

Regional Company Update

Taiwan Semiconductor Manufacturing Company

Bloomberg: 2330 TT | TSM US | Reuters: 2330.TW | TSM.N

Refer to important disclosures at the end of this report

DBS Group Research . Equity

15 Jul 2022

TW: BUY

Last Traded Price (14 Jul 2022): NT\$475.0
(Taiwan - TAIEX : 14,438.52)
Price Target 12-mth: NT\$670 (41% upside) (Prev NT\$860)

US: BUY

Last Traded Price (14 Jul 2022): US\$83.67
(NASDAQ : 11,251.19)
Price Target 12-mth: US\$120 (43% upside) (Prev US\$170)

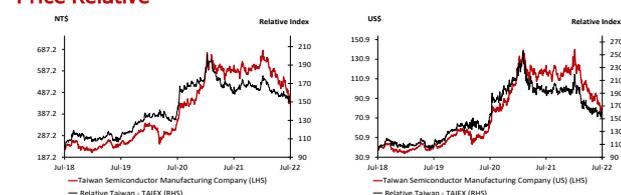
Analyst

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What's New

- Record 1H22 revenue with higher-than-expected gross margins of 57.4%
- Guided higher gross margins of 57.5-59.5% and 11% q-o-q revenue growth in 3Q22; capex near lower-end guidance for FY22
- N3, N3E and N2 remain on track for production in 2022 - 2025
- Reiterate BUY; TP adjusted to NT\$670/US\$120

Price Relative



Forecasts and Valuation

FY Dec (NT\$m)	2020A	2021A	2022F	2023F
Revenue	1,339,255	1,587,415	1,985,127	2,336,892
EBITDA	909,565	1,085,227	1,332,125	1,533,002
Pre-tax Profit	584,777	663,126	861,543	1,006,756
Net Profit	517,885	596,540	776,081	906,889
Net Pft (Pre Ex.)	517,885	596,540	776,081	906,889
Net Pft Gth (Pre-ex) (%)	50.0	15.2	30.1	16.9
EPS (NT cts)	1,997	2,301	2,993	3,497
EPS Pre Ex. (NT cts)	1,997	2,301	2,993	3,497
EPS Gth Pre Ex (%)	50	15	30	17
Diluted EPS (NT cts)	1,997	2,301	2,993	3,497
Net DPS (NT cts)	1,000	1,100	1,437	1,679
BV Per Share (NT cts)	7,133	8,362	10,358	12,446
PE (X)	23.8	20.6	15.9	13.6
PE Pre Ex. (X)	23.8	20.6	15.9	13.6
P/Cash Flow (X)	15.0	11.1	9.5	8.5
EV/EBITDA (X)	13.1	11.0	9.0	8.0
Net Div Yield (%)	2.1	2.3	3.0	3.5
Earnings Rev (%):			0	0
Consensus EPS (NT cts):			3,610	3,787
Other Broker Recs:		B: 36	S: 0	H: 4

Source of all data on this page: Company, DBS Bank, Bloomberg Finance L.P.

Reaching new heights

Investment Thesis:

Reiterate BUY; TP revised down to NT\$670/ US\$120, after lowering PB multiple to 6.5x or 1SD above mean (vs 8x or 2SD above mean previously) in line with sector and market derating amid demand slowdown concerns. Taiwan Semiconductor Manufacturing Company (TSMC) remains our preferred blue-chip pick to play the semiconductor secular uptrend.

Relentless growth; strong pricing power. We expect TSMC's earnings to at 23% CAGR over 2021-2023F, driven by capacity and margin expansion on the back of favourable industry trends – rising semiconductor content underpinned by rapid growth of AI, 5G, IoT and EVs, and increase in Integrated Device Manufacturers' (IDMs) outsourcing, as well as commercialisation of higher value advanced nodes.

Technology leadership to stay. TSMC possesses a wide economic moat stemming from its technological edge. It has been at the forefront in providing next-generation, leading-edge process technologies. The gap with the next player in the race looks set to widen as it accelerates R&D expenses and capex in the next few years. The high technological barrier will sustain TSMC's leadership, sharpen its cost competitiveness, enhance return to investors and better weather the industry cyclicality

Valuation:

We derive a fair value of NT\$ 670 and US\$120 (0% ADR premium) for TSMC based on 6.5x FY22F PB, 1SD above mean, which implies 21x FY22F PE (+1SD), which is fair against its ~30% ROE. It also offers a decent dividend yield of ~2%.

Where we differ:

While there have been rising concerns over intensifying competition, we believe TSMC's technological leadership is here to stay with its sound strategy and resources.

Key Risks to Our View:

Change in industry dynamics, loss of competitive advantage.

Global consumer demand, utilisation and ASP trends head south; loss of its leadership in cutting-edge chips; geopolitical tensions – US/China, China/Taiwan, and Russia/Ukraine war.

At A Glance

Issued Capital (m shrs)	5,186
Mkt. Cap (US\$m/US\$m)	433,942 / 433,942
Major Shareholders (%)	
National Development Fund Executive Yuan	6.4
BlackRock Inc	5.1
Free Float (%)	88.5
3m Avg. Daily Val (US\$m)	943.6

GIC Industry: Information Technology / Semiconductors &



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ed: JS/ sa: xx, PY, CS



WHAT'S NEW

Stellar 1H22, guiding higher revenues and margins for 3Q22

1H22 record revenues. 2Q22 revenues came in at NT\$534bn (approx. US\$18.16bn), at the higher end of its quarterly guidance of US\$17.6-18.2bn. Overall, management attributes the strong performance to continued strong demand underpinned by the industry megatrends of 5G, High Performance Computing (HPC), Automotive and Internet of Things (IoT). Furthermore, management expects HPC and automotive-related demand to continue to drive its revenue growth with HPC being the main engine of its revenue growth. Strong demand for HPC, IoT and Automotive led the way with 13%, 14% and 14% q-o-q growth while Smartphones, Digital Consumer Electronics (DCE) and Others grew 3%, 5% and 7% q-o-q respectively in 2Q22.

Overall, 1H22 revenues came in at a record NT\$1,025bn, growing by 39.6% y-o-y growth. As of 1H22, TSMC's HPC platform has become its largest revenue contributor at 42% of revenues while its Smartphone platform contributed approximately 39%. Advanced technologies, 7nm and below, contributed approximately 51% of its 1H22 wafer revenues.

Gross margins exceeded 2Q22 guidance, coming in at 59.1%, 1.1ppt higher, while operating margin also exceeded its higher-end guidance of 47%, coming in at 49.1%. Management attributed the improvement of its margins to cost improvements, its value selling, and very favorable exchange rates. In 1H22, gross margins at 57.4% was 6.2ppts y-o-y higher.

1H22 EBIT and net profits grew 64% and 60.5% y-o-y to NT\$485.9bn and NT\$439.7bn respectively. As a result, 1H22 EBIT and net profit margins came in at 47.4% and 42.9% respectively. As of 1H22, cash and marketable securities increased by NT\$143.5bn to NT\$1425.5bn while net cash reserves increased by NT\$47.74bn to NT\$535.72bn. Capital expenditures amounted to USD\$16.72bn.

Remains optimistic on long-term structural demand; higher quarterly guidance.

Management maintains an optimistic view of sustained growth momentum in the face of macroeconomic headwinds and rising geopolitical tensions that threatens to further disrupt the supply chain as well as plunging the global economy into a recession. Strong demand for its 7nm and below technology will continue to support TSMC's growth against the backdrop of excess demand and tight capacity.

Going into 3Q22, management guided higher **revenue**, increasing by 9.0-13.4% q-o-q to US\$19.8-20.6bn, and **gross margins** that are expected to stay elevated at 57.5-59.5% in 3Q22. Management continues to remain confident in achieving its long-term gross margin guidance of >53% as high utilization rate, technology leadership, cost improvements and the ramping up and development of advanced technology continues to drive the improvement in its margins. **Operating margins** for 3Q22 are also expected to expand to 47-49%.

Sustained growth momentum amidst macroeconomic headwinds.

Management maintains its view that structural growth, spurred by increasing demand and requirements for computational power, energy efficiency and increasing silicon content from their customers, remains strong as it guided for 15-20% revenue CAGR, in USD terms, over the next several years. Though **TSMC still maintains its capital expenditures at US\$40bn-44bn for FY22**, its FY22 capex is expected to be closer to the lower end of its guidance due to delays in some tools deliveries, resulting in some of its capex overflowing into FY23. TSMC's HPC platform is expected to be the largest contributor and its main engine revenue growth driver for the next several years.

While global consumer demand has softened amid a highly inflationary environment thus far, on the back of inventory correction that's expected to persist till 1H23, management remains optimistic about FY22 and the longer-term outlook as demand from its customers continues to exceed TSMC's capacity to supply.

N3 and N3E schedule remains on track.

TSMC's N3 is on track to begin volume production in 2H22 and its revenue contribution is expected to be reflected in FY23. Though management has guided for 2-3ppt gross margin dilution for FY23, management has already taken this into consideration and remains confident of achieving the long-term gross margins guidance of >53%. Furthermore, TSMC continues to see a high level of customer engagement with its N3E and is on track to begin volume production in 2H23.

N2 is progressing well and on track for production.

TSMC's N2 also remains on schedule to begin its risk production in 2024 and subsequently, volume production in 2025. Management is confident that its N2 will be the most advanced technology in the market upon its introduction.

Company Background

Founded in 1987, TSMC now commands **over 50% of foundry market share**, operating 12 fabrication plants in Taiwan, China and US with an estimated total maximum **annual capacity of 14m** 12-inch equivalent wafers. It produces world's most advanced chips with **50% of revenue derived from advanced nodes <7nm**. In terms of applications, **44% of revenue comes from smartphones** and **37% from High Performance Computing (HPC)**. Apple is its largest customer, accounting for over 20% of sales.

TSMC's Actual Performance vs Quarterly Guidance

	Company Guidance			Actual			Projected	Remarks
	2Q21	1Q22	2Q22	2Q21	1Q22	2Q22	FY22	
Net Revenues	\$12.9bn - \$13.2bn	\$16.6bn - \$17.2bn	\$17.6bn - \$18.2bn	\$13.29bn	\$17.57bn	\$18.16bn	\$1,985bn	Quarterly revenues came in at the higher end of guidance.
Exchange Rate (USD/NTD)	28.4	27.6	28.8	28.01	27.95	29.42	-	-
Gross Margins	49.5% - 51.5%	53% - 55%	56% - 58%	50.0%	55.6%	59.1%	53.0%	Quarterly gross margins exceeded its guidance.
Operating Margins	38.5% - 40.5%	42% - 44%	45% - 47%	39.1%	45.6%	49.1%	42.5%	Operating margins also exceeded its guidance.

Source: Company, DBS Bank

Quarterly Income Statement (NT\$m)

FY Dec	4Q2020	3Q2021	4Q2021	% chg yoy	% chg qoq
Revenue	361,533	414,670	438,189	21.2	5.7
Cost of Goods Sold	(166,297)	(201,924)	(207,434)	24.7	2.7
Gross Profit	195,236	212,746	230,755	18.2	8.5
Other Oper. (Exp)/Inc	(38,116)	(41,743)	(47,983)	25.9	14.9
Operating Profit	157,120	171,004	182,772	16.3	6.9
Other Non Opg (Exp)/Inc	(2,709)	3,881	0.0	nm	Nm
Associates & JV Inc	1,355	1,513	1,651	21.9	9.1
Net Interest (Exp)/Inc	884	22.5	(712)	nm	nm
Exceptional Gain/(Loss)	4,457	(2,568)	1,108	(75.1)	Nm
Pre-tax Profit	161,107	173,855	184,823	14.7	6.3
Tax	(18,283)	(17,372)	(18,446)	0.9	6.2
Minority Interest	(58.0)	(221)	(141)	(143.1)	(36.2)
Net Profit	142,766	156,258	166,231	16.4	6.4
Net profit bef Except.	138,309	158,826	165,123	19.4	4.0
EBITDA	253,328	283,427	295,090	16.5	4.1
Margins (%)					
Gross Margins	54.0	51.3	52.7		
Opg Profit Margins	43.5	41.2	41.7		
Net Profit Margins	39.5	37.7	37.9		

Peer comparison

Company	Market cap (US\$m)	P/E ratio (x)			P/B (x)			Core ROE (%)			2 year earnings CAGR (%)	YTD Performance
		CY21	CY22F	CY23F	CY21	CY22F	CY23F	CY21	CY22F	CY23F		
Foundry		18.7x	10.6x	10.5x	3.6x	1.9x	1.7x	19.4%	24.7%	19.1%	56.4%	-30.2%
TSMC	411,918	26.7x	14.0x	13.0x	7.4x	4.5x	3.6x	29.7%	34.8%	31.2%	31.4%	-22%
UMC	16,196	14.2x	5.7x	7.1x	2.9x	1.5x	1.5x	21.6%	27.2%	20.5%	139.7%	-36%
POWERCHIP	4,686	14.5x	6.1x	9.3x	3.8x	1.7x	1.4x	32.2%	31.7%	16.4%	na	-44%
VANGUARD	3,886	21.9x	6.8x	8.0x	7.4x	2.6x	2.4x	36.5%	42.6%	29.6%	42.0%	-52%
NANYA TECH	5,163	10.6x	8.0x	9.7x	1.4x	0.9x	0.8x	14.0%	10.8%	9.2%	52.5%	-31%
SMIC	24,127	14.1x	9.7x	10.8x	1.1x	0.8x	0.8x	10.5%	10%	8%	169.3%	-14%
HUA HONG	4,129	27.4x	12.2x	11.8x	2.5x	1.2x	1.1x	9.7%	11%	10%	27.0%	-42%
GLOBALFOUNDRIES	22,578	na	19.3x	15.4x	4.3x	2.4x	1.8x	-3.3%	13%	16%	-57.3%	-36%
TOWER SEMI	5,051	29.0x	20.5x	17.2x	2.7x	2.7x	2.4x	9.7%	na	na	29.1%	16%
DB HITEK	1,446	10.0x	3.3x	3.1x	2.9x	1.1x	0.8x	33.3%	42%	31%	74.0%	-41%

Source: Company, Bloomberg Finance L.P., DBS Bank

Historical PE and PB



Source: Bloomberg Finance L.P., DBS Bank estimates



Source: Bloomberg Finance L.P., DBS Bank estimates

Key Assumptions

FY Dec	2019A	2020A	2021A	2022F	2023F
Total output, 12"-equivalent (k wafers)	10,068	12,398	14,179	14,466	15,768
ASP, 12" equivalent (NT\$/wafer)	106,276	108,022	111,955	137,223	148,201

Segmental Breakdown

FY Dec	2019A	2020A	2021A	2022F	2023F
Revenues (NT\$m)					
Wafer	927,317	1,178,456	1,405,300	1,757,385	2,068,794
Others	142,668	160,799	182,115	227,742	268,098
Total	1,069,985	1,339,255	1,587,415	1,985,127	2,336,892

Income Statement (NT\$m)

FY Dec	2019A	2020A	2021A	2022F	2023F
Revenue	1,069,985	1,339,255	1,587,415	1,985,127	2,336,892
Cost of Goods Sold	(577,284)	(628,125)	(767,878)	(933,010)	(1,098,339)
Gross Profit	492,702	711,130	819,537	1,052,117	1,238,553
Other Opng (Exp)/Inc	(120,001)	(144,346)	(169,556)	(208,541)	(245,406)
Operating Profit	372,701	566,784	649,981	843,576	993,146
Other Non Opg (Exp)/Inc	1,362	7,464	7,248	1,500	1,500
Associates & JV Inc	2,844	3,593	5,603	5,603	5,603
Net Interest (Exp)/Inc	12,939	6,937	295	10,864	6,506
Exceptional Gain/(Loss)	0.0	0.0	0.0	0.0	0.0
Pre-tax Profit	389,845	584,777	663,126	861,543	1,006,756
Tax	(44,502)	(66,619)	(66,053)	(86,154)	(100,676)
Minority Interest	(80.1)	(273)	(533)	693	809
Preference Dividend	0.0	0.0	0.0	0.0	0.0
Net Profit	345,264	517,885	596,540	776,081	906,889
Net Profit before Except.	345,264	517,885	596,540	776,081	906,889
EBITDA	663,791	909,565	1,085,227	1,332,125	1,533,002
Growth					
Revenue Gth (%)	3.7	25.2	18.5	25.1	17.7
EBITDA Gth (%)	(2.2)	37.0	19.3	22.8	15.1
Opg Profit Gth (%)	(2.8)	52.1	14.7	29.8	17.7
Net Profit Gth (Pre-ex) (%)	(1.7)	50.0	15.2	30.1	16.9
Margins & Ratio					
Gross Margins (%)	46.0	53.1	51.6	53.0	53.0
Opg Profit Margin (%)	34.8	42.3	40.9	42.5	42.5
Net Profit Margin (%)	32.3	38.7	37.6	39.1	38.8
ROAE (%)	20.9	29.8	29.7	32.0	30.7
ROA (%)	15.9	20.6	18.4	19.3	19.7
ROCE (%)	19.4	25.8	22.3	23.3	23.2
Div Payout Ratio (%)	71.3	50.1	47.8	48.0	48.0
Net Interest Cover (x)	NM	NM	NM	NM	NM

Source: Company, DBS Bank

Quarterly Income Statement (NT\$m)

FY Dec	2Q2021	3Q2021	4Q2021	1Q2022	2Q2022
Revenue	372,145	414,670	438,189	491,076	534,141
Cost of Goods Sold	(185,948)	(201,924)	(207,434)	(217,873)	(218,673)
Gross Profit	186,197	212,746	230,755	273,203	315,468
Other Oper. (Exp)/Inc	(40,530)	(41,743)	(47,983)	(49,413)	(53,344)
Operating Profit	145,667	171,004	182,772	223,790	262,124
Other Non Opg (Exp)/Inc	999	3,881	3,974	2,051	0.0
Associates & JV Inc	1,172	1,513	1,651	1,725	2,257
Net Interest (Exp)/Inc	294	22.5	(711)	(467)	642
Exceptional Gain/(Loss)	1,259	(2,568)	(2,867)	(268)	975
Pre-tax Profit	149,391	173,852	184,819	226,832	265,998
Tax	(14,909)	(17,372)	(18,446)	(23,958)	(28,817)
Minority Interest	(122)	(221)	(141)	(140)	(154)
Net Profit	134,360	156,258	166,233	202,733	237,027
Net profit bef Except.	133,101	158,826	169,099	203,001	236,052
EBITDA	251,643	283,424	299,060	338,669	377,606

Growth

Revenue Gth (%)	2.7	11.4	5.7	12.1	8.8
EBITDA Gth (%)	(2.6)	12.6	5.5	13.2	11.5
Opg Profit Gth (%)	(3.2)	17.4	6.9	22.4	17.1
Net Profit Gth (Pre-ex) (%)	(6.9)	19.3	6.5	20.0	16.3

Margins

Gross Margins (%)	50.0	51.3	52.7	55.6	59.1
Opg Profit Margins (%)	39.1	41.2	41.7	45.6	49.1
Net Profit Margins (%)	36.1	37.7	37.9	41.3	44.4

Balance Sheet (NT\$m)

FY Dec	2019A	2020A	2021A	2022F	2023F
Net Fixed Assets	1,352,377	1,555,589	1,975,119	2,663,856	3,358,539
Invts in Associates & JVs	18,699	18,841	21,963	25,067	28,670
Other LT Assets	71,115	94,096	121,348	125,846	131,339
Cash & ST Invts	583,423	791,477	1,188,442	1,051,616	924,364
Inventory	82,981	137,353	193,102	200,760	192,585
Debtors	139,822	146,089	198,363	215,376	249,695
Other Current Assets	16,388	17,266	27,166	17,266	17,266
Total Assets	2,264,805	2,760,711	3,725,503	4,299,785	4,902,458
ST Debt	152,597	92,987	119,488	119,488	119,488
Creditor	40,206	41,095	48,723	54,567	72,220
Other Current Liab	397,932	483,069	571,293	597,800	612,321
LT Debt	40,142	276,633	634,144	659,144	689,144
Other LT Liabilities	11,832	16,305	181,123	181,123	181,123
Shareholder's Equity	1,621,410	1,849,657	2,168,287	2,685,910	3,227,218
Minority Interests	685	965	2,447	1,754	945
Total Cap. & Liab.	2,264,805	2,760,711	3,725,503	4,299,785	4,902,458
Non-Cash Wkg. Capital	(198,947)	(223,455)	(201,385)	(218,964)	(224,994)
Net Cash/(Debt)	390,683	421,856	434,810	272,984	115,732
Debtors Turn (avg days)	45.9	39.0	39.6	38.0	36.3
Creditors Turn (avg days)	46.9	50.1	47.4	41.7	40.9
Inventory Turn (avg days)	117.0	135.7	174.6	159.2	126.9
Asset Turnover (x)	0.5	0.5	0.5	0.5	0.5
Current Ratio (x)	1.4	1.8	2.2	1.9	1.7
Quick Ratio (x)	1.2	1.5	1.9	1.6	1.5
Net Debt/Equity (X)	CASH	CASH	CASH	CASH	CASH
Net Debt/Equity ex MI (X)	CASH	CASH	CASH	CASH	CASH
Capex to Debt (%)	291.5	142.8	110.6	149.2	150.6

Source: Company, DBS Bank

Cash Flow Statement (NT\$m)

FY Dec	2019A	2020A	2021A	2022F	2023F
Pre-Tax Profit	389,845	584,777	663,126	861,543	1,006,756
Dep. & Amort.	286,884	331,725	422,395	481,446	532,754
Tax Paid	(52,044)	(51,362)	(83,498)	(59,647)	(86,154)
Assoc. & JV Inc/(loss)	(2,844)	(3,593)	(5,603)	(5,603)	(5,603)
Chg in Wkg.Cap.	238,580	24,508	(22,071)	17,580	6,029
Other Operating CF	(245,283)	(63,389)	137,811	0.0	0.0
Net Operating CF	615,139	822,666	1,112,161	1,295,319	1,453,781
Capital Exp.(net)	(561,739)	(527,750)	(833,717)	(1,161,777)	(1,217,740)
Other Invts.(net)	(10,784)	358	4,400	(12,903)	(15,190)
Invts in Assoc. & JV	833	142	3,122	0.0	0.0
Div from Assoc & JV	1,719	2,752	2,136	2,500	2,000
Other Investing CF	111,169	18,716	(12,307)	0.0	0.0
Net Investing CF	(458,802)	(505,782)	(836,366)	(1,172,180)	(1,230,930)
Div Paid	(259,304)	(259,304)	(265,786)	(285,234)	(372,519)
Chg in Gross Debt	(6,026)	172,724	397,186	25,000	30,000
Capital Issues	0.0	0.0	0.0	0.0	0.0
Other Financing CF	(4,308)	(2,035)	5,209	0.0	0.0
Net Financing CF	(269,638)	(88,615)	136,608	(260,234)	(342,519)
Currency Adjustments	(9,114)	(23,498)	(7,584)	(7,584)	(7,584)
Chg in Cash	(122,415)	204,771	404,820	(144,680)	(127,251)
Opg CFPS (NT cts)	1,452	3,078	4,374	4,928	5,583
Free CFPS (NT cts)	206	1,137	1,074	515	910

Source: Company, DBS Bank

Taiwan Share - Target Price & Ratings History



Note : Share price and Target price are adjusted for corporate actions.

S.No.	Date of Report	Closing Price	12-mth Target Price	Rating
1:	09 Nov21	611.00	710.00	BUY
2:	14 Jan22	672.00	860.00	BUY
3:	18 Apr22	561.00	860.00	BUY

US Share - Target Price & Ratings History



Note : Share price and Target price are adjusted for corporate actions.

S.No.	Date of Report	Closing Price	12-mth Target Price	Rating
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Source: DBS Bank

Analyst: Pei Hwa HO

DBS Bank recommendations are based on an Absolute Total Return* Rating system, defined as follows:
STRONG BUY (>20% total return over the next 3 months, with identifiable share price catalysts within this time frame)
BUY (>15% total return over the next 12 months for small caps, >10% for large caps)
HOLD (-10% to +15% total return over the next 12 months for small caps, -10% to +10% for large caps)
FULLY VALUED (negative total return, i.e., > -10% over the next 12 months)
SELL (negative total return of > -20% over the next 3 months, with identifiable share price catalysts within this time frame)

**Share price appreciation + dividends*

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