

TSMC (2330.TW/2330 TT)

Meaningful cyclical recovery in 2024F

FTSE4Good TIP Taiwan ESG Index stock

Outperform · Maintained

Price as of November 29 (NT\$)	574
12M target price (NT\$)	703
Previous target price (NT\$)	703
Unchanged (%)	0.0
Upside (%)	22.5

Key message

- Looking into 2024, we expect a strong recovery, driven by: (1) restocking demand; (2) end-demand recovery; (3) market share gains; and (4) continuing silicon content growth in HPC and 5G applications.
- We believe that edge AI computing platform, could result in an upgrade cycle for PC, as well as continued silicon content growth, which would benefit TSMC.

Trading data

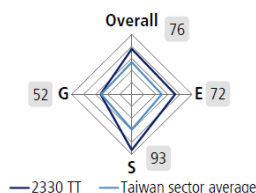
Mkt cap (NT\$bn/US\$mn)	14,885/472,283
Outstanding shares (mn)	25,932
Foreign ownership (mn)	18,794
3M avg. daily trading (mn)	18.15
52-week trading range (NT\$)	446.0 –593

Performance	3M	6M	12M
Absolute (%)	4	1.1	17.9
Relative (%)	-0.5	-3.3	-0.2

Quarterly EPS

NT\$	1Q	2Q	3Q	4Q
2022	7.82A	9.14A	10.83A	11.41A
2023	7.98A	7.01A	8.14A	8.16F
2024	7.23F	8.30F	10.52F	13.01F

ESG score card



Source: Refinitiv

Event

Looking into 2024, we expect a strong recovery, driven by: (1) restocking demand; (2) end-demand recovery; (3) market share gains; and (4) continuing silicon content growth in HPC and 5G applications.

Impact

Solid 2024F sales growth of 26.1% YoY on multiple drivers. As management believes inventory will return to a healthy level exiting 4Q23, we reiterate our view that TSMC will capture a meaningful cyclical recovery in 2024, driven by: (1) smartphone and PC restocking demand and end demand recovery; (2) ongoing silicon content growth in both HPC and 5G applications for some products, such as MediaTek's (2454 TT, NT\$948, OP) Dimensity 7200, 8000, 9000, and 9200, AMD's (US) Genoa server CPU, as well as Apple's (US) new MacBook, iPad, and iPhone models; and (3) market share gains from Samsung (KR), as well as outsourcing orders from Intel's (US) CPUs. As such, we expect TSMC's 2024F sales and EPS to grow a respective 26.1% and 24.8% YoY to NT\$2,710bn and NT\$39.06.

Cloud AI to edge AI. While current edge AI applications are limited, we believe the edge AI computing platform, which is being defined by Microsoft (US), Intel, AMD, and PC OEMs, could result in an upgrade cycle for PC, as well as continued silicon content growth, which would benefit TSMC. Both Intel and AMD have emphasized the integration of neural processing units (NPU) in their current and future CPUs, which are designed to run on-device AI workloads. With Windows 12 expected to launch in late 2024, we could see the more extensive release of AI computers in 2025 that would meet Microsoft's AI PC computing capability requirements and accelerate the development of on-device AI applications. Furthermore, we think the smartphone industry would follow suit as Qualcomm (US) and MediaTek have both highlighted the integration of more powerful AI engines in their upcoming SoCs to run on-device AI applications, in addition to their upcoming ARM-based computing solutions for Windows and Chromebook.

Valuation & Action

We reiterate that TSMC will capture a meaningful cyclical recovery in 2024, and feel confident on TSMC's revenue and earnings growth in 2024, thanks to end demand recovery, coupled with continued silicon content growth and market share gains. Shares are trading at 2024F PE of 15x, versus a five-year average of 16x-17x. We maintain Outperform, with a target price of NT\$703, based on 18x 2024F EPS.

Risks

Global macro and geopolitical uncertainties; prolonged inventory correction.

Key financials and valuations

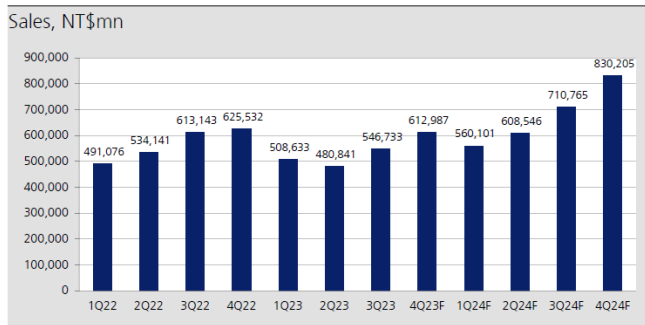
	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
Revenue (NT\$mn)	1,339,255	1,587,415	2,263,891	2,149,194	2,709,617
Gross profit (NT\$mn)	711,130	819,537	1,348,355	1,162,058	1,486,667
Operating profit (NT\$mn)	566,784	649,981	1,121,279	908,257	1,171,777
Net profit (NT\$mn)	517,885	596,540	1,016,530	811,382	1,012,896
EPS (NT\$)	19.97	23.01	39.20	31.29	39.06
Cash DPS (NT\$)	10.00	11.00	11.00	12.00	13.00
EPS growth (%)	50.0	15.2	70.4	(20.2)	24.8
PE (x)	28.7	25.0	14.6	18.3	14.7
PB (x)	8.0	6.9	5.1	4.3	3.6
EV/EBITDA (x)	16.0	13.4	9.1	9.8	7.6
Net debt to equity (%)	Net cash	Net cash	Net cash	Net cash	Net cash
Dividend yield (%)	1.7	1.9	1.9	2.1	2.3
Return on average equity (%)	29.8	29.7	39.8	25.2	26.4

Source: Company data, KGI Research estimates

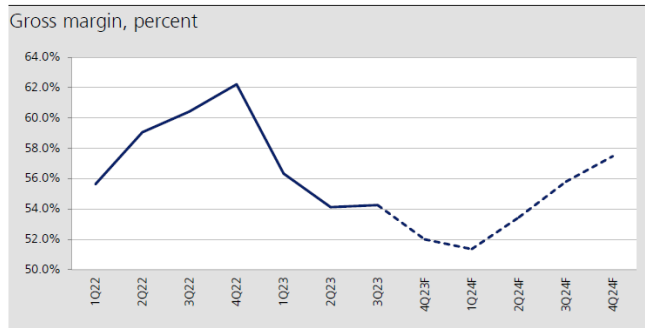
Figure 1: Company profile

Taiwan Semiconductor Manufacturing Company (TSMC), the world's largest dedicated semiconductor foundry, has increased its market share in recent years. Capacity exceeded 16mn 8-inch equivalent wafers in 2013. TSMC operates six advanced 300mm wafer fabs, six 8-inch wafer fabs and one 6-inch wafer fab, and is building a new 300mm wafer fab. The company provides the following services: wafer manufacturing, wafer probing, assembly and testing, mask production and design services.

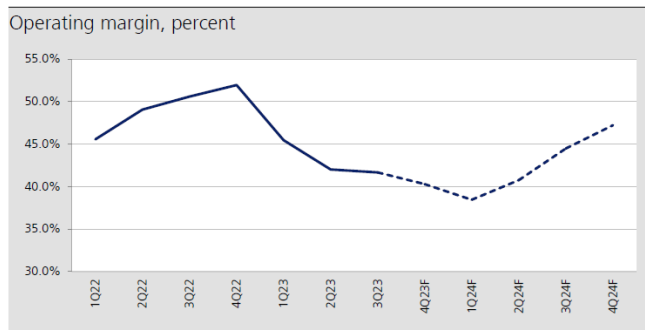
Source: Company data, KGI Research

Figure 3: Sales


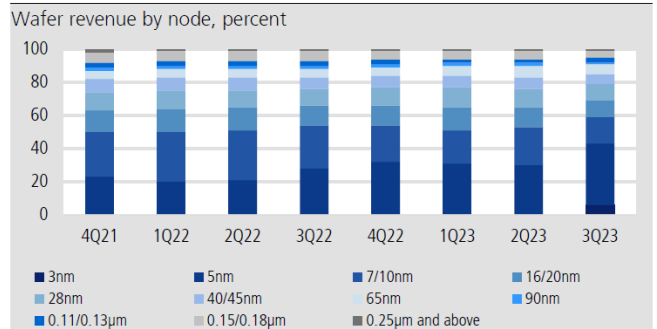
Source: KGI Research

Figure 5: Gross Margin


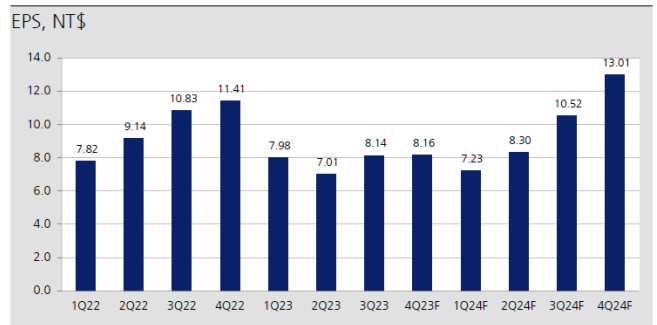
Source: KGI Research

Figure 7: Operating Margin


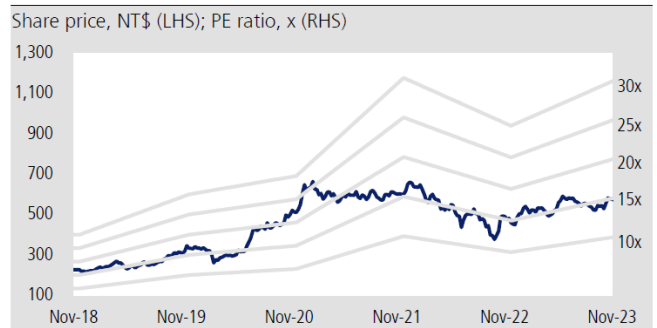
Source: KGI Research

Figure 2: TSMC's wafer revenue by node


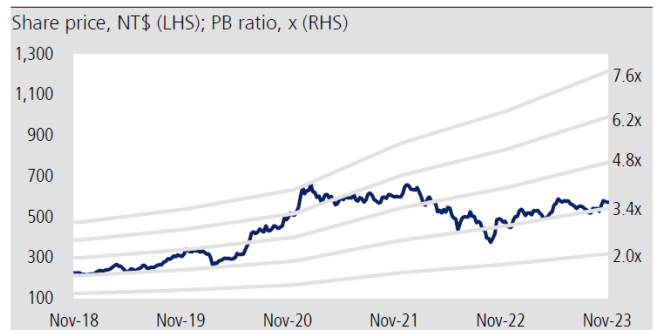
Source: Company data, KGI Research

Figure 4: EPS


Source: KGI Research

Figure 6: 12M forward PE band


Source: TEJ, KGI Research estimates

Figure 8: 12M forward PB band


Source: TEJ, KGI Research estimates

Figure 9: Overall ESG score

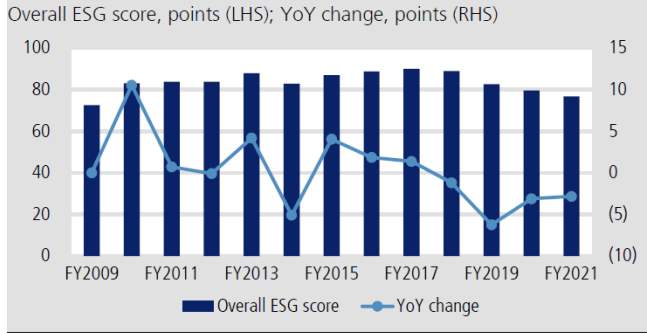


Figure 10: ESG score by category

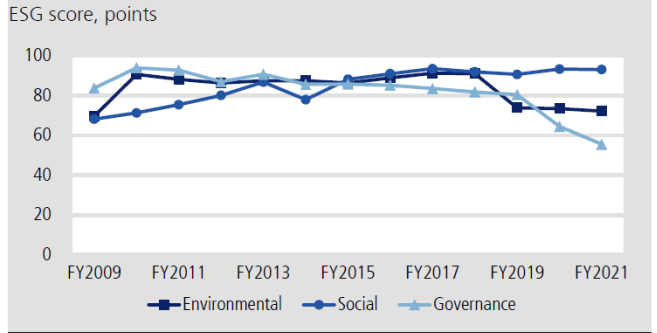


Figure 11: Energy use

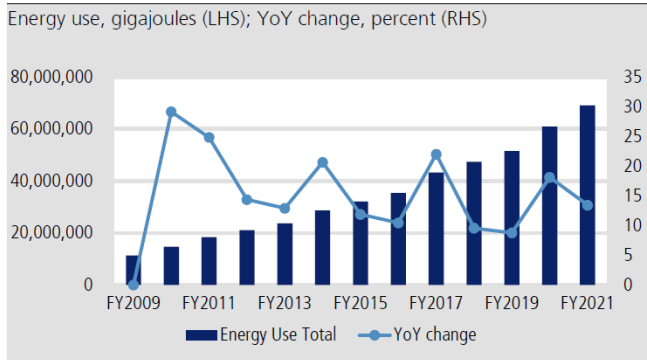


Figure 12: Renewable energy

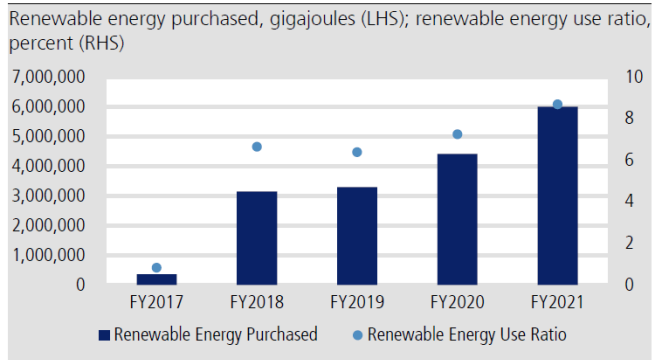


Figure 13: CO2 equivalent emissions

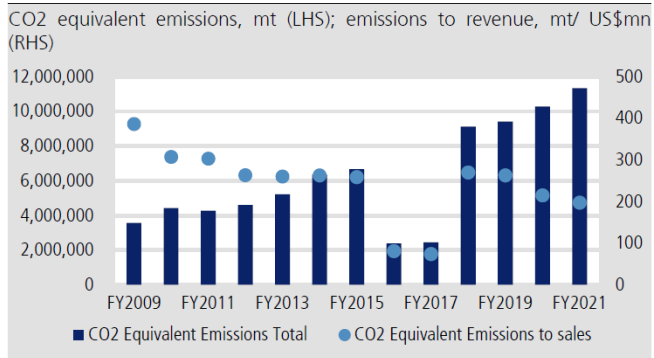


Figure 14: Waste total

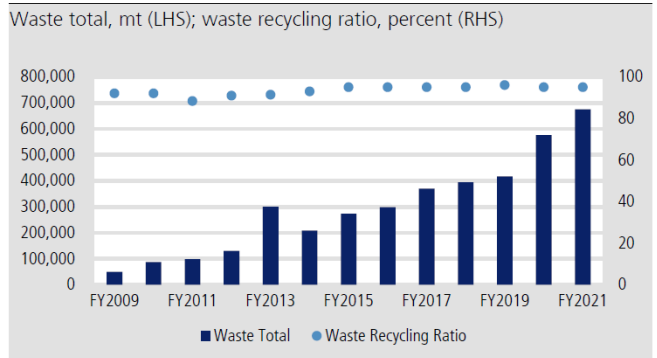


Figure 15: Water use to revenue

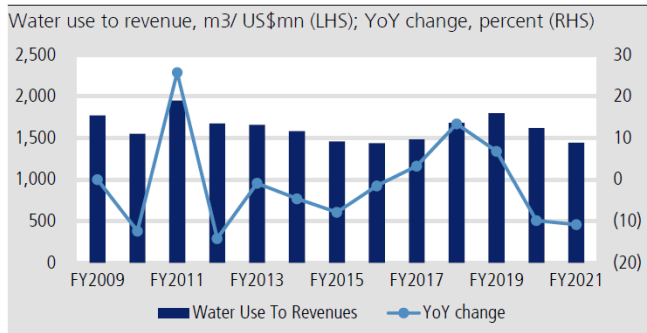


Figure 16: Environmental expenditures

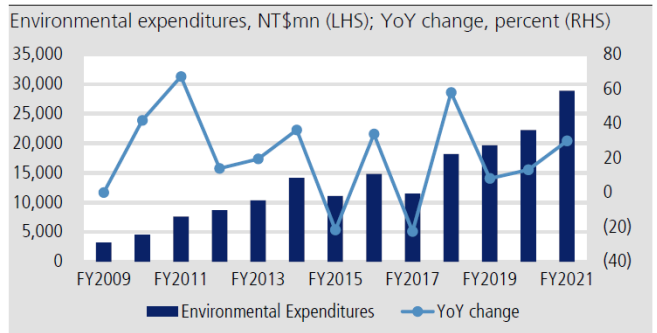
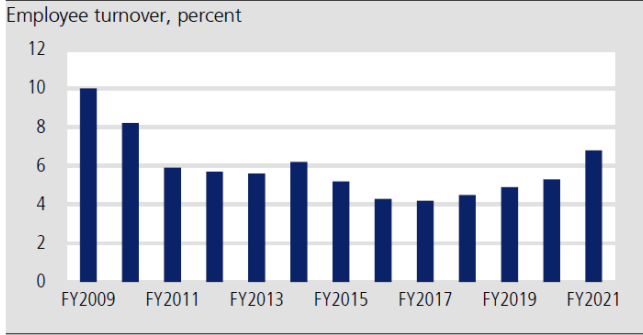
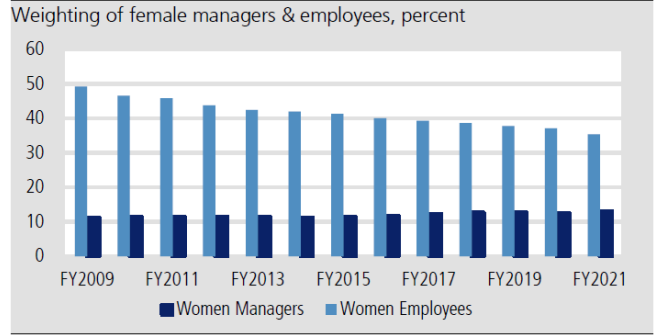


Figure 17: Employee turnover



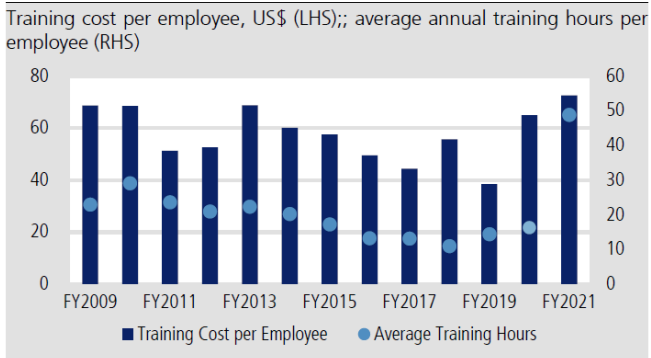
Source: Refinitiv, Company data

Figure 18: Gender diversification



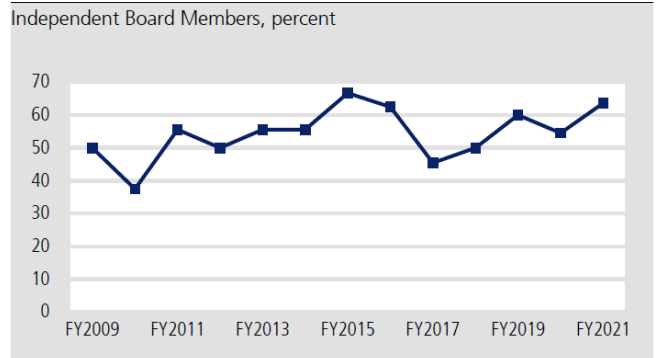
Source: Refinitiv, Company data

Figure 19: Employee training



Source: Refinitiv, Company data

Figure 20: Independent Board Members



Source: Refinitiv, Company data

ESG chart definition

Item	Definition	Remarks
Energy use	<p>Total direct and indirect energy consumption in gigajoules.</p> <ul style="list-style-type: none"> - the total amount of energy that has been consumed within the boundaries of the company's operations - total energy use = total direct energy consumption + indirect energy consumption - purchased energy and produced energy are included in total energy use - for utilities, transmission/ grid loss as part of its business activities is considered as total energy consumed and data does not consider electricity produced to answer energy use (utility company produces to sell) - for utilities, raw materials such as coal, gas or nuclear used in the production of energy are not considered under 'total energy use' 	
Renewable energy purchased	<p>Total primary renewable energy purchased in gigajoules.</p> <ul style="list-style-type: none"> - energy consumed by the company from various sources and among the purchased energy, how much energy is renewable in nature (solar, wind, hydro, biomass, geothermal) are in scope - if there is no evidence that renewable energy is produced by the company, then we consider the reported energy figure as renewable energy purchased 	
Renewable energy use ratio	Renewable energy to total energy used	
CO2 equivalent emissions	<p>Direct CO2 and CO2 equivalent emissions in metric tons.</p> <ul style="list-style-type: none"> - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3) 	
CO2 equivalent emissions to sales	<p>Direct CO2 and CO2 equivalent emissions (metric tons) to sales (NT\$m)</p> <ul style="list-style-type: none"> - direct emissions from sources that are owned or controlled by the company (scope 1 emissions) - following gases are relevant: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorinated compound (PFCS), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3) 	
Waste total	<p>Total amount of waste produced in metric tons.</p> <ul style="list-style-type: none"> - total waste = non-hazardous waste + hazardous waste - only solid waste is taken into consideration, exceptionally if liquid waste is reported in metric tons, then we do the summation to derive total including liquid waste - for sectors like mining, oil & gas, waste generation like tailings, waste rock, coal and fly ash are also considered 	
Waste recycling ratio	<p>The waste recycling ratio as reported by the company.</p> <ul style="list-style-type: none"> - waste recycling ratio = waste recycled/total waste*100 - waste to energy or waste incinerated with energy recovery are considered as waste recycled - waste recovered via composting is considered as recycled waste 	
Water withdrawal total	<p>Total water withdrawal in cubic meters.</p> <ul style="list-style-type: none"> - the total volume of water withdrawn from any water source that was either withdrawn directly by the reporting organization or through intermediaries such as water utilities - different sources of water like wells, town/utility/municipal water, river water, and surface water are considered 	
Environmental expenditures	<p>Total amount of environmental expenditures.</p> <ul style="list-style-type: none"> - all environmental investment & expenditures for environmental protection or to prevent, reduce, control environmental aspects, impacts, and hazards. It also includes disposal, treatment, sanitation, and clean-up expenditures 	
Turnover of employees	<p>Percentage of employee turnover.</p> <ul style="list-style-type: none"> - includes employees who left the company for any reason (voluntary or involuntary), such as resignations, retirement, natural departure/death, medical incapacitation, redundancy, layoffs, restructuring, dismissal, retrenchment or end of a fixed-term contract - employees turnover rate = (employees leaving/average number of employees)*100 - where the average number of employees = (employees at the end of the current year + employees at the end of the previous year)/2 - employees at the end of the current fiscal year = employees at the end of the previous fiscal year + new employees - employees leaving 	
Women managers	<p>Percentage of women managers.</p> <ul style="list-style-type: none"> - percentage of women managers among total managers of the company - if there is a breakdown by category in percentage, such as top, senior, middle, and junior management, then we consider the percentage of middle women managers - percentage of women managers = number of women managers/total number of managers*100 	
Women employees	<p>Percentage of women employees.</p> <ul style="list-style-type: none"> - percentage of women employees to the total number of employees of the company - percentage of women employees = number of women/total number of employees*100 	
Training hours total	<p>Total training hours performed by all employees.</p> <ul style="list-style-type: none"> - consider only employee training hours - includes all types of training given to general employees (such as health & safety, environmental, emergency response, skills & career development training) - if the value is given in days, multiply by 8, assuming that 1 day = 8 hours worked 	
Training hours per employee	Training hours per employee per year	

Source: Refinitiv, KGI Research

Income statement

	Quarterly								Annually		
	Mar-23A	Jun-23A	Sep-23A	Dec-23F	Mar-24F	Jun-24F	Sep-24F	Dec-24F	Dec-22A	Dec-23F	Dec-24F
Income statement (NT\$mn)											
Revenue	508,633	480,841	546,733	612,987	560,101	608,546	710,765	830,205	2,263,891	2,149,194	2,709,617
Cost of goods sold	(222,133)	(220,641)	(250,090)	(294,271)	(272,497)	(283,284)	(314,175)	(352,994)	(915,536)	(987,136)	(1,222,950)
Gross profit	286,500	260,200	296,642	318,716	287,604	325,262	396,590	477,211	1,348,355	1,162,058	1,486,667
Operating expenses	(55,262)	(58,147)	(68,840)	(71,720)	(72,253)	(77,224)	(80,316)	(85,096)	(227,076)	(253,801)	(314,890)
Operating profit	231,238	202,053	227,802	246,996	215,351	248,037	316,273	392,115	1,121,279	908,257	1,171,777
Depreciation of fixed assets	(108,083)	(121,644)	(144,927)	(138,625)	(146,038)	(151,810)	(161,202)	(151,078)	(428,498)	(513,280)	(610,127)
Amortisation of intangible assets	(2,239)	(2,296)	(2,353)	(2,647)	(2,906)	(2,986)	(3,436)	(2,885)	(8,756)	(9,536)	(12,213)
EBITDA	341,561	325,992	375,083	388,269	364,295	402,833	480,912	546,078	1,558,533	1,431,073	1,794,117
Interest income	13,618	13,672	15,595	1,000	3,800	3,800	3,300	3,200	22,422	43,885	14,100
Investment income	1,111	1,062	1,167	1,500	2,000	2,000	2,000	2,000	8,065	4,840	8,000
Other non-op income	16	310	78	-	-	-	-	-	681	404	-
Non-operating income	14,745	15,044	16,840	2,500	5,800	5,800	5,300	5,200	31,168	49,129	22,100
Interest expense	(2,964)	(3,005)	(3,112)	(800)	(800)	(800)	(800)	(800)	(11,750)	(9,881)	(3,200)
Investment loss	-	-	-	-	-	-	-	-	-	-	-
Other non-op expenses	1,256	678	147	-	-	-	-	-	3,494	2,081	-
Non-operating expenses	(1,708)	(2,327)	(2,965)	(800)	(800)	(800)	(800)	(800)	(8,256)	(7,800)	(3,200)
Pre-tax profit	244,275	214,769	241,678	248,696	220,351	253,037	320,773	396,515	1,144,191	949,587	1,190,677
Current taxation	(37,326)	(32,958)	(31,145)	(37,304)	(33,053)	(37,956)	(48,116)	(59,477)	(127,290)	(138,733)	(178,602)
Minorities	38	82	205	205	205	205	205	205	(370)	529	820
Normalised net profit	206,986	181,894	210,737	211,597	187,504	215,287	272,862	337,243	1,016,530	811,382	1,012,896
Extraordinary items	0	(94)	262	-	-	-	-	-	-	-	-
Net profit	206,987	181,799	211,000	211,597	187,504	215,287	272,862	337,243	1,016,530	811,382	1,012,896
EPS (NT\$)	7.98	7.01	8.14	8.16	7.23	8.30	10.52	13.01	39.20	31.29	39.06
Margins (%)											
Gross profit margin	56.3	54.1	54.3	52.0	51.3	53.4	55.8	57.5	59.6	54.1	54.9
Operating margin	45.5	42.0	41.7	40.3	38.4	40.8	44.5	47.2	49.5	42.3	43.2
EBITDA margin	67.2	67.8	68.6	63.3	65.0	66.2	67.7	65.8	68.8	66.6	66.2
Pretax profit margin	48.0	44.7	44.2	40.6	39.3	41.6	45.1	47.8	50.5	44.2	43.9
Net profit margin	40.7	37.8	38.6	34.5	33.5	35.4	38.4	40.6	44.9	37.8	37.4
Sequential growth (%)											
Revenue growth	(18.7)	(5.5)	13.7	12.1	(8.6)	8.6	16.8	16.8			
Gross profit growth	(26.4)	(9.2)	14.0	7.4	(9.8)	13.1	21.9	20.3			
Operating profit growth	(28.9)	(12.6)	12.7	8.4	(12.8)	15.2	27.5	24.0			
EBITDA growth	(21.0)	(4.6)	15.1	3.5	(6.2)	10.6	19.4	13.6			
Pretax profit growth	(27.0)	(12.1)	12.5	2.9	(11.4)	14.8	26.8	23.6			
Net profit growth	(30.0)	(12.2)	16.1	0.3	(11.4)	14.8	26.7	23.6			
YoY growth (%)											
Revenue growth	3.6	(10.0)	(10.8)	(2.0)	10.1	26.6	30.0	35.4	42.6	(5.1)	26.1
Gross profit growth	4.9	(17.5)	(19.9)	(18.1)	0.4	25.0	33.7	49.7	64.5	(13.8)	27.9
Operating profit growth	3.3	(22.9)	(26.6)	(24.0)	(6.9)	22.8	38.8	58.8	72.5	(19.0)	29.0
EBITDA growth	2.0	(13.1)	(9.8)	(10.3)	6.7	23.6	28.2	40.6	45.3	(8.2)	25.4
Pretax profit growth	7.7	(19.3)	(23.7)	(25.7)	(9.8)	17.8	32.7	59.4	72.5	(17.0)	25.4
Net profit growth	2.1	(23.3)	(24.9)	(28.5)	(9.4)	18.4	29.3	59.4	70.4	(20.2)	24.8

Source: Company data, KGI Research estimates

Balance sheet

NTSmn	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
Total assets	2,760,711	3,725,503	4,964,779	5,621,394	6,352,772
Current assets	1,092,185	1,607,073	2,052,897	2,136,917	2,644,546
Cash & ST securities	791,477	1,188,456	1,561,486	1,586,072	1,955,685
Inventory	137,353	193,102	221,149	263,523	316,110
Accounts receivable	146,038	198,301	231,340	241,080	326,509
Other current assets	17,317	27,214	38,922	46,242	46,242
Non-current assets	1,668,526	2,118,431	2,911,882	3,484,476	3,708,226
LT investments	27,728	29,385	68,928	117,847	125,847
Net fixed assets	1,555,589	1,975,119	2,693,837	2,774,735	2,990,484
Other assets	85,209	113,927	149,117	591,895	591,895
Total liabilities	910,089	1,554,770	2,004,290	2,108,277	2,137,909
Current liabilities	617,151	739,503	944,227	966,573	996,206
Accounts payable	41,095	48,723	56,522	73,880	88,623
Interest bearing ST liabilities	91,159	119,488	19,314	7,420	7,420
Other current liabilities	484,897	571,293	868,391	885,274	900,163
Non-current liabilities	292,938	815,267	1,060,063	1,141,703	1,141,703
Long-term debt	256,073	613,380	839,096	909,923	909,923
Other LT liabilities	16,305	181,123	191,203	204,211	204,211
Total equity	1,850,622	2,170,733	2,960,489	3,513,117	4,214,862
Share capital	259,304	259,304	259,304	259,321	259,321
Retained earnings reserve	1,235,280	1,536,379	2,323,223	3,159,448	3,861,194
Minority interests	965	2,447	14,836	24,468	24,468
Preferred shareholders funds	-	-	-	-	-

Key ratios

	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
Growth					
Revenue growth	25.2%	18.5%	42.6%	(5.1%)	26.1%
Operating profit growth	52.1%	14.7%	72.5%	(19.0%)	29.0%
EBITDA growth	36.2%	19.4%	45.3%	(8.2%)	25.4%
Net profit growth	50.0%	15.2%	70.4%	(20.2%)	24.8%
EPS growth	50.0%	15.2%	70.4%	(20.2%)	24.8%
Profitability					
Gross profit margin	53.1%	51.6%	59.6%	54.1%	54.9%
Operating margin	42.3%	40.9%	49.5%	42.3%	43.2%
EBITDA margin	67.1%	67.6%	68.8%	66.6%	66.2%
Net profit margin	38.7%	37.6%	44.9%	37.8%	37.4%
Return on average assets	20.6%	18.4%	23.4%	15.3%	16.9%
Return on average equity	29.8%	29.7%	39.8%	25.2%	26.4%
Stability					
Gross debt to equity	18.8%	33.8%	29.0%	26.1%	21.8%
Net debt to equity		Net cash	Net cash	Net cash	Net cash
Interest coverage (x)	281.9	123.5	98.4	97.1	373.1
Interest & ST debt coverage (x)	0.9	0.8	1.0	1.0	1.0
Cash flow interest coverage(x)	395.2	205.4	137.1	119.0	474.6
Cash flow/int. & ST debt (x)	8.8	8.9	51.8	67.9	143.0
Current ratio (x)	1.8	2.2	2.2	2.2	2.7
Quick ratio (x)	1.5	1.9	1.9	1.9	2.3
Net debt (NT\$m)	(312,939)	(332,122)	(484,404)	(429,214)	(798,826)
Per share data					
EPS (NT\$)	19.97	23.01	39.20	31.29	39.06
CFPS (NT\$)	31.73	42.89	62.12	45.33	58.58
BVPS (NT\$)	71.33	83.62	113.60	134.55	161.61
Adj BVPS (NT\$)	71.33	83.62	113.60	134.55	161.61
SPS (NT\$)	51.65	61.22	87.31	82.89	104.50
EBITDA/share (NT\$)	34.65	41.36	60.11	55.19	69.19
Cash DPS (NT\$)	10.00	11.00	11.00	12.00	13.00
Activity					
Sales / avg assets	0.53	0.49	0.52	0.41	0.45
Days receivable	39.9	45.6	37.3	40.9	44.1
Days inventory	80.0	91.8	88.2	97.4	94.6
Days payable	23.9	23.2	22.5	27.3	26.5
Cash cycle	96.0	114.2	102.9	111.1	112.2

Source: Company data, KGI Research estimates

Profit & loss

NTSmn	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
Revenue	1,339,255	1,587,415	2,263,891	2,149,194	2,709,617
Cost of goods sold	(628,125)	(767,878)	(915,536)	(987,136)	(1,222,950)
Gross profit	711,130	819,537	1,348,355	1,162,058	1,486,667
Operating expenses	(144,346)	(169,556)	(227,076)	(253,801)	(314,890)
Operating profit	566,784	649,981	1,121,279	908,257	1,171,777
Non-operating income	13,272	12,285	31,168	49,129	22,100
Interest income	9,018	5,709	22,422	43,885	14,100
Investment income	4,230	5,965	8,065	4,840	8,000
Other non-op income	23	611	681	404	-
Non-operating expenses	4,722	860	(8,256)	(7,800)	(3,200)
Interest expense	(2,081)	(5,414)	(11,750)	(9,881)	(3,200)
Investment loss	-	-	-	-	-
Other non-op expenses	6,803	6,275	3,494	2,081	-
Pre-tax profit	584,777	663,126	1,144,191	949,587	1,190,677
Current taxation	(66,619)	(66,053)	(127,290)	(138,733)	(178,602)
Minorities	(273)	(533)	(370)	529	820
Extraordinary items	-	0	0	-	-
Net profit	517,885	596,540	1,016,530	811,382	1,012,896
EBITDA	898,508	1,072,376	1,558,533	1,431,073	1,794,117
EPS (NT\$)	19.97	23.01	39.20	31.29	39.06

Cash flow

NTSmn	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
Operations cash flow	822,666	1,112,161	1,610,599	1,175,357	1,518,853
Net profit	517,885	596,540	1,016,530	811,382	1,012,896
Depreciation & amortisation	331,725	422,395	437,254	522,815	622,340
Decrease in working capital	(61,074)	(100,384)	(53,286)	(34,757)	(123,273)
Other operating cash flow	34,130	193,610	210,100	(124,084)	6,890
Investing cash flow	(505,782)	(836,366)	(1,190,928)	(995,972)	(838,090)
Sale of ST investment	49	4,676	(128,838)	(26,234)	-
New investments	-	-	-	-	-
Capital expenditure	(507,239)	(839,196)	(1,082,672)	(1,001,827)	(838,090)
Others investing cashflow	1,408	(1,846)	20,582	32,089	-
Free cash flow	258,441	59,845	289,078	252,258	644,775
Financing cash flow	(88,615)	136,608	(200,244)	(200,825)	(311,150)
Increase in short term debt	(31,572)	35,668	(11,960)	-	-
Increase in long term loans	206,535	362,765	195,983	58,933	-
New ordinary shares issued	-	-	-	-	-
Ordinary dividends paid	(259,304)	(265,786)	(285,234)	(285,223)	(311,150)
Other financing cashflow	(4,275)	3,961	1,839	25,466	-
Forex effects	(23,498)	(7,584)	58,397	25,183	-
Total cash generated	204,771	404,820	277,824	3,743	369,613

ROIC

	Dec-20A	Dec-21A	Dec-22A	Dec-23F	Dec-24F
1 - COGS/revenue					
- Operating exp./revenue	10.8%	10.7%	10.0%	11.8%	11.6%
= Operating margin	42.3%	40.9%	49.5%	42.3%	43.2%
1 / (Working capital/revenue	(0.2)	(0.1)	(0.2)	(0.2)	(0.1)
+ Net PPE/revenue	1.2	1.2	1.2	1.3	1.1
+ Other assets/revenue)	0.0	0.0	0.0	0.3	0.2
= Capital turnover	1.0	0.9	1.0	0.7	0.8
Operating margin	42.3%	40.9%	49.5%	42.3%	43.2%
x Capital turnover	1.0	0.9	1.0	0.7	0.8
x (1 - tax rate)	88.6%	90.0%	88.9%	85.4%	85.0%
= After-tax ROIC	37.6%	32.9%	43.9%	26.2%	30.3%

Source: Company data, KGI Research estimates

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