; ASML; AVGO; QCOM)



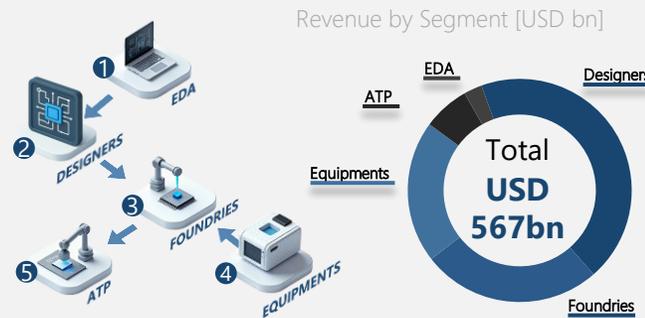


Silicon web: The heart of modern industry

A tightly woven global network driving innovation, risk, and dependency in the semiconductor world

How does the sector work?

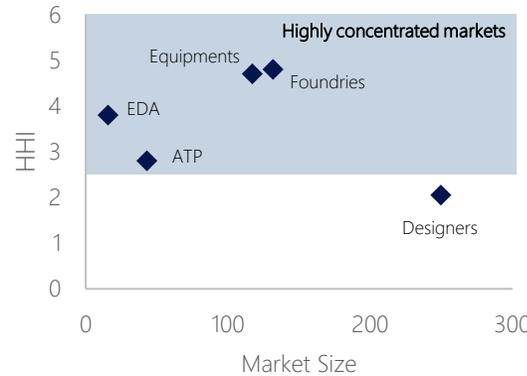
1 The semiconductor supply chain is complex at every stage, creating a tightly concentrated network of specialized players in which each relies on the others.



	Function	Risks
1	EDA Develops software tools used to design	High client concentration
2	Designer Creates the layout of the chip	Depends on fabs; fast tech adaptation
3	Foundries Manufactures the chip	Demand swings; geopolitical exposure
4	Equipments Supplies tools for manufacturing	Long cycles; few clients
5	ATP Tests and ships the chips	Volume-dependent; cost pressure

2 This results in sub-sectors that are among the most valuable and highly concentrated in the world...

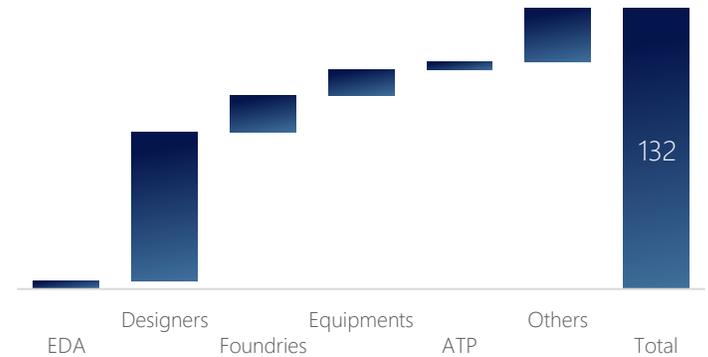
HHI Index vs. Market Size [th; USD bn]



Market concentration rises exponentially as move into high technologies: in sub-5 nm, TSMC already accounts for more than 92% of share; while in EUV lithography, ASML commands virtually 100% of sales, giving it a monopoly over the equipment that makes advanced chips possible.

4 To sustain this supply chain rapid technological advances, governments provide incentives while companies invest in R&D.

R&D Expenses [USD bn]

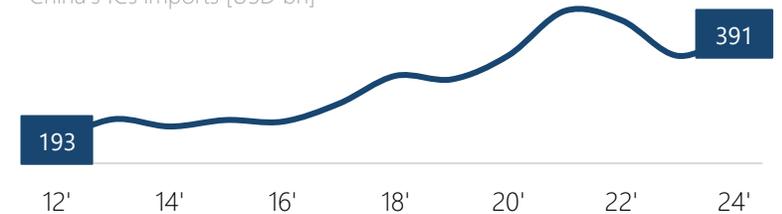


3 ...although the supply chain is dominated by a few companies, they are globally distributed and often subject to geopolitical debate. China stands as the world's largest manufacturing hub and accounts for 31.4% of global semiconductor consumption. Meanwhile, the United States remains the top end-market for semiconductors and Taiwan has a pivotal role, underscoring a clear source of geopolitical tension.

Global semiconductors chain



China's ICs imports [USD bn]



“China’s import of chips was far larger than Saudi Arabia’s export of oil or Germany’s export of cars. China spends more money buying chips each year than the entire global trade in aircraft. No product is more central to international trade than semiconductors.”

Chris Miller, *Chip War: The Fight for the World's Most Critical Technology*



Appendix

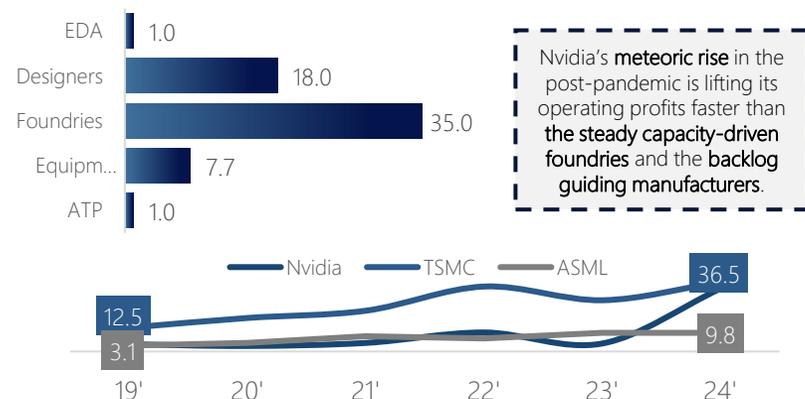


Foundries sweat, designers smile

The chain is uneven in margins and results, but end-to-end linked to global supply and demand

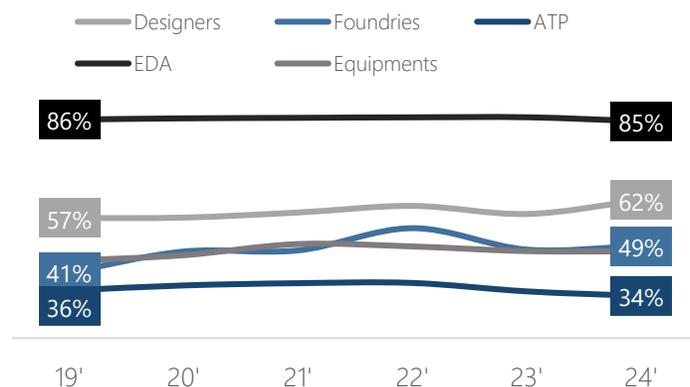
1 Scarce advanced fabs and high-value chip IP give foundries and designers pricing power and scale, concentrating EBIT...

Weighted average EBIT per sector [USD bn]¹



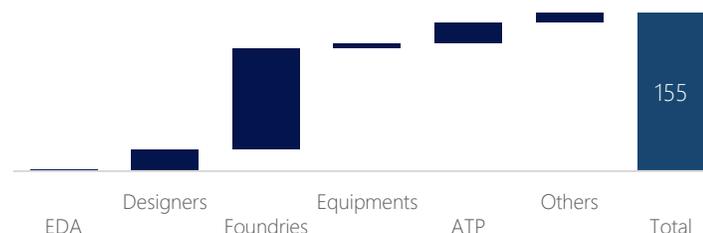
2 ...but the lighter the segment, the higher the margins, so EDA takes the lead, although on a smaller revenue pie.

Gross margin [%]¹



3 Foundries dominate capex as advanced fabs require multi-billion-dollar builds and constant upgrades for new nodes.

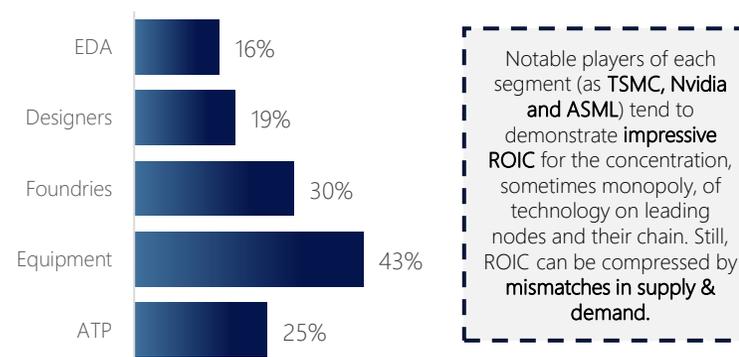
CapEx breakdown [USD bn]



On the other hand, EDA and Designers operate more lightly and fabless, connecting less capex to boosted margins.

4 Still, ROIC follows the flow, standing out in Equipments and Foundries, but overall high throughout the chain.

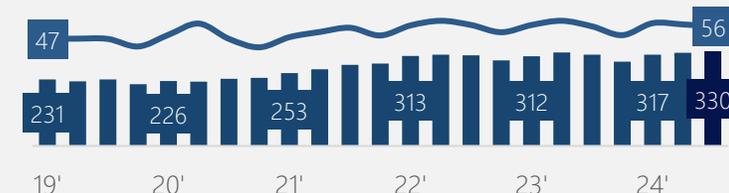
Return on Invested Capital [%]¹



High ROIC so long there is demand...

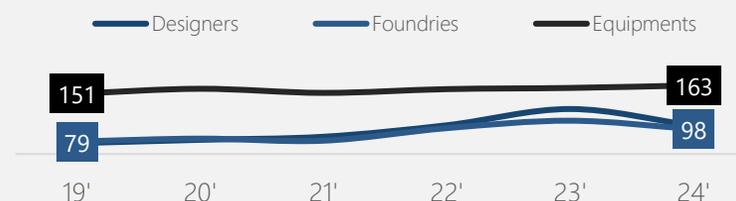
5 Since the pandemic, downstream inventory has built up significantly as "just-in-case" measures up front semis shortages.

Downstream DOI and inventory dollars [#; USD mn]



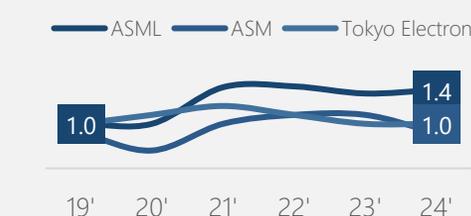
Foundries mirror the bulge, queuing up finished wafers and locking working capital across the chain, while production remains.

Selected segments DOI breakdown [#]



But aside from cyclicity, orders keep arriving for more and more advanced chips, setting a supply constraint for AI and inventory overhang for simpler components.

Book-to-bill for manufacturers [x]



Foundries are pressed by the skyrocketing demand for designers' cutting-edge chips, exerting a push on manufacturers, regardless of the traditional chip cycle.



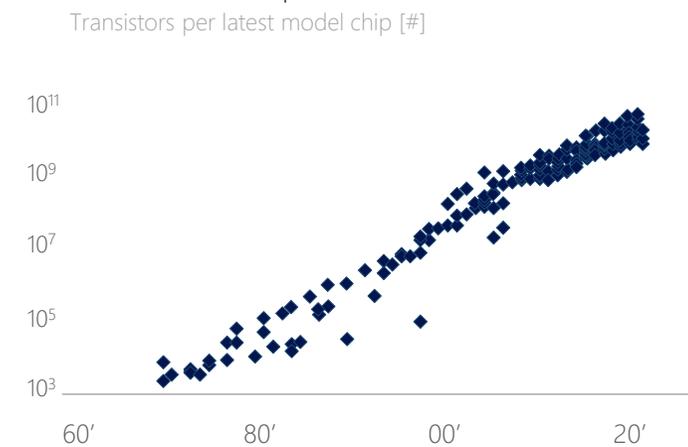
The big get bigger

Structural advantages and rising CapEx drive industry consolidation

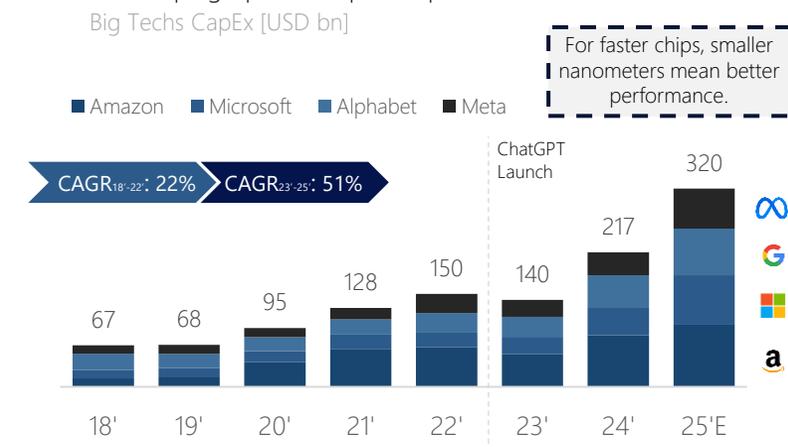
1 Based on *7 Powers*, nearly every semiconductor subsegment holds at least one strong competitive advantage...

Power	Subsegment	Why?
Scale Economies	Foundries	The higher the volume, the lower the wafer costs
Switching Costs	Designers; EDA	Switching tools disrupts the entire workflow
Cornered Resource	Equipments	Access to unique technologies
Process Power	Foundries	Steep learning curve locks in advantage

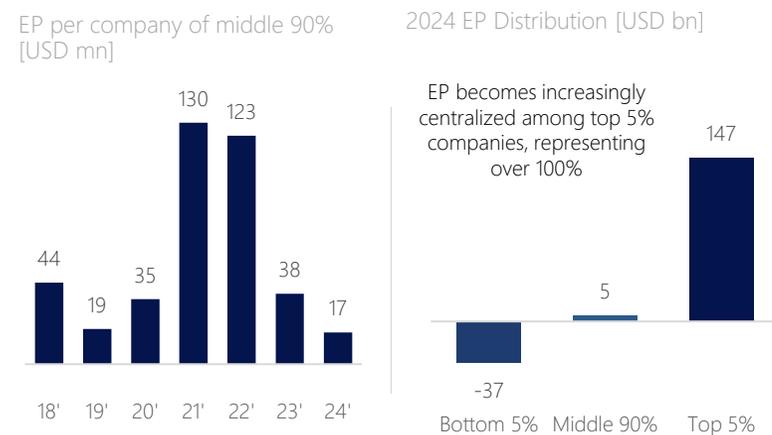
3 ...which are constantly reinvesting to produce the latest and most advanced chips...



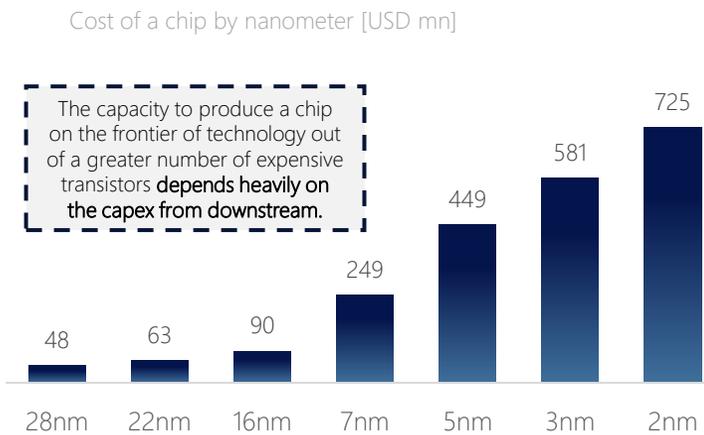
5 On the buying end, AI needs faster chips and hyperscalers are ramping up their capital expenditures...



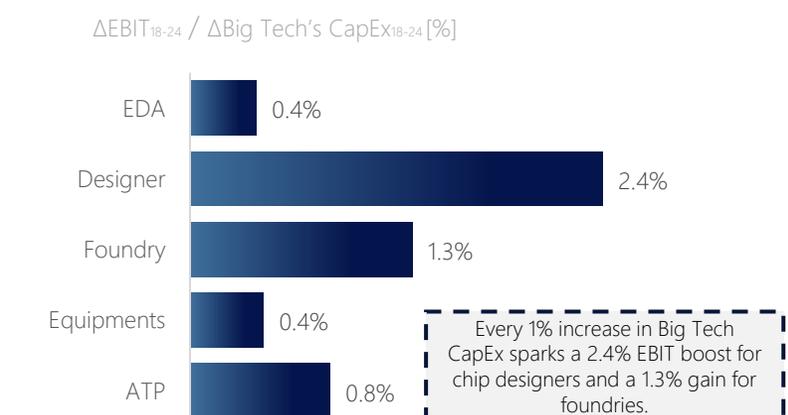
2 ...causing the market's economic profit to be concentrated in the sector's largest companies...



4 ...leveraging their scale advantages as rising transistor costs make cutting-edge technologies increasingly expensive.



6 ...these high CapEx by hyperscalers primarily benefit foundries and chip designers, driving industry to consolidation and concentrated profits.



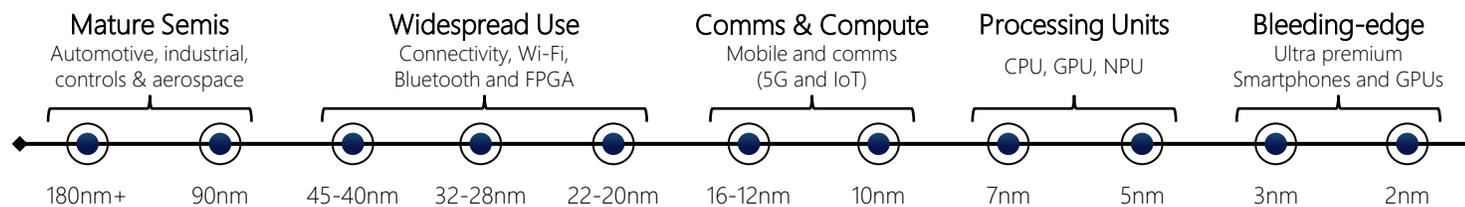
Appendix



Foundries: During a gold rush, sell shovels

Our pick for the sector is based on three pillars: diversified demand, unmatched entry barriers, and discounted multiples

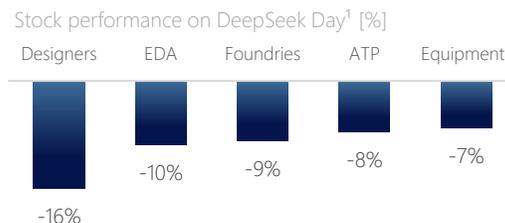
1 We can't be certain which of today's trends will materialize into future markets, or whether that demand is accurately priced in, but in any scenario, there will be a strong demand for semiconductor chips.



"During the Gold Rush, most would-be miners lost money, but people who sold them picks, shovels, tents and blue-jeans (Levi Strauss) made a nice profit" - One Up on Wall Street, page 14

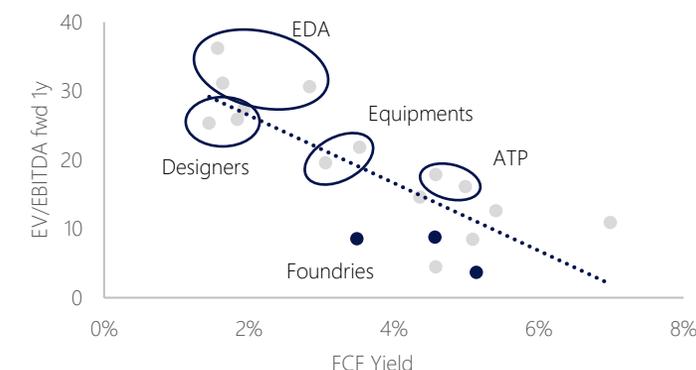


Peter Lynch, Portfolio Manager of the Fidelity Magellan Fund



3 Foundries yield solid 3-6% cash at single-digit multiples, offering defensive value plus durable moats...

FCF yield vs. EV/EBITDA fwd. 1y [%; x]



4 ...making them the intuitive sub-sector choice, especially relative to other parts of the value chain.

2 In addition to being essential for powering future technological waves, the sector is protected by formidable entry barriers that are proven difficult to overcome. These include the need for massive scale to dilute fixed costs, restricted access to advanced technology, and deeply embedded production know-how that ensures incumbents have superior yield per wafer.

I - Scale & CapEx: Foundries demand huge upfront investments (\$7B-\$30B) and 3-4 years to build. Incumbents hold a scale advantage that's nearly impossible to match, given their cost dilution over massive volumes. (e.g., 24": TSMC: 30bn, Intel: 12bn, Samsung: 7bn, SMIC: 7bn)



II - Machinery: Foundries depend entirely on ASML's EUV scanners, the only ones available globally, costing \$215-375 million each with 12-18-month lead times. Export controls by the U.S. and Netherlands restrict access, reinforcing both capital and geopolitical barriers.

III - Process Power: Even with unlimited capital and access to scarce equipment, the greatest barrier remains know-how and deep process expertise. Simply owning the machines doesn't guarantee the ability to manufacture cutting-edge chips, or to match the efficiency and yields consistently achieved by established incumbents.

IV - Failed Entrants: Wuhan Hongxin: despite strong political backing and \$20bn in announced funding, the lack of EUV equipment led to the company's collapse. (Machinery). **Intel:** even as an incumbent with effectively unlimited capex, it still faces yield and scale challenges and has yet to reach break-even (Process Power).

Segment	Why not?
Designers	Overly reliant on AI-driven demand with less robust moats than foundries
ATP	Less defensible moats than foundries, coupled with the weakest margins in the value chain
EDA	Stretched valuations and a constrained TAM
Equipment	Almost-sole client with low diversification

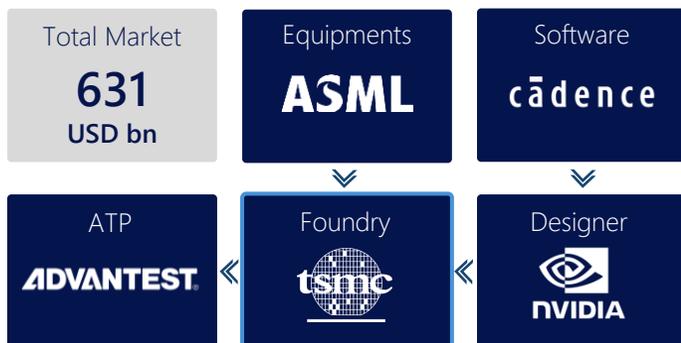


What is TSMC?

TSMC became the dominant player in leading-edge chips in a winner-takes-all segment

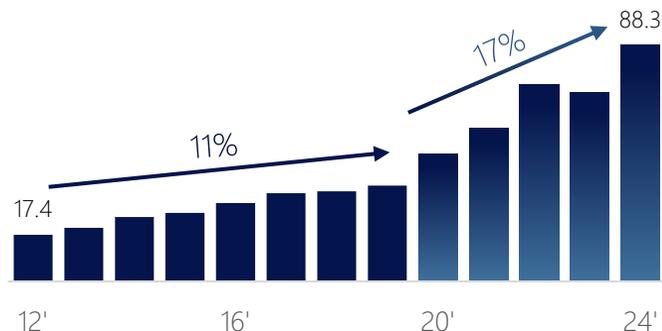
1 The semiconductor supply chain is complex at every stage, creating a concentrated network.

Semiconductor Value Chain



3 TSMC leads as a global economic powerhouse, fueled by the tech boom and chips demand...

TSMC's Revenue [USD bn]



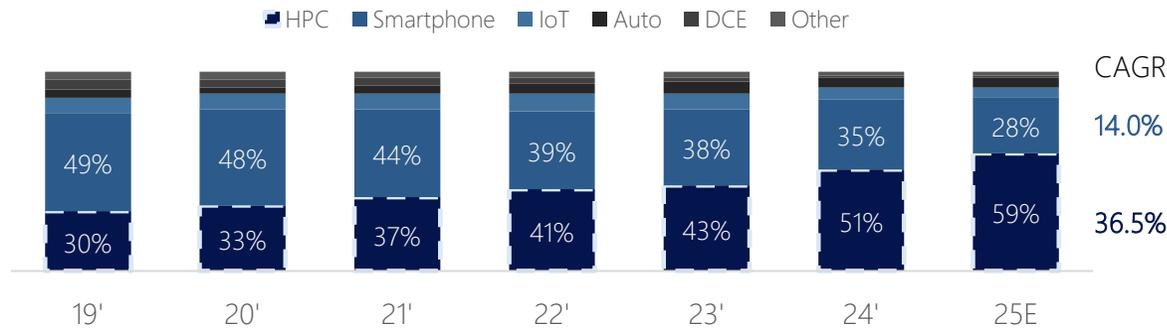


The future is now: Riding the AI wave

The High-Performance Computing and AI area has been dominating an increasingly larger share of TSMC's revenue

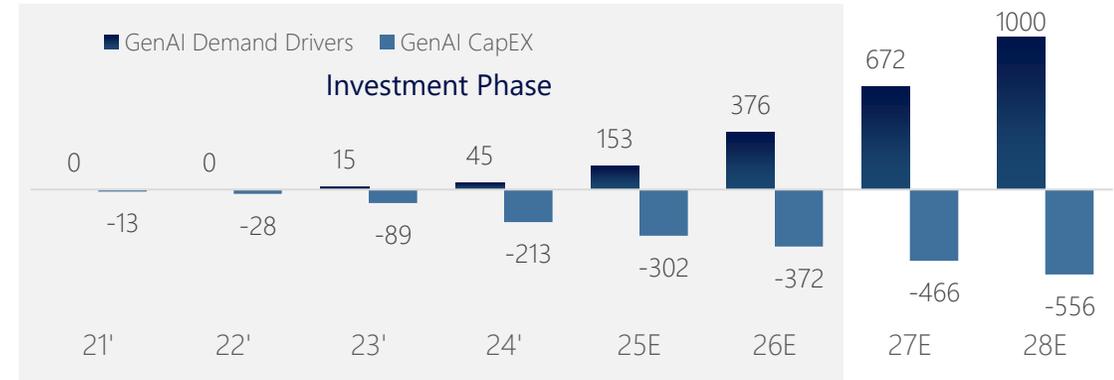
1 This massive CapEx investment by hyperscalers is reshaping TSMC's revenue profile, with HPC gaining greater relevance...

TSMC revenue by end customer [%]



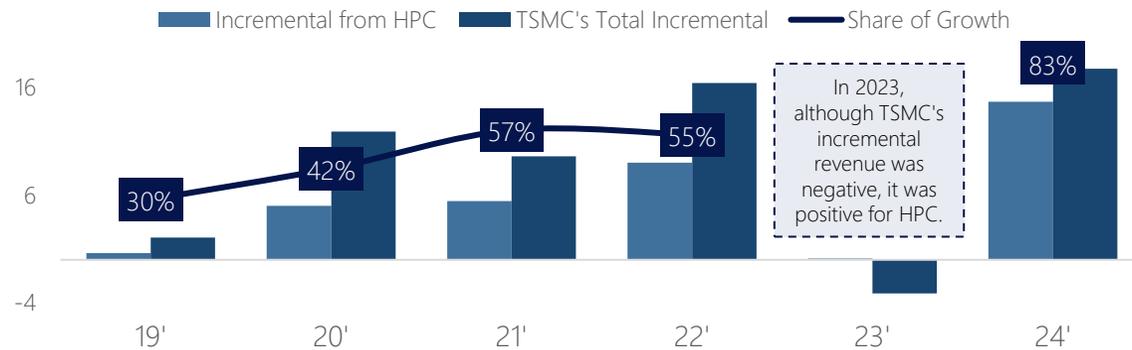
3 This trend is far from over, as it is now approaching its breakeven point and is poised to generate substantial value on a global scale...

GenAI CapEx vs. demand drivers [USD bn]



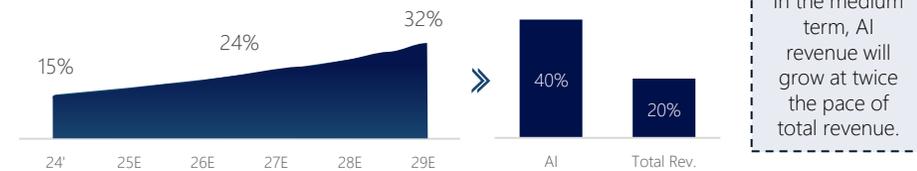
2 ...accounting for a significant portion of the company's recent revenue growth, driven primarily by the ongoing AI boom.

HPC incremental revenue and share of growth [USD bn; %]



4 ...and TSMC is aware and perfectly positioned to capture and create value from the growing adoption of AI models.

TSMC AI revenue and Revenue CAGR₂₄₋₂₉ [%; %]



“Based on our planning framework, we are confident that our revenue growth from AI accelerators will approach a mid-40s-percentage CAGR for the next five-year period starting from 2024.”

C. C. Wei, TSMC CEO at Q1'25 Earnings Call on 04/17/25

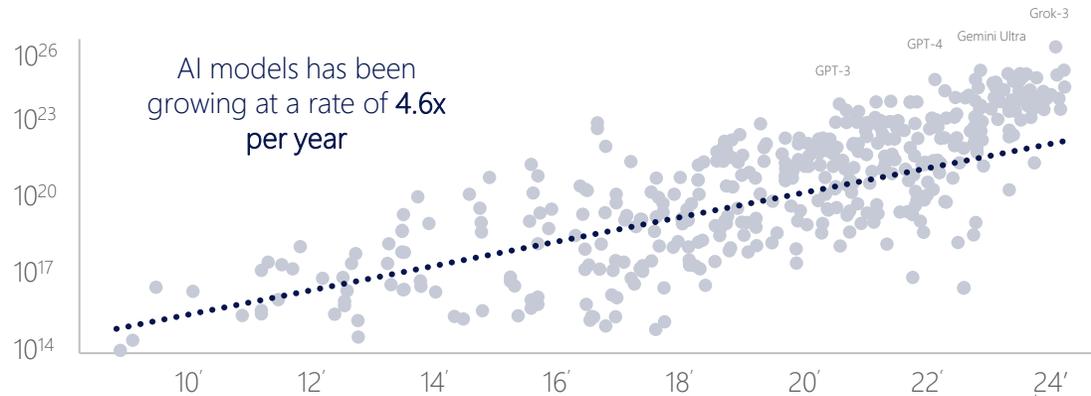


TSMC is selling the shovels

The Taiwanese company positions itself as an irreplaceable player in this gold rush

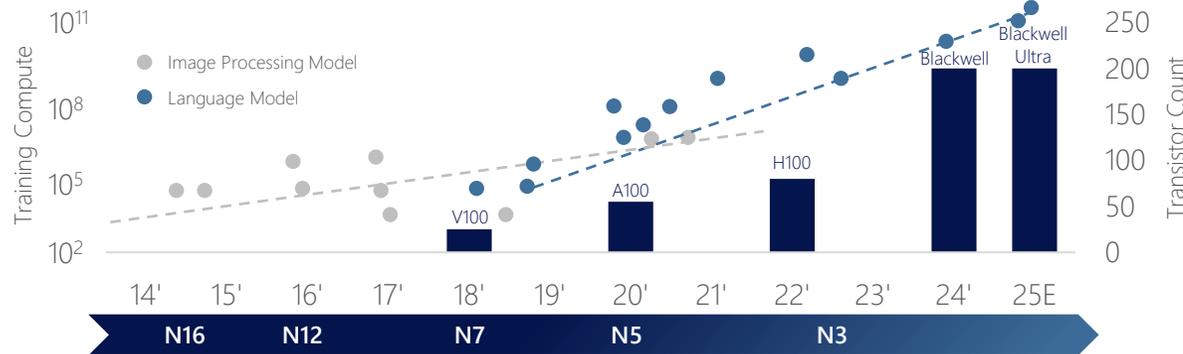
1 As AI models grow more complex, they demand increasing computational power, driving up training costs significantly.

Training compute [FLOPS]



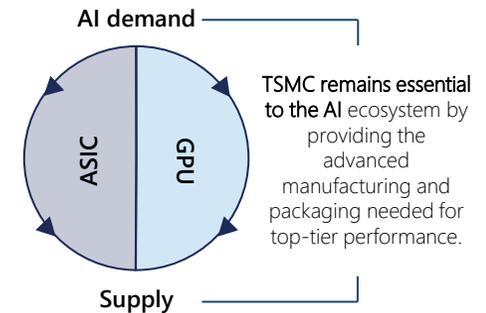
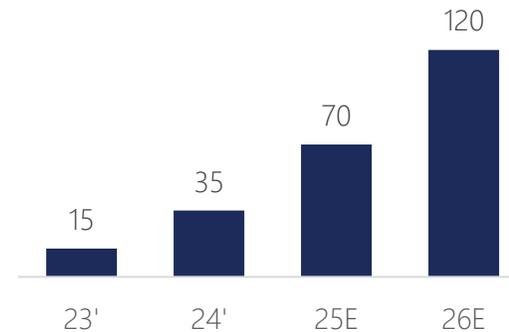
2 This is being supported by technological advancements with more advanced chips capable of enhancing computational capacity.

Training compute and Transistor Count [PFLOPS; bn]



3 Constraints shape the AI dynamics, but regardless of the processor design chosen, TSMC is the winner...

CoWoS wafer capacity [kwpm]

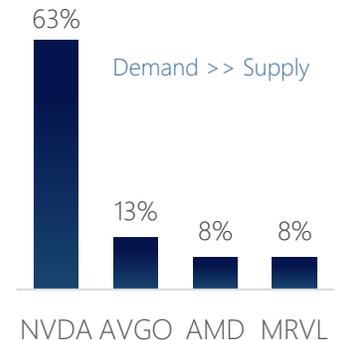


4 ...that guarantees strong demand for its products, whether ASICs or GPUs, contributing to a more predictable AI-related revenue.

TSMC 25E AI revenue sensitivity [USD bn]

CoWoS capacity demand [%]

		% of COGS destined to TSMC				
		30%	35%	40%	45%	50%
Customer Margin	75%	16.8	19.6	22.4	25.2	28.0
	70%	20.2	23.5	26.9	30.2	33.6
	65%	23.5	27.4	31.4	35.3	39.2
	60%	26.9	31.4	35.8	40.3	44.8
	55%	30.2	35.3	40.3	45.4	50.4



Appendix

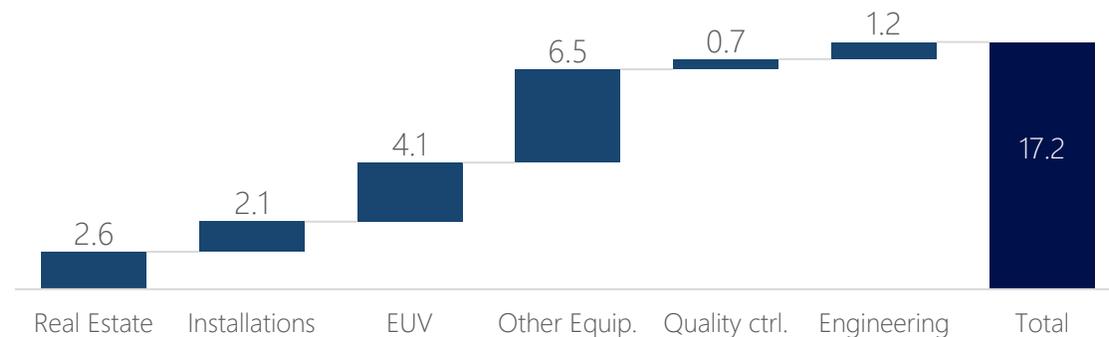


The best chips come in high stakes only

A huge CapEx is a pre-requisite to compete in leading-edge, shaping a strong barrier to entry

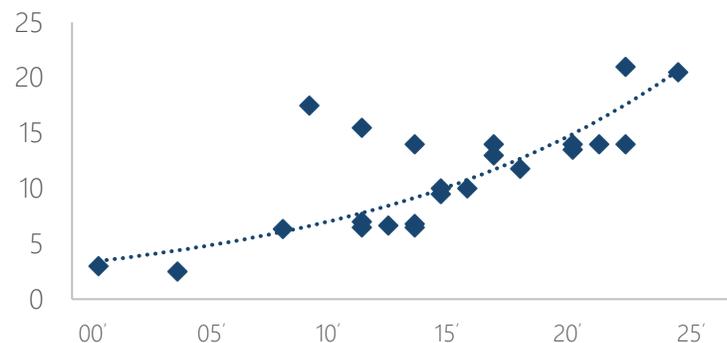
1 Starting an advanced chip fab requires an immense CapEx ranging from high-tech equipment to specialized workforce and clean-rooms...

Turn-key fab CapEx breakdown [USD bn]



2 ...and because of the complexity in these cutting-edge chips, they are under a steep rise of cost.

Leading-edge fab total cost per wafer produced per year [USD th]

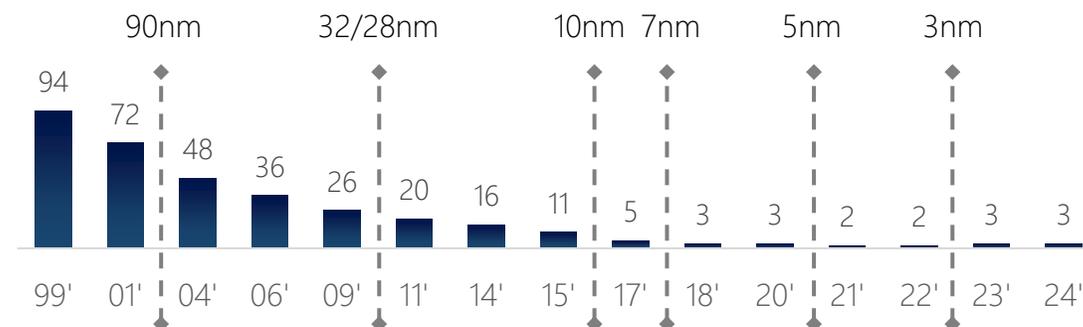


Second Moore's Law
"Cost of building leading-edge fabs doubles roughly every four years."

Smaller nodes typically come along with significantly more advanced procedures and rigorous environment quality control, which consequently offers systematic increases in overall production costs.

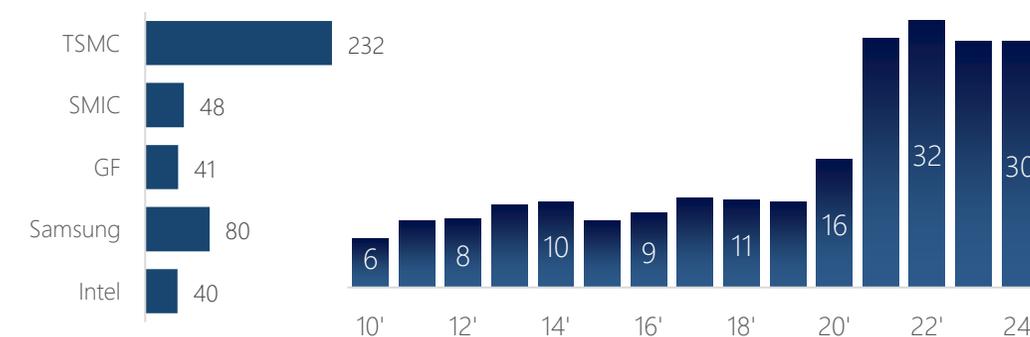
3 This has made the number of different foundries producing the most advanced chips drop generation after generation...

Foundries producing the most advanced chip nodes [#]



4 ...as a consequence of the leadership TSMC built with unmatched levels of CapEx.

CapEx in pure-play foundry 10'-24', TSMC history [USD bn]

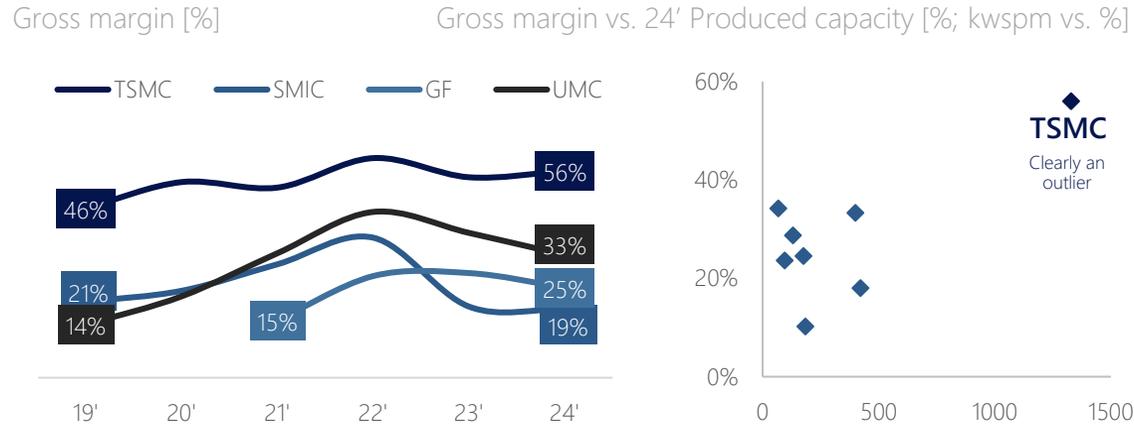




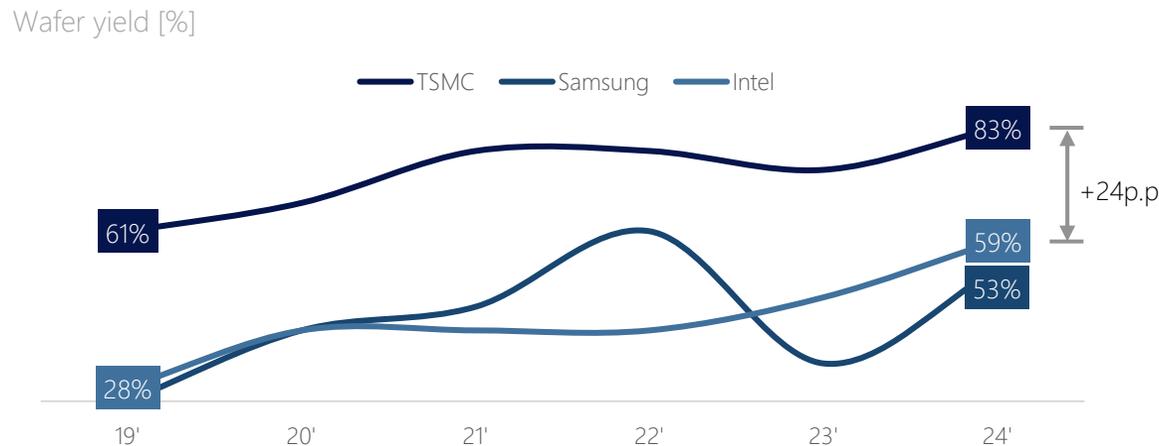
Even big islands look small in the ocean

TSMC's near-monopoly in the industry makes it the best player in efficiency

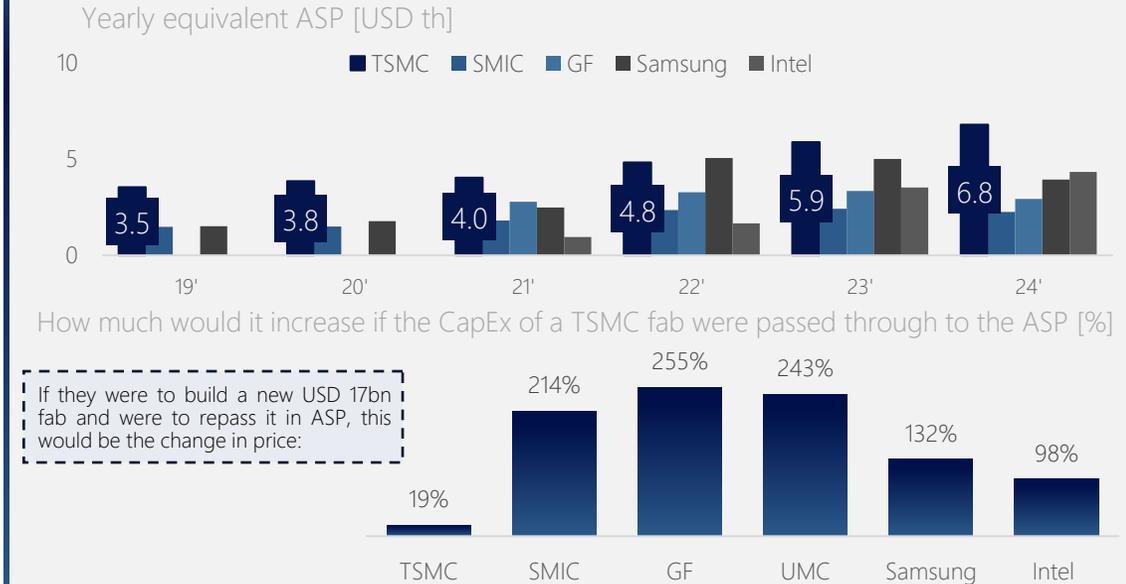
1 The more TSMC produces, the more apparent its moats become, resulting in a far higher gross margin.



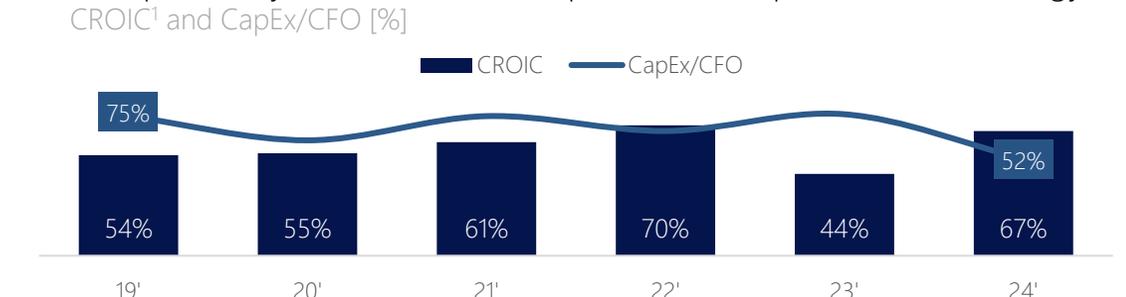
2 Like no one else, TSMC can hold a huge lead in yield, which is translated to a far more efficient, scalable operation.



3 While the large CapEx symbolizes a big barrier to entry, TSMC uniquely has the ability to dilute it in its massively scaled operation.



4 The efficient dilution of CapEx allows for a sustainable operation, which is independently able to fund the expected developments in technology.



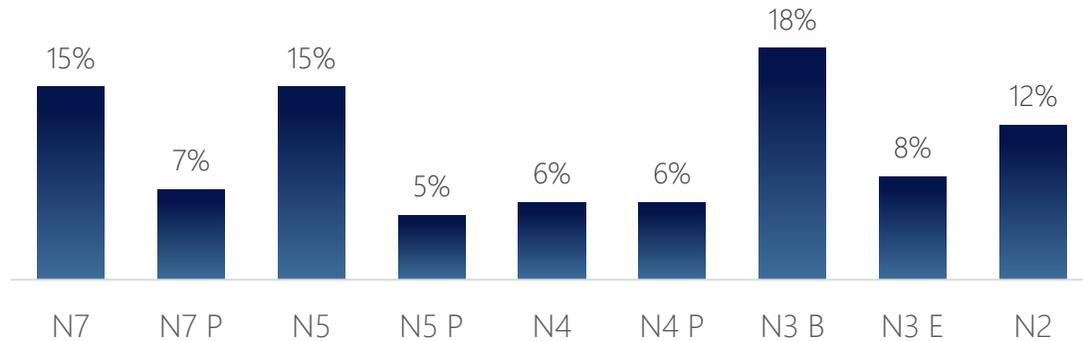


The barriers to enter go far beyond money

TSMC's Process Power is the key to being constantly pushing the tech frontier

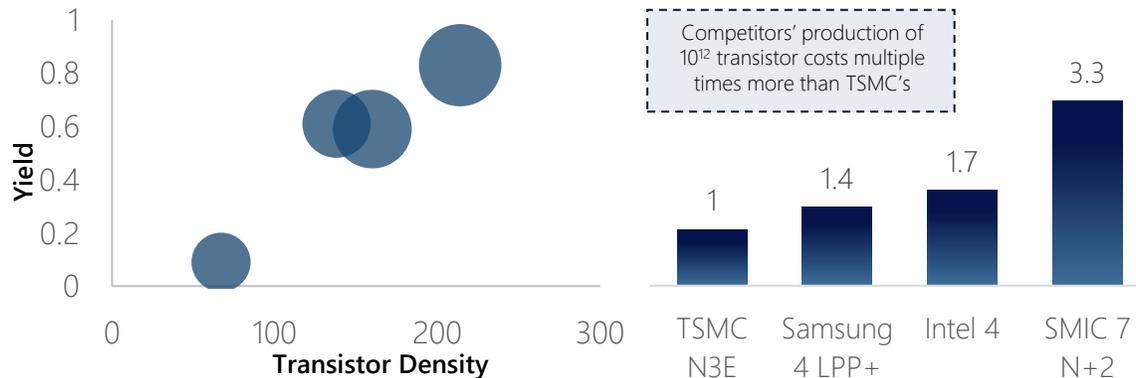
1 TSMC bets on having frequent improvements, which may be small but compound on incremental development only the company can have.

Improvement in speed versus previous node [%]



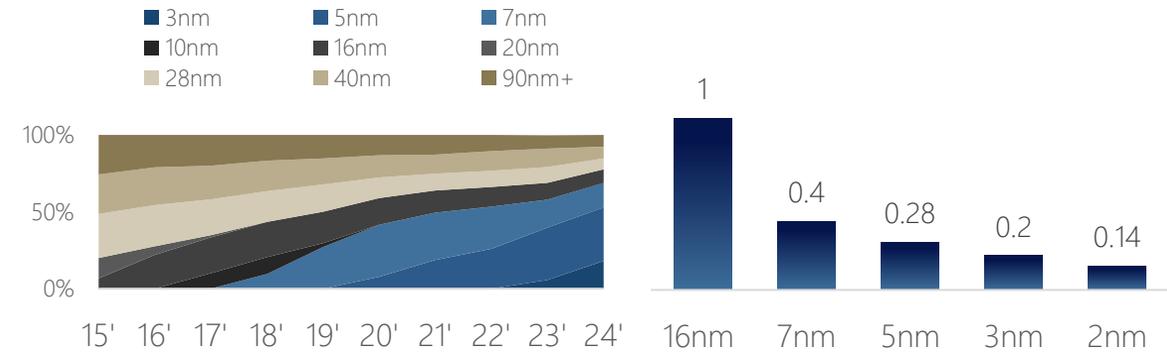
2 Based on this, TSMC can operate on outstanding yields and shape the industry's smallest CPGT¹.

Transistor density vs. yield; ASP; Cost-per-Good-Tera-Transistor [T/mm² vs. %; USD th; USD/10¹²tn]



3 The impact of this strategy is twofold: the unique excellence in cutting-edge chips, and the constant improvement in operations.

Revenue breakdown by node; power consumption for TSMC [%; x]



4 And to protect this crucial process power, the company uses strict protocol to protect it at all costs from competitors.

Employee turnover including retirements [%]



“TSMC is very concerned about security. For this, every employee knows just enough to do their assignment, nothing more. **You can't learn the process with just one hiring.** They've also made blueprints in metal, and there are detectors at the door. It is really hard to get away”

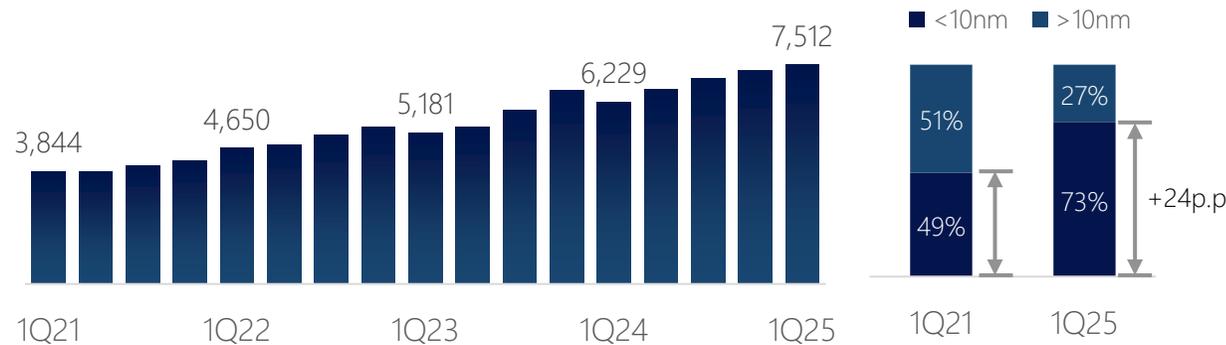


The power to charge and the wisdom not to

TSMC sustains high margins through continued expansion into higher-value chips and benefits from not pushing it too hard on clients

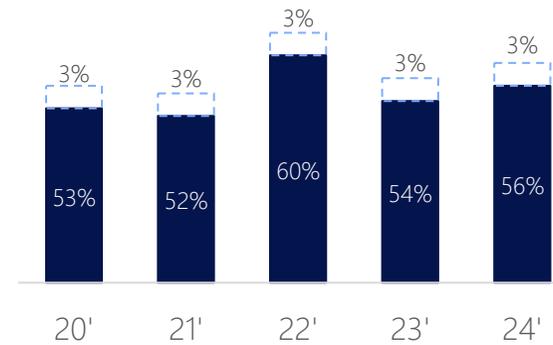
1 TSMC is able to push higher prices on the more advanced chips, which have consistently grown in the revenue mix.

TSMC's Blended ASP, 12" equivalent and Revenue Breakdown [USD; %]

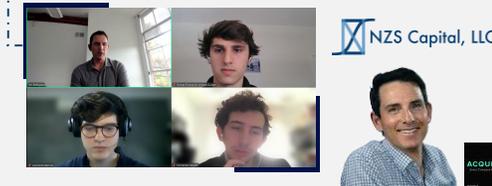


3 TSMC controls this dynamic closely, sustaining high margins, but not as high as it could in order to preserve the trust of its big fish clients...

TSMC's gross margin and estimated incremental margin if full pricing power were exercised [%]



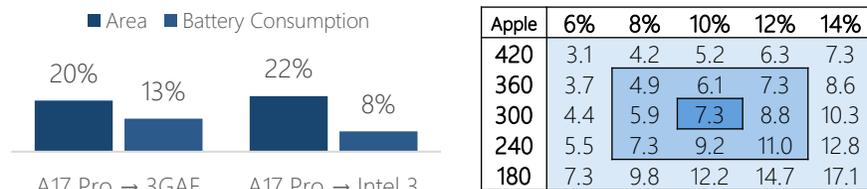
“TSMC, despite its near-monopoly position, deliberately chooses not to charge the highest prices it could. The company is willing to sacrifice some margin to ensure that it remains the supplier of choice for the world’s leading tech firms in the long term.”



Jon Bathgate, Investor at NZS Capital

2 But it's not worth it for clients to move away as the technical gap is immense and a slight increase in costs is easily diluted in high-value products.

Increase in chip area or battery consumption in substituting TSMC; Apple's annual cost impact from TSMC price hikes and unit sales [%; USD]



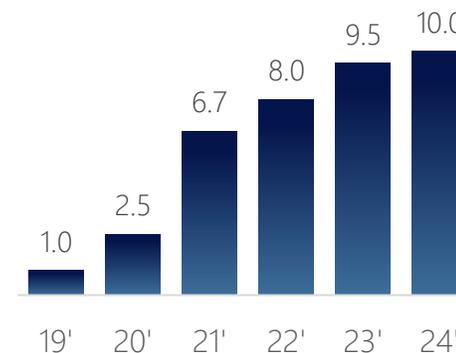
A 10% increase in TSMC's prices translates to a \$7.4 cost increase per unit for Apple, negligible relative to the \$1,000+ product pricing

“It's incredibly expensive and incredibly hard and so whatever is the prices as long as it's consistent and fair that's the price. It's not expensive, it's very worthwhile – When asked about TSMC's chip pricing.”

Jansen Huang, NVIDIA CEO

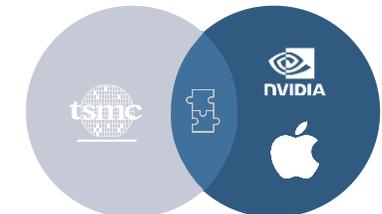
4 ...for which TSMC is heavily rewarded, benefiting from prepayments that allow for tech developments and direct investments by Apple and NVIDIA.

Prepayments [USD Bn]



“Apple’s \$500B pledge to expand US manufacturing includes chips from massive TSMC Phoenix factory”

“NVIDIA Plans \$500 billion AI Investment in U.S., with Taiwan’s TSMC and Foxconn Leading the Charge”

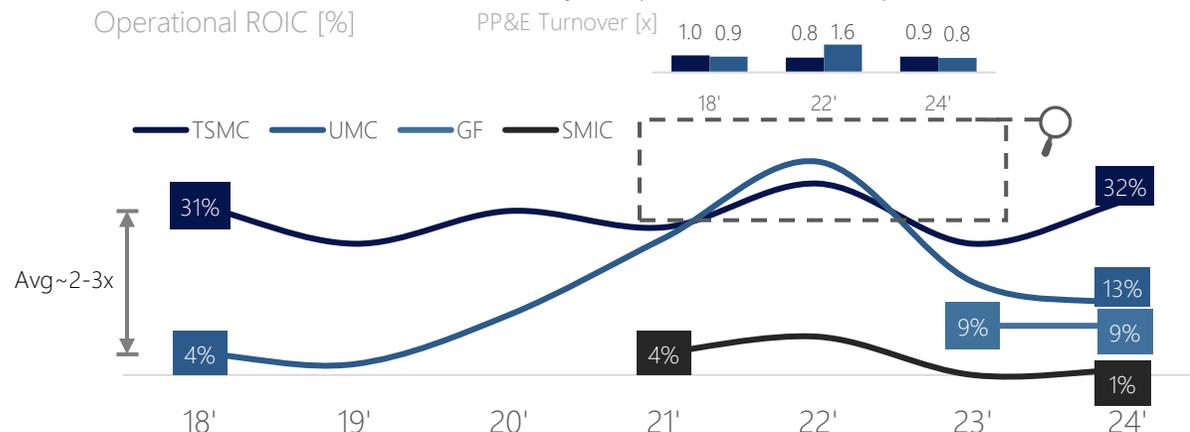




Unmatched capital allocation

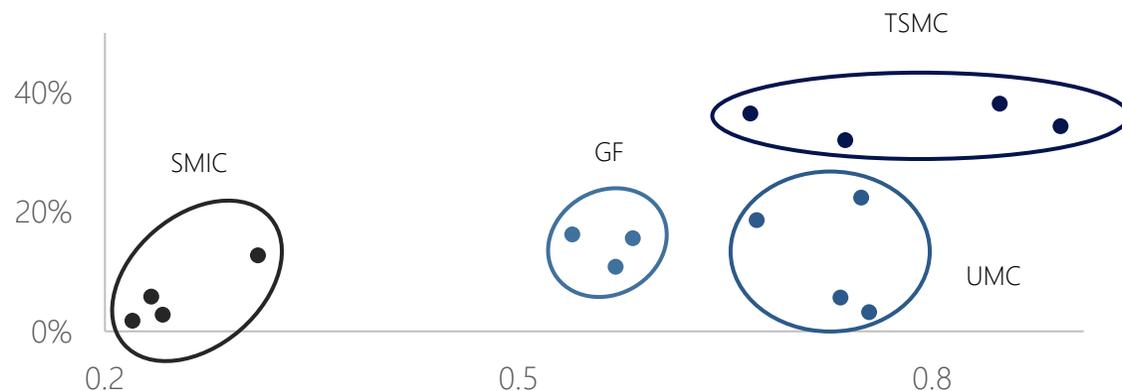
Leveraging its steep scale advantages and near-monopoly on cutting-edge chips, TSMC deploys capital more effectively than any rival

1 Owing to its formidable barriers to entry and strong pricing power, TSMC maintains a ROIC that consistently outperforms its competitors...

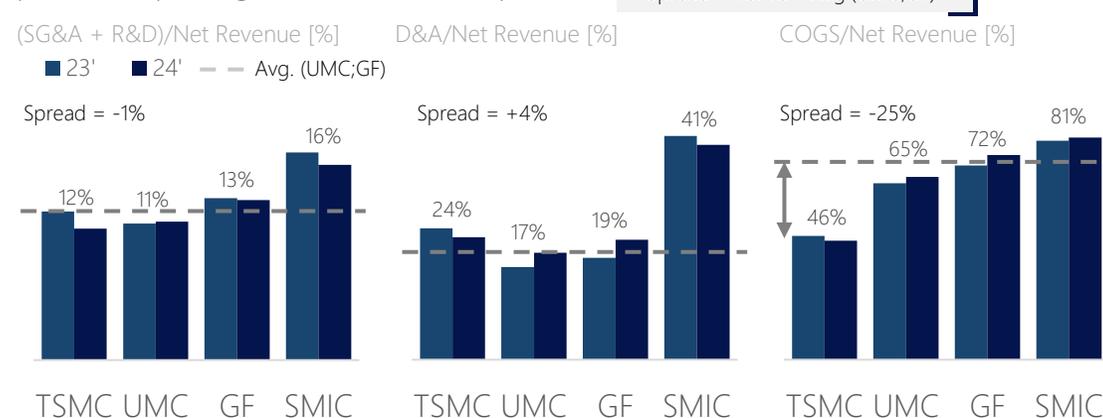


2 ...distinguished itself by superior asset turnover and, above all, exceptional operational efficiency...

Invested Capital Turnover and NOPAT Margin [x axis; y axis]

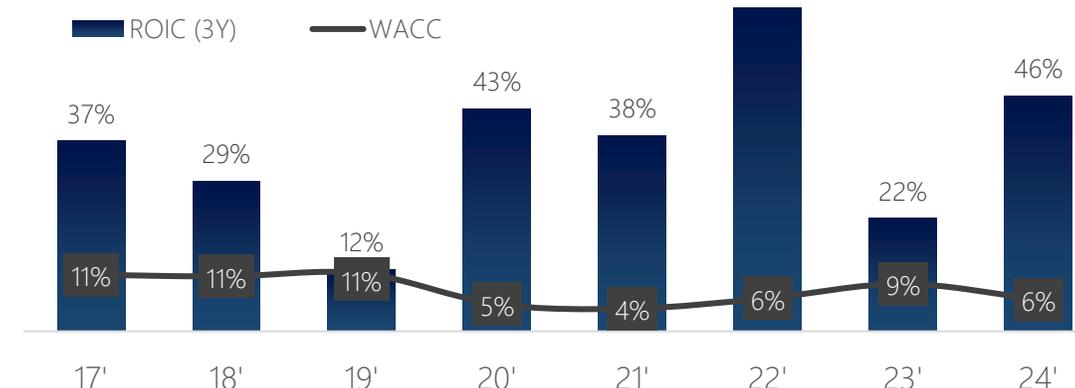


3 ...where although operating expenses align with peers, COGS excels thanks to premium pricing on advanced chips...



4 ...and TSMC demonstrates its ability to allocate capital to sustain this ROIC, generating value above its cost of capital.

Incremental ROIC 3Y¹ and WACC [%]



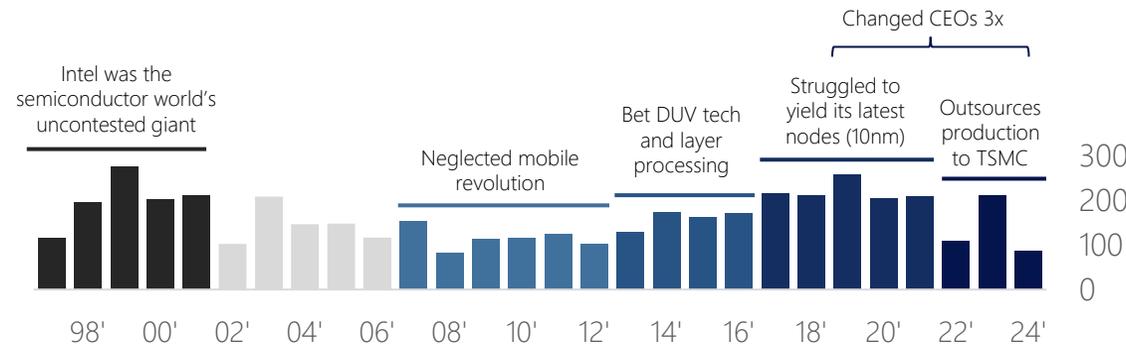


Founder DNA with world-class execution

TSMC excels at making the right call when outcomes are unclear, a principle ingrained in its culture and driven by mostly variable pay

1 Despite TSMC's current success, it wasn't always clear thirty years ago that its business model would work, but thanks to the incumbent's (Intel's) missteps...

Intel Market Capitalization [USD bn]



2 ...and to decisions that proved right over time, the company went on to achieve undisputed success and unseat one of the greatest firms in history.

TSMC Market Capitalization [USD bn]



CHIP WAR
"When Morris Chang proposed a pure-play foundry in 1987, few believed it would work. But by staying neutral and not competing with clients, TSMC built an ecosystem where innovation thrived."
Chip War, Chris Miller

3 Much of this success stems from a team that excels in execution and has a long-term vision for the industry...

- Experience at TSMC
- Experience as CEO at TSMC

Morris Chang

- 31y
- 21y

Mit Massachusetts Institute of Technology

Pioneered the pure-play foundry model, leading the company from start to success

Mark Liu

- 31y
- 5y

Berkeley UNIVERSITY OF CALIFORNIA

Led the ramp from 16 nm to 10 nm to 7 nm, preparing for EUV adoption

C. C. Wei

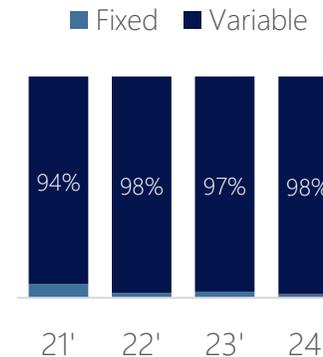
- 27y
- 7y

Yale

Led EUV adoption and ramp-up, maintaining leadership at 5 nm and 3 nm

4 ...factors that are rewarded through aggressive variable-compensation structure that incentives for meeting targets and guidance.

CC Wei Total Compensation Breakdown [%]



RSA for executive officers of the Company

	Above by X%	Equal to	Below by X%
TSMC vs S&P500's TSR	50% + X*2.5%	50%	50% - X*2.5%

RSA for critical talents

	Revenue	Gross Margin	ROE
Threshold	10%	50%	20%
Target	15%	53%	25%
Ratio	< Threshold = 0% Threshold = 50% >= Target = 100%		

Appendix

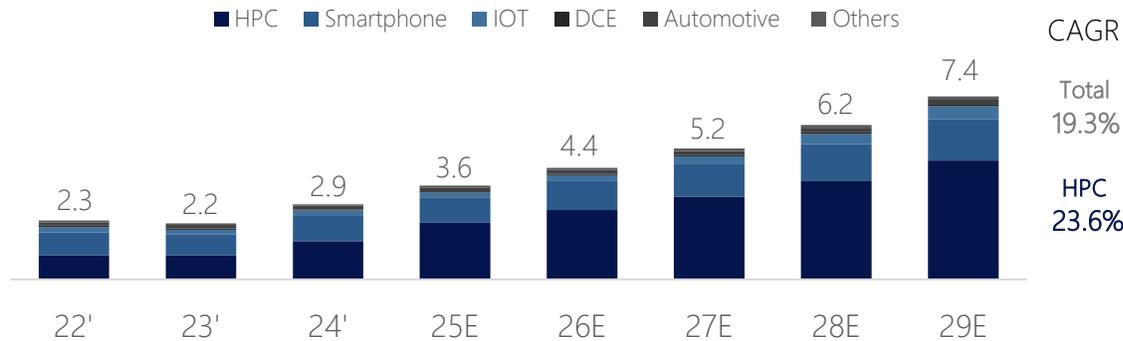


Valuation: shaping the wafer into numbers

Our main assumptions to the DCF model

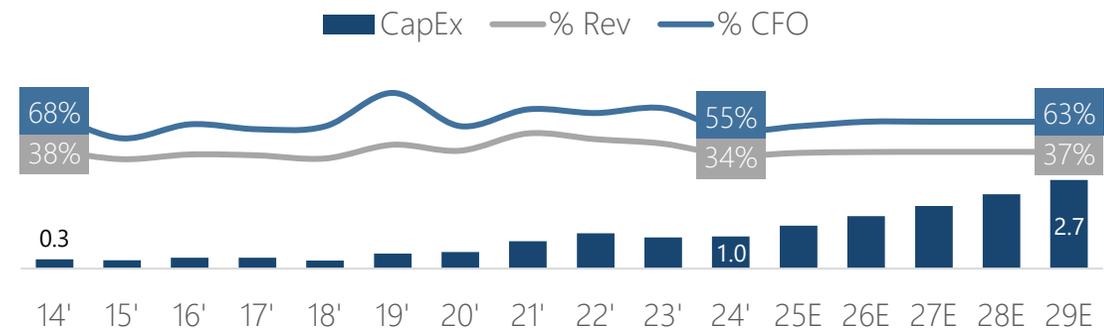
1 We forecast revenue to be strongly pushed by High Performance Computing, as it leads to a 19% CAGR from 2025 through 2029.

Net Revenue [NT\$ Tn]



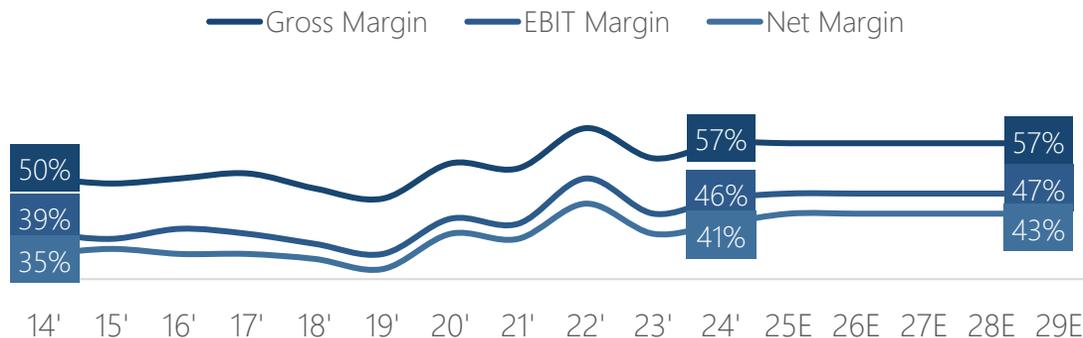
3 ...with CapEx growing moderately and under the operational control of the company...

CapEx; CapEx as % Rev.; CapEx as % CFO [NT\$ Tn; %; %]



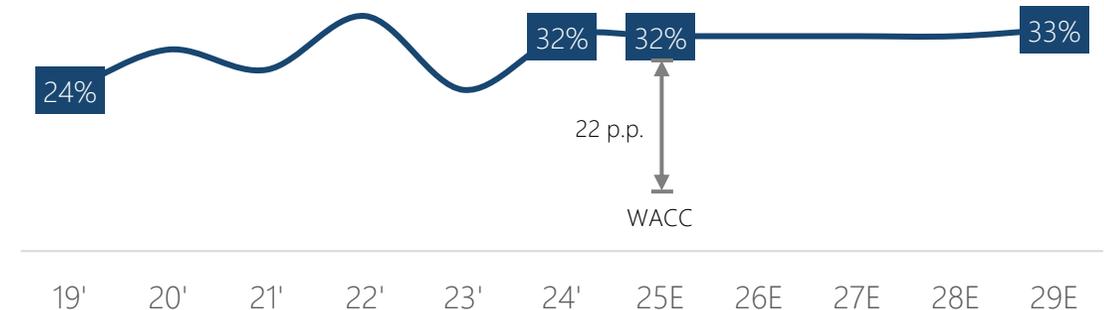
2 This growth is expected to carry the pricing power, bringing up a slight increase in margins despite the international expansion...

Gross, EBIT and Net Margins [%]



4 ...and ultimately sustaining the company's historically elevated ROIC, far above its cost of capital.

Return on invested capital [%]



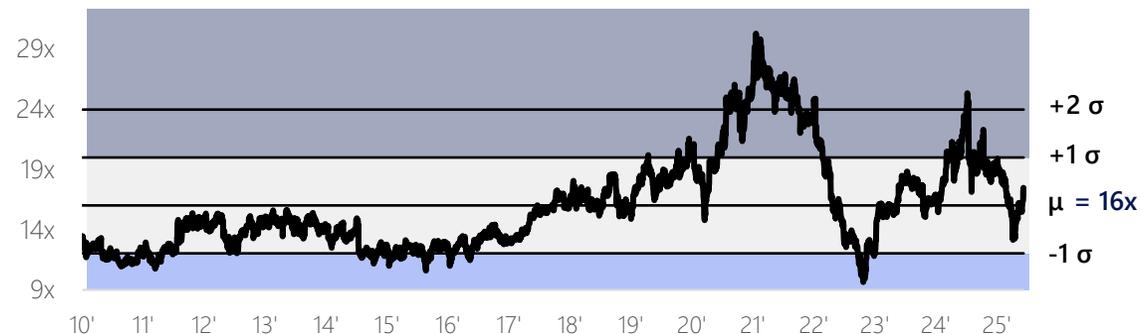


Multiples: The key role of in TSMC's high IRR

We forecast an 21.4% IRR considering a 16x exit multiple and sensitivity proving the BUY

1 TSMC has been trading at a 1-year forward P/E in its average over the past few years.

P/E fwd 1Y historic [x]

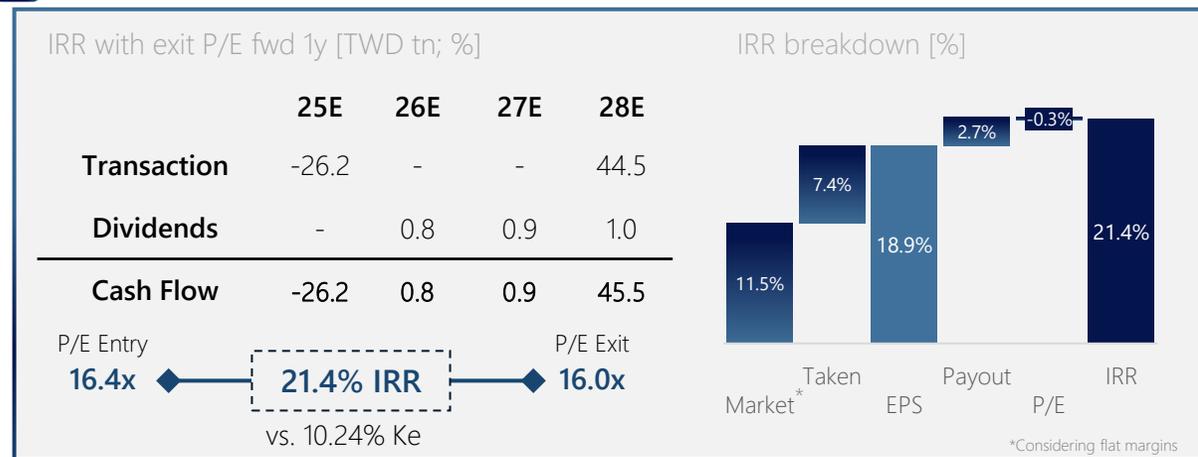


2 When compared to its foundry peers, it is trading at attractive multiples. This without considering that it is the only one positioned in the leading edges.

Comp. Table

Company	P/E fwd 1y	PEG	EPS CAGR 25'-27'	ROE	Gross Margin
TSMC	16.4x	0.5x	19%	26%	56%
UMC	13.8x	1.5x	5.8%	11.5%	32.6%
SMIC	56.5x	2.6x	22%	3%	18%
Global Foundries	21.9x	0.8x	19%	-1.7%	24.5%

3 Using a 16x exit multiple in 3 years, it would result in an 21.4% IRR in USD.



4 With the long thesis confirmed by the higher amount of buy scenarios in the sensitivity analysis

Exit multiple vs. revenue CAGR_{25E-27E} sensitivity analysis [%]

		Exit P/E fwd 1y				
		12x	14x	16x	18x	20x
Revenue CAGR	21.4%	7%	13%	17%	22%	26%
	15%	9%	14%	19%	24%	28%
	17%	11%	16%	21%	26%	30%
	19%	13%	18%	23%	28%	33%
	21%	14%	20%	25%	30%	35%

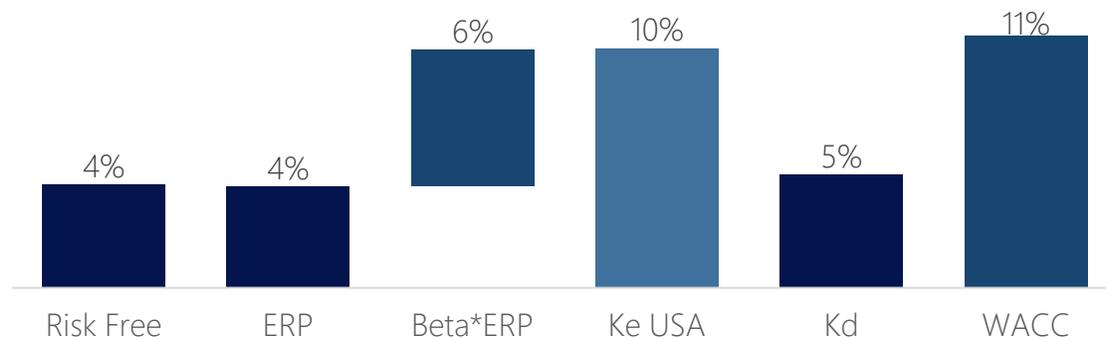


Diving into valuation

Deep dive inside the model numbers

1 Through the CAPM model, we estimated our WACC, resulting in an 11% cost of capital...

WACC Breakdown [%]



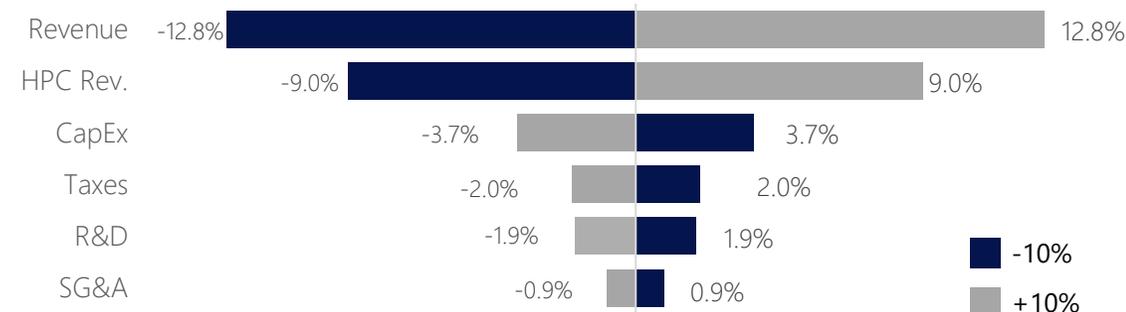
2 ...we then varied Ke and g in a sensitivity analysis so as to ensure further confidence in our results...

Ke vs. g sensitivity analysis [downside/upside; %]

		Ke						
		11.7%	11.2%	10.7%	10.2%	9.7%	9.2%	8.7%
Perpetuity g	2.0%	-9.0%	-3.5%	2.5%	9.3%	17.0%	25.8%	35.9%
	2.5%	-4.7%	1.2%	8.0%	15.6%	24.2%	34.2%	45.8%
	3.0%	0.0%	6.6%	14.1%	22.7%	32.5%	43.9%	57.3%
	3.5%	5.3%	12.7%	21.1%	30.8%	42.1%	55.3%	71.1%
	4.0%	11.3%	19.6%	29.1%	40.3%	53.3%	68.9%	87.8%
	4.5%	18.1%	27.5%	38.5%	51.4%	66.7%	85.3%	108.4%
5.0%	25.9%	36.7%	49.4%	64.6%	82.9%	105.7%	134.5%	

3 ...and conducted a Tornado Analysis to identify which variables have the greatest influence on our model.

Tornado analysis [%]



4 Finally, estimating TSMC's fair multiple excluding TW we found the implied invasion probability to be unrealistically high, reinforcing its undervaluation.

P/E Multiple 1y fwd. [x]

Estimated Taiwan-invasion risk priced into TSMC [%]

