

Technology Hardware

MULTI-COMPANY UPDATE



Companies mentioned

	Symbol	Price	Rating
Taiwan Semiconductor	2330 TT	TWD613.00	Neutral
TSMC	TSM	\$124.39	Neutral

TSMC Earning: Despite Rev Upside, Margin Headwind Persists, Which Was Expected

Call to action

We are updating estimates following TSM's 2Q21 earnings report/conf call, while PT remains unchanged. All in all, margin pressure should ease by early 2022, driven by higher blended ASPs. But, FCF margin pressure is expected to sustain into 2023 given the higher working capital requirement while capex is expected to remain at elevated levels.

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HIGHLIGHTS

As was expected, TSM guided to higher than expected revenue trends into 2H21 though margins remain under pressure. Midpoint of 3Q21 guide implies 11% Q/Q growth vs. consensus of up 10%. OM is expected to trend flattish into 3Q21. Additionally, we note leading edge nodes (like N7/5) now require higher working capital due to longer manufacturing cycle times. This, combined with elevated capex, should limit FCF margin to below 10%. Other take aways are: (1) as was expected, smartphone related revenues were down in 2Q21, though HPC improved particularly by a higher mix of China based customers, (2) smartphone is expected to rebound into 2H21, (3) capex guide for 2021 has remained unchanged at \$30B though there remains prospects of upside (~\$0.5B), (4) blended wafer prices are expected to continue to increase, (5) N3 is expected to go into HVM in 2H22 (and not a real material change to our expectations since Apple will move its SP AP to N4 in 2022), (6) there are increased prospects of the 2nd phase of the Arizona fab, which we estimate to drive the capacity there to 40k+ wpm (of N5 capacity) by YE24 and above the current expectations of 20k wpm (from the 1st phase).

	RATING		PRICE TARGET		PRIOR EPS		CURRENT EPS	
	PRIOR	CURRENT	PRIOR	CURRENT	2021	2022	2021	2022
2330 TT								
TSM								

ESTIMATE CHANGES

2330 TT	TWD613.00	Neutral	TWD590.00	22.47	27.13	22.40	cy	27.25
TSM	\$124.39	Neutral	\$105.00	3.97	4.78	4.01	cy	4.88

Calendar year = cy

Fiscal year = fy

- As was already implied in TSM's monthly sales figures, TSM reported 2Q21 revenue of NT\$372.145B, +19.8% Y/Y and +2.7% Q/Q. Revenue growth driven by strength in HPC (and particularly China) and Automotive end markets. This compares to consensus of NT\$372.05B and was above the midpoint of the guided range of NT\$366B-NT\$375B. Reported EPS of NT\$5.19 came in lower than SFG/consensus of NT\$5.35/NT\$5.23.
- Reported GM of 50%, which came in below SFG/consensus of 51.3%/51.0%, is down -300 bp Y/Y, and on the lower end of the guided range of 49.5% to 51.5%. Reported OM of 39.1% also was below SFG/Consensus of 40.3%, down -310 bp Y/Y and at the low end of the guided range of 38.5%-40.5%.

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HIGHLIGHTS

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- GM came in lower as a result of FX headwinds (~50 bpts) and the mix shift towards N5. The real FX exchange rate came in at 29.1 NTD/USD, compared to the previously assumed 28.4 NTD/USD. Slower rate of cost improvement and inventory valuations also impeded GMs. Back end profitability expected to improve going forward (but still below the corporate average).
 - TSM guided 3Q21 revenue of NT\$407B-\$416B (US\$14.6B-\$14.9B) vs. SFG/consensus of NT\$407B/NT\$409B. The midpoint implies ~11% Q.Q growth. GM and OM are guided to be 49.5-51.5% and 38.5-40.5%, which compares to SFG/consensus of 51.2%/51.8% and 39.8%/41.1%. For FY21, TSMC estimates Semi (ex. Memory), Foundry Market, and its own sales to grow 17%, 20%, and >20% respectively on a USD basis.
 - TSM reiterated its revenue guidance of 10-15% CAGR from 2020 to 2025, and noted that it is expected to be at the high end of this range. TSM believes that its L-T targets of 50% GM and 39% OM are sustainable, and that it can achieve an ROE of >20%.
 - HPC now makes up 39% of revenues, up from 33% a year ago. Much of this revenue share has been gained at the expense of SP, which had declined to 42% of revenue from 47% a year prior. HPC is expected to be the largest driver of revenue growth over the next 5 years, and will especially drive traction in leading node adoption. Automotive also continues to gain traction, increasing 12% sequentially in the quarter. Trends related to safety, ADAS, and electrification expected to drive incremental silicon content in auto.
 - 2Q21 CapEx was \$6.0B (+41% Y/Y; -33% Q/Q). TSM has previously announced that it expects to spend \$100B CapEx from 2021 to 2023 in total, and had previously guided ~30B in capex for 2021. ~\$12B of capex will be allocated towards this buildout of the Arizona fab, ~\$8B of this to be spent in the next 3 years.
 - TSM continues to build N5/N3 capacity throughout Taiwan. TSM plans to expand operations in various Taiwanese geographies in an effort to keep Taiwan the home base for leading edge manufacturing, citing efficiencies stemming from close proximity. TSM continues to invest in its Arizona 5nm fab, and expects equipment installations to commence in 2H22 with 20k wpm capacity ramping by early 2024. The company also noted it is considering the 2nd phase of the expansion in Arizona, which we believe could increase the overall capacity to 40k + wpm by YE24.
 - Ramp of specialty technologies/trailing edge in China continues to progress, with 40k wpm capacity expected in 2023. TSM does not rule out the possibility of wafer fabrication in Japan, and is currently conducting due diligence to determine feasibility.
 - N5 continues to experience strong demand, driven by SP and HPC, and is expected to account for ~20% of total wafer revenue in 2021. N4 went into production this quarter, and is expected to be in full volume production by 2022. For N3, production is expected to begin in 2H22, and TSM notes high levels of customer engagements and tape outs. N7 remained the largest node by revenue in 2Q at 31% of total revenue, but is down 4% sequentially. This mix has shifted towards 5nm revenues, which improved by 4% to 18% of total revenues.
 - Our updated CY21/22 EPS estimates of NT\$22.40/27.25(US\$4.01/4.88) compared to the current consensus of NT \$22.66/26.29 (US\$4.04/4.68)
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Taiwan Semiconductor Manufacturing Company, Ltd.
(NT\$ in millions, except EPS)

(FY DEC)

15 Jul 21	MAR19A	JUN19A	SEP19A	DEC19A	FY19	MAR20A	JUN20A	SEP20A	DEC20A	FY20	MAR21A	JUN21A	SEP21E	DEC21E	FY21E	MAR22E	JUN22E	SEP22E	DEC22E	FY22E
REVENUE	218,704.0	240,999.0	293,045.0	317,237.0	1,069,985	310,597.0	310,699.0	356,426.0	361,533.0	1,339,255	362,410.0	372,145.0	412,502.1	429,317.2	1,576,374	423,701.1	457,597.2	511,830.1	528,437.7	1,921,566
% Change YY	-11.8%	3.3%	12.6%	9.5%	3.7%	42.0%	28.9%	21.6%	14.0%	25.2%	16.7%	19.8%	15.7%	18.7%	17.7%	16.9%	23.0%	24.1%	23.1%	21.9%
% Change Q/Q	-24.5%	10.2%	21.6%	8.3%		-2.1%	0.0%	14.7%	1.4%		0.2%	2.7%	10.8%	4.1%		-1.3%	8.0%	11.9%	3.2%	
TOTAL COGS	128,346.0	137,269.0	153,633.0	158,035.0	577,283	149,820.0	146,076.0	165,932.0	166,297.0	628,125	172,571.0	185,948.0	202,370.9	211,530.8	772,421	218,874.7	230,458.8	246,360.4	254,354.2	950,048
GROSS PROFIT	90,358.0	103,730.0	139,412.0	159,202.0	492,702	160,777.0	164,623.0	190,494.0	195,236.0	711,130	189,839.0	186,197.0	210,131.2	217,786.4	803,954	204,826.4	227,138.4	265,469.8	274,083.6	971,518
% Total Revenue	41.3%	43.0%	47.6%	50.2%	46.0%	51.8%	53.0%	53.4%	54.0%	53.1%	52.4%	50.0%	50.9%	50.7%	51.0%	48.3%	49.6%	51.9%	51.9%	50.6%
R&D	20,417.0	21,394.0	23,972.0	25,636.0	91,419	24,969.0	24,893.0	29,684.0	29,940.0	109,486	30,756.0	30,874.0	35,062.7	35,418.7	132,111	35,802.7	36,607.8	40,946.4	42,275.0	155,632
% Total Revenue	9.3%	8.9%	8.2%	8.1%	8.5%	8.0%	8.0%	8.3%	8.3%	8.2%	8.5%	8.3%	8.5%	8.3%	8.4%	8.5%	8.0%	8.0%	8.0%	8.1%
SG&A	5,675.0	6,032.0	7,553.0	9,322.0	28,582	7,286.0	8,636.0	10,762.0	8,176.0	34,860	8,545.0	9,656.0	11,750.0	12,000.0	41,951	12,000.0	12,355.1	12,795.8	13,210.9	50,362
% Total Revenue	2.6%	2.5%	2.6%	2.9%	2.7%	2.3%	2.8%	3.0%	2.3%	2.6%	2.4%	2.6%	2.8%	2.8%	2.7%	2.8%	2.7%	2.5%	2.5%	2.6%
OPERATING PROFIT	64,266.0	76,304.0	107,887.0	124,244.0	372,701	128,522.0	131,094.0	150,048.0	157,120.0	566,784	150,538.0	145,667.0	163,318.6	170,367.7	629,891	157,023.7	178,175.5	211,727.6	218,597.6	765,524
% Total Revenue	29.4%	31.7%	36.8%	39.2%	34.8%	41.4%	42.2%	42.1%	43.5%	42.3%	41.5%	39.1%	39.6%	39.7%	40.0%	37.1%	38.9%	41.4%	41.4%	39.8%
% Change YY	-34.5%	-10.3%	13.3%	16.0%	-3.3%	100.0%	71.8%	39.1%	26.5%	52.1%	17.1%	11.1%	8.8%	8.4%	11.1%	4.3%	22.3%	29.6%	28.3%	21.5%
% Change Q/Q	-40.0%	18.7%	41.4%	15.2%		3.4%	2.0%	14.5%	4.7%		-4.2%	-3.2%	12.1%	4.3%		-7.8%	13.5%	18.8%	3.2%	
OTHER	3,916	4,241	4,449	4,538	17,144	3,625	5,305	5,076	3,987	17,993	4,526	3,724	4,224	4,724	17,198	5,224	5,724	6,224	6,724	23,896
PRETAX PROFIT	68,182.0	80,545.0	112,336.0	128,782.0	389,845	132,147.0	136,399.0	155,124.0	161,107.0	584,777	155,064.0	149,391.0	167,542.6	175,091.7	647,089	162,247.7	183,899.5	217,951.6	225,321.6	789,420
% Total Revenue	31.2%	33.4%	38.3%	40.6%	36.4%	42.5%	43.9%	43.5%	44.6%	43.7%	42.8%	40.1%	40.6%	40.8%	41.0%	38.3%	40.2%	42.6%	42.6%	41.1%
% Change YY	-32%	-8%	14%	16%	-2%	94%	69%	38%	25%	50%	17%	10%	8%	9%	11%	5%	23%	30%	29%	22%
% Change Q/Q	-38.6%	18.1%	39.5%	14.6%		2.6%	3.2%	13.7%	3.9%		-3.8%	-3.7%	12.2%	4.5%		-7.3%	13.3%	18.5%	3.4%	
TAXES	6,795.0	13,769.0	11,233.0	12,704.0	44,501	15,084.0	15,507.0	17,745.0	18,283.0	66,619	15,325.0	14,910.0	17,592.0	18,384.6	66,212	17,036.0	19,309.4	22,884.9	23,658.8	82,889
Tax Rate	10.0%	17.1%	10.0%	9.9%	11.4%	11.4%	11.4%	11.4%	11.3%	11.4%	9.9%	10.0%	10.5%	10.5%	10.2%	10.5%	10.5%	10.5%	10.5%	10.5%
OTHER AFTER TAX	-	-	-	(43.0)	(43.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EXTRAORDINARY ITEMS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NET INCOME - CONT OPS	61,387.0	66,776.0	101,103.0	116,035.0	345,301	117,063.0	120,892.0	137,379.0	142,824.0	518,158	139,739.0	134,481.0	149,950.6	156,707.1	580,878	145,211.7	164,590.0	195,066.7	201,662.9	706,531
% Total Revenue	28.1%	27.7%	34.5%	36.6%	32.3%	37.7%	38.9%	38.5%	39.5%	38.7%	38.6%	36.1%	36.4%	36.5%	36.8%	34.3%	36.0%	38.1%	38.2%	36.8%
% Change YY	-31.6%	-7.6%	13.5%	16.0%	-1.7%	90.7%	81.0%	35.9%	23.1%	50.1%	19.4%	11.2%	9.2%	9.7%	12.1%	3.9%	22.4%	30.1%	28.7%	21.6%
% Change Q/Q	-38.6%	8.8%	51.4%	14.8%		0.9%	3.3%	13.6%	4.0%		-2.2%	-3.8%	11.5%	4.5%		-7.3%	13.3%	18.5%	3.4%	
NET INCOME - TOTAL	61,387.0	66,776.0	101,103.0	116,035.0	345,301	117,063.0	120,892.0	137,379.0	142,824.0	518,158	139,739.0	134,481.0	149,950.6	156,707.1	580,878	145,211.7	164,590.0	195,066.7	201,662.9	706,531
% Total Revenue	28.1%	27.7%	34.5%	36.6%	32.3%	37.7%	38.9%	38.5%	39.5%	38.7%	38.6%	36.1%	36.4%	36.5%	36.8%	34.3%	36.0%	38.1%	38.2%	36.8%
% Change YY	-31.6%	-7.6%	13.5%	16.0%	-1.7%	90.7%	81.0%	35.9%	23.1%	50.1%	19.4%	11.2%	9.2%	9.7%	12.1%	3.9%	22.4%	30.1%	28.7%	21.6%
% Change Q/Q	-38.6%	8.8%	51.4%	14.8%		0.9%	3.3%	13.6%	4.0%		-2.2%	-3.8%	11.5%	4.5%		-7.3%	13.3%	18.5%	3.4%	
SHARES	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930	25,930
EPS - CONT OPS	2.37	2.58	3.90	4.47	13.32	4.51	4.66	5.30	5.51	19.98	5.39	5.19	5.78	6.04	22.40	5.60	6.35	7.52	7.78	27.25
% Change YY	-31.6%	-7.6%	13.5%	16.0%	-1.7%	90.7%	81.0%	35.9%	23.1%	50.1%	19.4%	11.2%	9.2%	9.7%	12.1%	3.9%	22.4%	30.1%	28.7%	21.6%
% Change Q/Q	-38.6%	8.8%	51.4%	14.8%		0.9%	3.3%	13.6%	4.0%		-2.2%	-3.8%	11.5%	4.5%		-7.3%	13.3%	18.5%	3.4%	
EPS - GAAP	2.37	2.58	3.90	4.47	13.32	4.51	4.66	5.30	5.51	19.98	5.39	5.19	5.78	6.04	22.40	5.60	6.35	7.52	7.78	27.25

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15 Jul 21	MAR19A	JUN19A	SEP19A	DEC19A	FY19	MAR20A	JUN20A	SEP20A	DEC20A	FY20E	MAR21A	JUN21A	SEP21E	DEC21E	FY21E	MAR22E	JUN22E	SEP22E	DEC22E	FY22E
REVENUE	7,095.9	7,746.4	9,396.4	10,394.4	34,633.1	10,305.1	10,356.6	12,139.9	12,676.5	45,478.1	12,918.8	13,288.5	14,785.0	15,387.7	56,380.0	15,186.4	16,401.3	18,345.2	18,940.4	68,873.3
% Change Y/Y	-16.1%	-1.4%	10.7%	10.3%	1.2%	45.2%	33.7%	29.2%	22.0%	31.3%	25.4%	28.3%	21.8%	21.4%	24.0%	17.6%	23.4%	24.1%	23.1%	22.2%
% Change Q/Q	-24.7%	-77.4%	21.3%	10.6%		-0.9%	0.5%	17.2%	4.4%		1.9%	2.9%	11.3%	4.1%		-1.3%	8.0%	11.9%	3.2%	
TOTAL COGS	4,164.2	4,412.2	4,926.2	5,178.1	18,680.7	4,970.8	4,869.2	5,651.6	5,830.9	21,322.5	6,151.6	6,639.8	7,253.4	7,581.8	27,626.6	7,845.0	8,260.2	8,830.1	9,116.6	34,051.9
GROSS PROFIT	2,931.7	3,334.2	4,470.2	5,216.3	15,952.4	5,334.3	5,487.4	6,488.2	6,845.6	24,155.6	6,767.2	6,648.7	7,531.6	7,806.0	28,753.4	7,341.4	8,141.2	9,515.0	9,823.8	34,821.4
% Total Revenue	41.3%	43.0%	47.6%	50.2%	46.1%	51.8%	53.0%	53.4%	54.0%	53.1%	52.4%	50.0%	50.9%	50.7%	51.0%	48.3%	49.6%	51.9%	51.9%	50.6%
R&D	662.4	687.7	768.7	840.0	2,958.7	828.4	829.8	1,011.0	1,049.8	3,719.0	1,096.4	1,102.4	1,256.7	1,269.5	4,725.0	1,283.3	1,312.1	1,467.6	1,515.2	5,578.2
% Total Revenue	9.3%	8.9%	8.2%	8.1%	8.5%	8.0%	8.0%	8.3%	8.3%	8.2%	8.5%	8.3%	8.5%	8.3%	8.4%	8.5%	8.0%	8.0%	8.0%	8.1%
SG&A	184.1	193.9	242.2	305.4	925.6	241.7	287.9	366.6	286.7	1,182.8	304.6	344.8	421.1	430.1	1,500.7	430.1	442.8	458.6	473.5	1,805.1
% Total Revenue	2.6%	2.5%	2.6%	2.9%	2.7%	2.3%	2.8%	3.0%	2.3%	2.6%	2.4%	2.6%	2.8%	2.8%	2.7%	2.8%	2.7%	2.5%	2.5%	2.6%
OPERATING PROFIT	2,085.1	2,452.6	3,459.4	4,070.9	12,068.0	4,264.2	4,369.8	5,110.6	5,509.1	19,253.7	5,366.2	5,201.5	5,853.7	6,106.4	22,527.7	5,628.1	6,386.2	7,588.8	7,835.0	27,438.1
% Total Revenue	29.4%	31.7%	36.8%	39.2%	34.8%	41.4%	42.2%	42.1%	43.5%	42.3%	41.5%	39.1%	39.6%	39.7%	40.0%	37.1%	38.9%	41.4%	41.4%	39.8%
% Change Y/Y	-37.7%	-14.4%	11.4%	16.8%	-5.7%	104.5%	78.2%	47.7%	35.3%	59.5%	25.8%	19.0%	14.5%	10.8%	17.0%	4.9%	22.8%	29.6%	28.3%	21.8%
% Change Q/Q	-40.2%	-80.8%	41.0%	17.7%		4.7%	2.5%	17.0%	7.8%		-2.6%	-3.1%	12.5%	4.3%		-7.8%	13.5%	18.8%	3.2%	
OTHER	127.1	136.3	142.7	148.7	554.7	120.3	176.8	172.9	139.8	609.8	161.3	133.0	151.4	169.3	615.0	187.2	205.2	223.1	241.0	856.5
PRETAX PROFIT	2,212.2	2,589.0	3,602.0	4,219.6	12,622.8	4,384.4	4,546.6	5,283.5	5,648.9	19,863.5	5,527.5	5,334.4	6,005.1	6,275.7	23,142.8	5,815.3	6,591.4	7,811.9	8,076.0	28,294.6
% Total Revenue	31.2%	33.4%	38.3%	40.6%	36.4%	42.5%	43.9%	43.5%	44.6%	43.7%	42.8%	40.1%	40.6%	40.8%	41.0%	38.3%	40.2%	42.6%	42.6%	41.1%
% Change Y/Y	-35.1%	-12.2%	11.8%	16.8%	-4.3%	98.2%	75.6%	46.7%	33.9%	57.4%	26.1%	17.3%	13.7%	11.1%	16.5%	5.2%	23.6%	30.1%	28.7%	22.3%
% Change Q/Q	-38.8%	-80.4%	39.1%	17.1%		3.9%	3.7%	16.2%	6.9%		-2.1%	-3.5%	12.6%	4.5%		-7.3%	13.3%	18.5%	3.4%	
TAXES	220.5	442.6	360.2	416.3	1,439.5	500.5	516.9	604.4	641.1	2,262.8	546.3	532.4	630.5	658.9	2,368.2	610.6	692.1	820.2	848.0	2,970.9
Tax Rate	10.0%	17.1%	10.0%	9.9%	11.4%	11.4%	11.4%	11.4%	11.3%	11.4%	9.9%	10.0%	10.5%	10.5%	10.2%	10.5%	10.5%	10.5%	10.5%	10.5%
OTHER AFTER TAX EXTRAORDINARY ITEMS	-	-	-	(43.0)	(43.0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NET INCOME - CONT OPS	1,991.7	2,146.4	3,241.8	3,801.9	11,181.9	3,884.0	4,029.7	4,679.1	5,007.9	17,600.7	4,981.2	4,802.0	5,374.6	5,616.7	20,774.6	5,204.7	5,899.3	6,991.6	7,228.1	25,323.7
% Total Revenue	28.1%	27.7%	34.5%	36.6%	32.3%	37.7%	38.9%	38.5%	39.5%	38.7%	38.6%	36.1%	36.4%	36.5%	36.8%	34.3%	36.0%	38.1%	38.2%	36.8%
% Change Y/Y	-34.9%	-11.8%	11.6%	16.9%	-4.0%	95.0%	87.7%	44.3%	31.7%	57.4%	28.3%	19.2%	14.9%	12.2%	18.0%	4.5%	22.8%	30.1%	28.7%	21.9%
% Change Q/Q	-38.8%	-81.6%	51.0%	17.3%		2.2%	3.8%	16.1%	7.0%		-0.5%	-3.6%	11.9%	4.5%		-7.3%	13.3%	18.5%	3.4%	
NET INCOME - TOTAL	1,991.7	2,146.4	3,241.8	3,801.9	11,181.9	3,884.0	4,029.7	4,679.1	5,007.9	17,600.7	4,981.2	4,802.0	5,374.6	5,616.7	20,774.6	5,204.7	5,899.3	6,991.6	7,228.1	25,323.7
% Total Revenue	28.1%	27.7%	34.5%	36.6%	32.3%	37.7%	38.9%	38.5%	39.5%	38.7%	38.6%	36.1%	36.4%	36.5%	36.8%	34.3%	36.0%	38.1%	38.2%	36.8%
% Change Y/Y	-34.9%	-11.8%	11.6%	16.9%	-4.0%	95.0%	87.7%	44.3%	31.7%	57.4%	28.3%	19.2%	14.9%	12.2%	18.0%	4.5%	22.8%	30.1%	28.7%	21.9%
% Change Q/Q	-38.8%	-81.6%	51.0%	17.3%		2.2%	3.8%	16.1%	7.0%		-0.5%	-3.6%	11.9%	4.5%		-7.3%	13.3%	18.5%	3.4%	
SHARES (ADRs)	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0	5,186.0
EPS - CONT OPS	\$ 0.38	\$ 0.41	\$ 0.63	\$ 0.73	\$ 2.16	\$ 0.75	\$ 0.78	\$ 0.90	\$ 0.97	\$ 3.39	\$ 0.96	\$ 0.93	\$ 1.04	\$ 1.08	\$ 4.01	\$ 1.00	\$ 1.14	\$ 1.35	\$ 1.39	\$ 4.88
% Change Y/Y	-34.9%	-11.8%	11.6%	16.9%	-4.0%	95.0%	87.7%	44.3%	31.7%	57.4%	28.3%	19.2%	14.9%	12.2%	18.0%	4.5%	22.8%	30.1%	28.7%	21.9%
% Change Q/Q	-38.8%	-81.6%	51.0%	17.3%		2.2%	3.8%	16.1%	7.0%		-0.5%	-3.6%	11.9%	4.5%		-7.3%	13.3%	18.5%	3.4%	
EPS - GAAP	\$ 0.38	\$ 0.41	\$ 0.63	\$ 0.73	\$ 2.16	\$ 0.75	\$ 0.78	\$ 0.90	\$ 0.97	\$ 3.39	\$ 0.96	\$ 0.93	\$ 1.04	\$ 1.08	\$ 4.01	\$ 1.00	\$ 1.14	\$ 1.35	\$ 1.39	\$ 4.88

Taiwan Semiconductor Manufacturing Corp.

(NTD\$)

(SNT Millions)	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21A	3Q21E	4Q21E	1Q22E	2Q22E	3Q22E	4Q22E
Net Income from Operations	61387	66776	101103	116035	117063	120892	137379	142824	139739	134481	149951	156707	145212	164590	195067	201663
Depreciation & Amortization	77548	75048	66756	67532	68554	70876	94733	97562	100900	103805	108995	114445	125890	135961	146838	158585
(Incr) Decr in Accounts Receivable	22457	(9390)	(29291)	5651	(6650)	(3179)	(12978)	16540	(21441)	(10781)	(23338)	(12406)	(10757)	(27267)	(40643)	(21008)
(Incr) Decr in Inventories	(5451)	450	11546	13705	4703	(7510)	(23722)	(27843)	(17215)	(15871)	(22498)	(12060)	(10847)	(26553)	(39488)	(20630)
(Incr) Decr in Other Current Assets	8416	(5549)	(1195)	5983	196	(3410)	4462	(2151)	(3701)	(552)	0	0	0	0	0	0
Incr (Decr) in Current Liab. (Excl. debt)	(11687)	(9574)	(7166)	(5994)	19163	(7334)	(9702)	32199	29534	(23643)	0	0	0	0	0	0
=Cash from Operations	152,670	117,761	141,753	202,912	203,029	170,335	190,172	259,131	227,816	187,439	213,110	246,686	249,497	246,731	261,773	318,610
% Y/Y	-5%	-9%	51%	7%	33%	45%	34%	28%	12%	10%	12%	-5%	10%	32%	23%	29%
% Q/Q	-19%	-23%	20%	43%	0%	-16%	12%	8%	-12%	-18%	14%	16%	1%	-1%	6%	22%
FY-End	\$ 615,096				\$ 822,667				\$ 875,051				\$ 1,076,611			
Quarterly Op Cash Flow Margin	77%	53%	52%	68%	72%	60%	58%	77%	68%	54%	56%	62%	64%	58%	55%	65%
YE Op Cash Flow Margin				57%				61%				56%				56%
(Incr) Decr in Other Non-Current Assets	11754	1634	(10172)	(1596)	3567	(2578)	3226	(2284)	3778	(8306)	0	0	0	0	0	0
Capital Spending (Net of sales)	(75942)	(116353)	(98118)	(170009)	(192560)	(126698)	(99306)	(88675)	(248029)	(166971)	(197026)	(227368)	(238736)	(238736)	(238736)	(238736)
=Cash from Investing	(64,188)	(114,719)	(108,290)	(171,605)	(188,993)	(129,276)	(96,080)	(90,959)	(244,251)	(175,277)	(197,026)	(227,368)	(238,736)	(238,736)	(238,736)	(238,736)
Incr (Decr) in Non-curr Liab. (Excl. debt)	6714	253274	(158196)	31347	(20791)	16418	(12676)	19023	(7316)	6983	0	0	0	0	0	0
Additional Debt	(33762)	1668	(2888)	32949	42163	66201	130437	(39759)	71298	135884	0	0	0	0	0	0
Common Stock/Other Equity	4635	(255872)	(68028)	(81437)	(62129)	(76707)	(80468)	(49364)	(81508)	0	0	0	0	0	0	0
=Cash from Financing	(22,413)	(930)	(229,112)	(17,141)	(40,757)	5,912	47,434	(101,204)	14,618	61,359	-	-	-	-	-	-
=Increase/(Decrease) in Cash	66069	2112	(195649)	14166	(26721)	46971	141526	66968	(1817)	73521	16084	19318	10761	7995	23037	79874
+Beginning Cash	724487	790288	793930	615057	613620	592586	627933	768935	819205	825852	899898	915982	935300	946062	954056	977093
+Adjustment	(268)	1530	16776	(15603)	5,687	(11624)	(524)	(16698)	8,464	525						
=End Cash	790,288	793,930	615,057	613,620	592,586	627,933	768,935	819,205	825,852	899,898	915,982	935,300	946,062	954,056	977,093	1,056,967
FREE CASH FLOW																
Quarterly	76,728	1,408	43,635	32,903	10,469	43,637	90,866	170,456	(20,213)	20,468	16,084	19,318	10,761	7,995	23,037	79,874
% Y/Y	-14%	-98%	81%	-56%	-86%	2999%	108%	418%	-293%	-53%	-82%	-89%	-153%	-61%	43%	313%
% Q/Q	2%	-98%	2999%	-25%	-68%	317%	108%	88%	-112%	-201%	-21%	20%	-44%	-26%	188%	247%
FY-End	\$ 154,674				\$ 315,428				\$ 35,657				\$ 121,667			
% Y/Y	39%	1%	16%	11%	4%	15%	28%	51%	-6%	6%	4%	5%	3%	2%	5%	16%
FCF Margin				14%				24%				2%				6%
YE FCF Margin																
BALANCE SHEET																
ASSETS																
Cash & equivalents	790,288	793,930	615,057	613,620	592,586	627,933	768,935	819,205	825,852	899,898	915,982	935,300	946,062	954,056	977,093	1,056,967
Accounts receivable, net	106,741	116,131	145,422	139,771	146,421	149,600	162,578	146,038	167,479	178,260	201,598	214,005	224,762	252,028	292,672	313,679
Inventories, net	108,682	108,232	96,686	82,981	78,278	85,788	109,510	137,353	154,568	170,438	192,937	204,996	215,843	242,397	281,884	302,514
Other current assets	15,653	21,202	22,397	16,414	16,218	19,628	15,166	17,317	21,018	21,570	21,570	21,570	21,570	21,570	21,570	21,570
Total Current Assets	1,021,364	1,039,495	879,562	852,786	833,503	882,949	1,056,189	1,119,913	1,168,917	1,270,167	1,332,087	1,375,871	1,408,236	1,470,051	1,573,219	1,694,730
PPE	1,107,652	1,142,871	1,197,955	1,352,377	1,438,216	1,493,561	1,504,438	1,555,589	1,658,551	1,722,679	1,810,710	1,923,632	2,036,479	2,139,254	2,231,153	2,311,305
Other non-current assets	58,421	56,978	56,717	59,642	71,577	72,155	74,945	85,209	91,663	99,869	99,969	99,969	99,969	99,969	99,969	99,969
Total Assets	2,187,437	2,239,344	2,134,234	2,264,805	2,343,296	2,448,665	2,635,572	2,760,711	2,919,131	3,092,815	3,242,766	3,399,473	3,544,684	3,709,274	3,904,341	4,106,004
LIABILITIES & SHAREHOLDERS' EQUITY																
Short term debt	76,593	78,261	85,573	118,522	139,310	169,547	155,378	88,559	137,124	139,381	139,381	139,381	139,381	139,381	139,381	139,381
Other current liabilities	301,675	543,995	409,208	472,214	450,158	445,249	432,864	528,592	524,524	508,368	508,368	508,368	508,368	508,368	508,368	508,368
Total Current Liabilities	378,268	622,256	494,781	590,736	589,468	614,796	588,242	617,151	661,648	647,749	647,749	647,749	647,749	647,749	647,749	647,749
Long term debt	35,300	35,300	25,100	25,100	46,475	82,439	227,045	254,105	276,838	410,465	410,465	410,465	410,465	410,465	410,465	410,465
Other non-current liabilities	30,351	27,366	26,856	26,874	30,324	30,216	32,019	38,833	39,648	40,631	40,631	40,631	40,631	40,631	40,631	40,631
Total Liabilities	443,919	684,922	546,737	642,710	666,267	727,451	847,306	910,089	978,134	1,098,845	1,098,845	1,098,845	1,098,845	1,098,845	1,098,845	1,098,845
Total Shareholders' Equity	1,743,518	1,554,422	1,587,497	1,622,095	1,677,029	1,721,214	1,788,266	1,850,622	1,940,997	1,993,970	2,143,921	2,300,628	2,445,839	2,610,429	2,805,496	3,007,159
Total Liabilities & Shareholders' Equity	2,187,437	2,239,344	2,134,234	2,264,805	2,343,296	2,448,665	2,635,572	2,760,711	2,919,131	3,092,815	3,242,766	3,399,473	3,544,684	3,709,274	3,904,341	4,106,004

Taiwan Semiconductor Manufacturing Corp.

(USD\$)

(\$US Millions)	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21A	3Q21E	4Q21E	1Q21E	2Q21E	3Q21E	4Q21E
Net Income from Operations	1992	2146	3242	3802	3884	4030	4679	5008	4981	4802	5375	5617	5205	5899	6992	7228
Depreciation & Amortization	2516	2412	2141	2213	2275	2363	3227	3421	3597	3707	3907	4102	4512	4873	5263	5684
(Incr) Decr in Accounts Receivable	740	(270)	(930)	83	(278)	(129)	(551)	417	(850)	(395)	(879)	(464)	(398)	(1008)	(1482)	(759)
(Incr) Decr in Inventories	(168)	47	379	381	122	(262)	(870)	(1086)	(694)	(576)	(847)	(451)	(403)	(982)	(1441)	(746)
(Incr) Decr in Other Current Assets	275	(174)	(37)	180	(0)	(116)	138	(91)	(142)	(21)	0	0	0	0	0	0
Incr (Decr) in Current Liab. (Excl. debt)	(402)	5699	(6363)	2351	(537)	(94)	(98)	3791	164	(545)	0	0	0	0	0	0
=Cash from Operations	4,953	9,862	(1,569)	9,011	5,465	5,791	6,524	11,460	7,056	6,971	7,555	8,804	8,916	8,782	9,331	11,407
% Y/Y	16%	-18%	-17%	95%	10%	-41%	-51%	27%	29%	20%	16%	-23%	26%	26%	24%	30%
% Q/Q	7%	99%	-116%	-674%	-39%	6%	13%	76%	-38%	-1%	8%	17%	1%	-2%	6%	22%
FY-End				\$ 22,257				\$ 29,240				\$ 30,386				\$ 38,435
Quarterly Op Cash Flow Margin	17%			31%				4%				26%				26%
YE Op Cash Flow Margin	70%	127%	-17%	87%	53%	56%	54%	90%	55%	52%	51%	57%	59%	54%	51%	60%
	64%															56%
(Incr) Decr in Other Non-Current Assets	382	1135	1084	(136)	(421)	(30)	(147)	(435)	(280)	(302)	0	0	0	0	0	0
Capital Spending (Net of sales)	(2464)	(3740)	(3146)	(5570)	(6389)	(4223)	(3382)	(3109)	(8841)	(5962)	(7062)	(8149)	(8557)	(8557)	(8557)	(8557)
=Cash from Investing	(2,082)	(2,605)	(2,062)	(5,706)	(6,809)	(4,254)	(3,530)	(3,544)	(9,121)	(6,264)	(7,062)	(8,149)	(8,557)	(8,557)	(8,557)	(8,557)
Incr (Decr) in Non-curr Liab. (Excl. debt)	374	815	902	19	126	1	83	271	52	38	0	0	0	0	0	0
Additional Debt	(1108)	20	(101)	1157	1458	2235	4626	(1010)	2742	4877	0	0	0	0	0	0
Common Stock/Other Equity	7	(8752)	(2303)	(1556)	(1391)	(2297)	(1145)	(1028)	(679)	(2792)	0	0	0	0	(0)	0
=Cash from Financing	(727)	(7,917)	(1,503)	(379)	193	(61)	3,564	(1,767)	2,114	2,123	-	-	-	-	(0)	-
=Increase/(Decrease) in Cash	2144	(660)	(5134)	2925	(1152)	1477	6559	6148	49	2830	493	654	359	225	774	2850
+Beginning Cash	23568	25641	25519	19722	20106	19661	20931	26190	28724	29439	32133	32627	33281	33640	33865	34639
+Adjustment	(71)	538	(663)	(2541)	708	(207)	(1300)	(3614)	666	(136)	0	0	-	0	0	0
=End Cash	25,641	25,519	19,722	20,106	19,661	20,931	26,190	28,724	29,439	32,133	32,627	33,281	33,640	33,865	34,639	37,489
FREE CASH FLOW																
Quarterly	2,489	6,122	(4,715)	3,440	(924)	1,568	3,142	8,350	(1,785)	1,009	493	654	359	225	774	2,850
% Y/Y	38%	-39%	13%	279%	-137%	-74%	-167%	143%	93%	-36%	-84%	-92%	-120%	-78%	57%	336%
% Q/Q	174%	146%	-177%	-173%	-127%	-270%	100%	166%	-121%	-157%	-51%	-33%	-45%	-37%	244%	268%
FY-End				\$ 7,336				\$ 12,136				\$ 371				\$ 4,208
% Y/Y				-15%				65%				-97%				1034%
FCF Margin	35%	79%	-50%	33%	-9%	15%	26%	66%	-14%	8%	3%	4%	2%	1%	4%	15%
YE FCF Margin				21%				27%								6%
BALANCE SHEET																
ASSETS																
Cash & equivalents	25,641	25,519	19,722	20,106	19,661	20,931	26,190	28,724	29,439	32,133	32,627	33,281	33,640	33,865	34,639	37,489
Accounts receivable, net	3,463	3,733	4,663	4,580	4,858	4,987	5,537	5,121	5,970	6,365	7,244	7,708	8,107	9,115	10,597	11,356
Inventories, net	3,526	3,479	3,100	2,719	2,597	2,860	3,730	4,816	5,510	6,086	6,933	7,385	7,787	8,770	10,211	10,958
Other current assets	508	681	718	538	538	654	517	607	749	770	770	770	770	770	770	770
Total Current Assets	33,139	33,412	28,203	27,942	27,654	29,432	35,974	39,268	41,668	45,355	47,574	49,144	50,304	52,519	56,217	60,572
PPE	35,938	36,735	38,412	44,311	47,718	49,785	51,241	54,544	59,122	61,513	64,668	68,716	72,761	76,444	79,738	82,611
Other non-current assets	1,895	1,831	1,819	1,954	2,375	2,405	2,553	2,988	3,267	3,570	3,570	3,570	3,570	3,570	3,570	3,570
Total Assets	70,972	71,979	68,433	74,207	77,747	81,622	89,767	96,799	104,058	110,438	115,813	121,429	126,634	132,533	139,525	146,753
LIABILITIES & SHAREHOLDERS' EQUITY																
Short term debt	2,485	2,516	2,744	3,883	4,622	5,652	5,292	3,105	4,888	4,977	4,977	4,977	4,977	4,977	4,977	4,977
Other current liabilities	9,788	17,486	13,121	15,472	14,936	14,842	14,743	18,534	18,698	18,153	18,153	18,153	18,153	18,153	18,153	18,153
Total Current Liabilities	12,273	20,001	15,865	19,356	19,558	20,493	20,035	21,639	23,586	23,130	23,130	23,130	23,130	23,130	23,130	23,130
Long term debt	1,145	1,135	805	822	1,542	2,748	7,733	8,910	9,868	14,657	14,657	14,657	14,657	14,657	14,657	14,657
Other non-current liabilities	985	880	861	881	1,006	1,007	1,091	1,362	1,413	1,451	1,451	1,451	1,451	1,451	1,451	1,451
Total Liabilities	14,403	22,015	17,531	21,059	22,106	24,248	28,859	31,911	34,867	39,237	39,237	39,237	39,237	39,237	39,237	39,237
Total Shareholders' Equity	56,569	49,964	50,903	53,149	55,641	57,374	60,908	64,889	69,190	71,200	76,575	82,192	87,397	93,296	100,287	107,516
Total Liabilities & Shareholders' Equity	70,972	71,979	68,433	74,207	77,747	81,622	89,767	96,799	104,058	110,438	115,813	121,429	126,634	132,533	139,525	146,753

Catalysts

TSMC - TSM:

1) Monthly sales, 2) downstream data points, 3) competitive landscape.

Downside or Upside risk

Taiwan Semiconductor - 2330 TT:

Upside risk of NT660 is ~22x better than expected "peak" EPS of NT39.00 and ~9x current BV

TSMC - TSM:

Upside risk of \$135 is ~22x better than expected "peak" EPS of \$6.20 and ~9x current BV.

Price target valuation and risks

Taiwan Semiconductor (2330 TT, Price: TWD613.00, Price Target: TWD590.00):

Our price target of NTD 590 is based on ~22x our CY22 EPS estimate and ~7x P/B. We use CY22 estimates given our updated view and increased confidence in wafer shipment.

Downside risks include but are not limited to: 1) increased competition, 2) increased margin pressure given the escalating cost of manufacturing, 3) geopolitical risks given the location of Taiwan

Upside risks include but are not limited to: 1) better than expected revenue diversification, 2) better than expected ASP trends, 3) better than expected GM profile.

TSMC (TSM, Price: \$124.39, Price Target: \$105.00):

Our price target of USD105 is based on ~22x our CY22 EPS estimate and ~7x P/B. We use CY22 estimates given our updated view and increased confidence in wafer shipment.

Downside risks include but are not limited to: 1) increased competition, 2) increased margin pressure given the escalating cost of manufacturing, 3) geopolitical risks given the location of Taiwan

Upside risks include but are not limited to: 1) better than expected revenue diversification, 2) better than expected ASP trends, 3) better than expected GM profile.

Analyst Certification

I, Mehdi Hosseini, hereby certify that the views each of us has expressed in this research report accurately reflect each of our respective personal views about the subject securities and issuers. We also certify that no part of our respective compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Important Disclosures

SFG is a market maker in the securities of TSMC (TSM).

TSMC (TSM) is a foreign security with the primary market for the shares outside of the U.S. Shares trade in the U.S. but may be less liquid than the primary market. Clearing and settlement for the shares may be different than for U.S. securities.

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The following data elements on this report were sourced from Bloomberg LP: Price (yesterday's close), 52-week high, 52-week low, Shares outstanding, Average daily trading volume, Volume (contracts). Any others will be specifically sourced.

SFG employs the following rating system:

Positive: We expect this stock to appreciate by at least 15% over the next 12 months.

Neutral: We expect this stock to perform within a range of +/-15 percentage points over the next 12 months.

Negative: We expect this stock to depreciate by at least 15% over the next 12 months. .

Suspended: The previously published rating and/or estimates are currently suspended and under review.

Prior to July 2015 our rating system also required a 20% +/- expected return over 12 months to initiate with a Positive/Negative rating.

Defined Credit Terms

Gross debt + preferred TEV: (Gross Debt + Preferred) / Total Enterprise Value (expressed as a %).

Net debt/EBITDA: Net Debt (gross debt less cash on hand) / EBITDA = forward year EBITDA estimate.

Free cash flow: Forward EBITDA estimate less cash taxes less cash interest less total capex.

FCF yield: FCF Yield ((FCF/ Fully Diluted shares outstanding/current share price) (expressed as a %)).

YTM: Yield-to-maturity ("YTM") implied by any of its bonds outstanding that are due in 5 years (or closest to)(expressed as a %)).

5-yr treasury yield: 5-year US Treasury yield (expressed as a %).

Volatility Definitions

Volume: The 20-day average option contract volume for the symbol.

Skew Rank: The current day's Skew values compared to the past year's worth of skew values and then rank the current day's value. Past year in the calculation is 252 previous trading days which includes the last trading day.

Implied Volatility: Implied Volatility is the at-the-forward volatility level implied by market option prices for 90 days. While implied volatility is specific to the time frame selected, it is always presented as an annualized standard deviation.

Realized Volatility: It is the Realized Volatility of a financial instrument over 90 days. Generally, this measure is calculated by determining the average deviation from the average price of a financial instrument in the given time period. This measure is frequently compared with implied volatility to determine if options prices are over- or undervalued. It is also known as historical volatility.

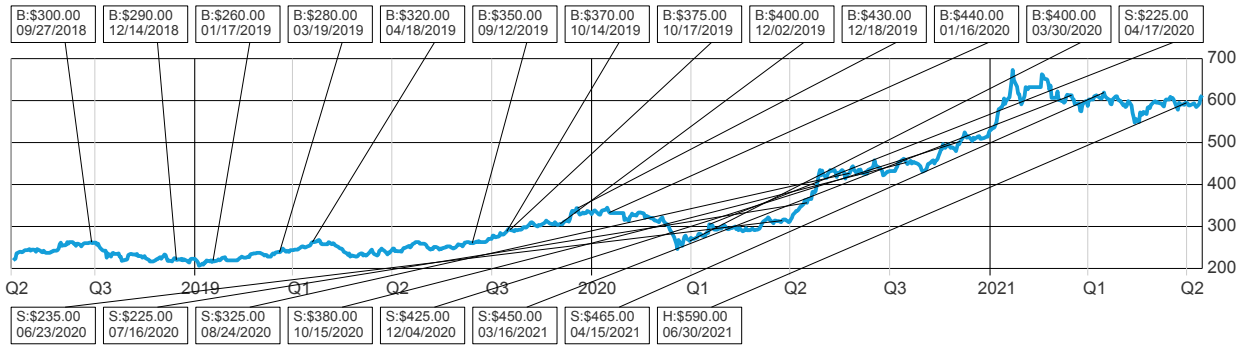
Ratings Distribution & Investment Banking Disclosure

Covered companies in each Category	Investment banking client in each category
Positive (Buy) 56.80% (117)	Positive (Buy) 0.00% (0)
Neutral (Hold) 42.23% (87)	Neutral (Hold) 0.00% (0)
Negative (Sell) 0.97% (2)	Negative (Sell) 0.00% (0)

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Rating and Price Target History for: Taiwan Semiconductor (2330 TT) as of 07-14-2021



Rating and Price Target History for: TSMC (TSM) as of 07-14-2021

