

4Q19

Quarterly Management Report
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Topics in This Report:

- Revenue Analysis
- Profit & Expense Analysis
- Financial Condition Review
- Cash Flow
- CapEx
- Recap of Recent Important Events & Announcements

Operating Results Review:

Summary:

(Amounts are on consolidated basis and are in NT\$ billions unless otherwise noted)

	4Q19	3Q19	4Q18	2019	2018
EPS (NT\$ per common share)	4.47	3.90	3.86	13.32	13.54
(US\$ per ADR unit)	0.73	0.62	0.63	2.15	2.24
Net Revenue (US\$ billions)	10.39	9.40	9.40	34.63	34.20
Net Revenue	317.24	293.05	289.77	1,069.99	1,031.47
Gross Profit	159.20	139.41	138.12	492.70	497.87
Gross Margin	50.2%	47.6%	47.7%	46.0%	48.3%
Operating Expenses	(34.94)	(31.38)	(30.85)	(119.50)	(112.15)
Other Operating Income and Expenses	(0.02)	(0.14)	(0.15)	(0.50)	(2.10)
Operating Income	124.24	107.89	107.12	372.70	383.62
Operating Margin	39.2%	36.8%	37.0%	34.8%	37.2%
Non-Operating Items	4.54	4.45	3.96	17.15	13.89
Net Income Attributable to Shareholders of the Parent Company	116.04	101.07	99.98	345.26	351.13
Net Profit Margin	36.6%	34.5%	34.5%	32.3%	34.0%
Wafer Shipment (kpcs 12 inch-equiv.)	2,823	2,733	2,686	10,068	10,752

Note: Diluted weighted average outstanding shares were 25,930mn units in 4Q19

Financial Highlights:**Fourth Quarter 2019**

- Net revenue was NT\$317.24 billion, representing an 8.3% increase from NT\$293.05 billion in 3Q19 and a 9.5% increase from NT\$289.77 billion in 4Q18.
- Gross margin was 50.2%, 2.6 percentage points higher than 3Q19 and 2.5 percentage points higher than 4Q18.
- Operating margin was 39.2%, up 2.4 percentage points from 3Q19 and up 2.2 percentage points from 4Q18.
- Non-operating items were a gain of NT\$4.54 billion, compared to a gain of NT\$4.45 billion in 3Q19 and a gain of NT\$3.96 billion in 4Q18.
- Net income attributable to shareholders of the parent company was NT\$116.04 billion, up 14.8% from 3Q19 and up 16.1% from 4Q18. Net profit margin was 36.6% and diluted EPS was NT\$4.47.

Full Year 2019

- Net revenue was NT\$1,069.99 billion, representing a 3.7% increase from 2018. In US dollar terms, net revenue increased 1.3% to US\$34.63 billion in 2019.
- Gross margin was 46.0%, down 2.3 percentage points from 48.3% in 2018. Operating margin was 34.8%, down 2.4 percentage points from 37.2% in 2018.
- Diluted EPS was NT\$13.32, down 1.7% from NT\$13.54 in 2018. Net profit margin was 32.3%, down 1.7 percentage points from 34.0% in 2018.

I. Revenue Analysis

Wafer Revenue by Technology	4Q19	3Q19	4Q18
7nm	35%	27%	23%
10nm	1%	2%	6%
16nm	20%	22%	20%
20nm	1%	1%	1%
28nm	13%	16%	17%
40/45nm	8%	10%	10%
65nm	7%	7%	8%
90nm	3%	2%	3%
0.11/0.13um	3%	2%	2%
0.15/0.18um	8%	9%	8%
0.25um and above	1%	2%	2%

Net Revenue by Platform	4Q19	3Q19	4Q18
Smartphone	53%	49%	53%
High Performance Computing	29%	29%	29%
Internet of Things	8%	9%	6%
Automotive	4%	4%	4%
Digital Consumer Electronics	3%	5%	4%
Others	3%	4%	4%

Net Revenue by Geography	4Q19	3Q19	4Q18
North America	59%	60%	69%
Asia Pacific	8%	9%	7%
China	22%	20%	13%
EMEA	6%	6%	6%
Japan	5%	5%	5%

Wafer Revenue by Technology	2019	2018
7nm	27%	9%
10nm	3%	11%
16nm	20%	21%
20nm	1%	2%
28nm	16%	20%
40/45nm	10%	11%
65nm	8%	8%
90nm	3%	4%
0.11/0.13um	2%	2%
0.15/0.18um	8%	9%
0.25um and above	2%	3%

Net Revenue by Platform	2019	2018
Smartphone	49%	45%
High Performance Computing	30%	33%
Internet of Things	8%	6%
Automotive	4%	5%
Digital Consumer Electronics	5%	6%
Others	4%	5%

Net Revenue by Geography	2019	2018
North America	60%	62%
Asia Pacific	9%	9%
China	20%	17%
EMEA	6%	7%
Japan	5%	5%

Revenue Analysis:

In the fourth quarter, revenue increased 8.3% quarter-over-quarter, driven by high-end smartphones, initial 5G deployment, and HPC-related applications using TSMC's industry-leading 7nm technology.

By technology, 7nm process technology contributed 35% of total wafer revenue in 4Q19. 10nm process technology contributed 1% while 16nm accounted for 20%. Advanced technologies (16nm and below) accounted for 56% of total wafer revenue.

By platform, revenue from Smartphone, HPC, and Others increased 16%, 6%, and 5% respectively from 3Q19, while IoT and DCE decreased 4% and 23% respectively and Automotive remained flat.

From a geographic perspective, revenue from customers based in North America accounted for 59% of total net revenue, while revenue from Asia Pacific, China, EMEA (Europe, Middle East, and Africa) and Japan accounted for 8%, 22%, 6%, and 5% of total net revenue respectively.

On a full year basis, 7nm contribution reached 27% of total wafer revenue in 2019. 10nm process technology contributed 3% while 16nm accounted for 20%. Advanced technologies (16nm and below) accounted for 50% of total wafer revenue, up from 41% in 2018.

By platform, revenue from Smartphone and IoT increased 12% and 33% respectively from 2018, while HPC, Automotive, DCE, and Others decreased 8%, 7%, 8%, and 11% respectively.

In 2019, revenue from customers based in North America accounted for 60% of total net revenue, while revenue from Asia Pacific, China, EMEA (Europe, Middle East, and Africa) and Japan accounted for 9%, 20%, 6%, and 5% of total net revenue respectively.

II. Profit & Expense Analysis

II - 1. Gross Profit Analysis					
(In NT\$ billions)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>	<u>2019</u>	<u>2018</u>
Cost of Revenue	158.04	153.64	151.65	577.29	533.60
Gross Profit	159.20	139.41	138.12	492.70	497.87
Gross Margin	50.2%	47.6%	47.7%	46.0%	48.3%

Gross Profit Analysis:

Gross margin was 50.2% in 4Q19, 2.6 percentage points higher than 3Q19, mainly attributable to the higher level of capacity utilization and continuous cost improvement, partially offset by an unfavorable foreign exchange rate.

On a full year basis, gross margin was 46.0% in 2019, down 2.3 percentage points from 2018, mainly reflecting a lower level of capacity utilization, partially balanced by a more favorable exchange rate.

II - 2. Operating Income Analysis					
(In NT\$ billions)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>	<u>2019</u>	<u>2018</u>
Total Operating Expenses	(34.94)	(31.38)	(30.85)	(119.50)	(112.15)
Research & Development	(25.63)	(23.97)	(23.69)	(91.42)	(85.90)
SG&A	(9.31)	(7.41)	(7.16)	(28.08)	(26.25)
Other Operating Income and Expenses	(0.02)	(0.14)	(0.15)	(0.50)	(2.10)
Operating Income	124.24	107.89	107.12	372.70	383.62
Operating Margin	39.2%	36.8%	37.0%	34.8%	37.2%
Total Operating Expenses as % of Net Revenue	11.0%	10.7%	10.6%	11.2%	10.9%

Operating Income Analysis:

Total operating expenses were 11.0% of net revenue in 4Q19, a slight increase of 0.3 percentage point from 10.7% in 3Q19, mainly attributable to a higher level of development activities for 5nm and 3nm technologies and opening expenses for 5nm.

For full year 2019, total operating expenses represented 11.2% of net revenue, compared to 10.9% in 2018.

II - 3. Non-Operating Items					
(In NT\$ billions)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>	<u>2019</u>	<u>2018</u>
L-T Investments	0.87	0.92	1.11	2.84	3.06
SSMC	0.27	0.31	0.42	0.89	1.52
Others	0.60	0.61	0.69	1.95	1.54
Net Interest Income (Expenses)	2.67	3.07	3.28	12.94	11.64
Other Gains and Losses	1.00	0.46	(0.43)	1.37	(0.81)
Total Non-Operating Items	4.54	4.45	3.96	17.15	13.89

Non-Operating Items:

Total non-operating items were a gain of NT\$4.54 billion in 4Q19, compared to a gain of NT\$4.45 billion in 3Q19.

On a full year basis, total non-operating items increased by NT\$3.26 billion to a gain of NT\$17.15 billion in 2019.

II - 4. Net Profit and EPS					
(In NT\$ billions)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>	<u>2019</u>	<u>2018</u>
Income before Tax	128.78	112.34	111.08	389.85	397.51
Income Tax Expenses	(12.70)	(11.24)	(11.07)	(44.51)	(46.33)
Effective Tax Rate	9.9%	10.1%	10.1%	11.5%	11.7%
Net Income Attributable to the Parent Company	116.04	101.07	99.98	345.26	351.13
Net Profit Margin	36.6%	34.5%	34.5%	32.3%	34.0%
EPS (NT\$ per common share)	4.47	3.90	3.86	13.32	13.54

Net Profit and EPS:

Net income attributable to shareholders of the parent company was NT\$116.04 billion in 4Q19, up 14.8% from 3Q19 and up 16.1% from 4Q18.

On a full year basis, both net income and EPS decreased by 1.7% from 2018.

III. Financial Condition Review

III - 1. Liquidity Analysis			
(Balance Sheet Items)			
(In NT\$ billions)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>
Cash & Marketable Securities	583.45	584.92	695.18
Accounts Receivable	139.77	145.42	129.20
Inventories	82.98	96.69	103.23
Other Current Assets	16.42	22.40	24.07
Total Current Assets	822.62	849.43	951.68
Short-term Loans	118.52	85.57	88.76
Accounts Payable	181.02	130.40	77.49
Current Portion of Bonds Payable	31.80	31.80	34.90
Dividends Payable	129.65	116.69	0.00
Accrued Liabilities and Others	129.75	130.32	139.39
Total Current Liabilities	590.74	494.78	340.54
Current Ratio (x)	1.4	1.7	2.8
Net Working Capital	231.88	354.65	611.14

Liquidity Analysis:

Cash and marketable securities slightly decreased by NT\$1.47 billion from 3Q19 to NT\$583.45 billion in 4Q19.

Total current liabilities increased by NT\$95.96 billion. The change primarily reflected the increase of NT\$32.95 billion in short-term loans for hedging purpose, the increase of NT\$50.62 billion in payables to suppliers, and the increase of NT\$12.96 billion in dividends payable.

Net working capital was NT\$231.88 billion and current ratio was 1.4x.

III - 2. Receivable/Inventory Days			
(In Number of Days)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>
Days of Receivable	41	41	41
Days of Inventory	55	65	67

Receivable and Inventory Days:

Days of receivable was 41 days in 4Q19.

Days of inventory decreased 10 days to 55 days, primarily attributable to higher wafer shipments during the quarter.

III - 3. Debt Service			
(In NT\$ billions)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>
Cash & Marketable Securities	583.45	584.92	695.18
Interest-Bearing Debts	(175.42)	(142.47)	(180.56)
Net Cash Reserves	408.03	442.45	514.62

Debt Service:

Net cash reserves decreased NT\$34.42 billion to NT\$408.03 billion in 4Q19, mainly due to the increase in short-term loans.

IV. Cash Flow

IV - 1. Quarterly Cash Flow Analysis			
(In NT\$ billions)	<u>4Q19</u>	<u>3Q19</u>	<u>4Q18</u>
Income before Tax	128.78	112.34	111.08
Depreciation & Amortization	67.53	66.76	76.03
Other Operating Sources/(Uses)	6.65	(37.35)	2.26
Net Operating Sources/(Uses)	202.96	141.75	189.37
Capital Expenditures	(170.01)	(98.12)	(114.10)
Marketable Financial Instruments	(0.58)	(14.01)	(3.42)
Other Investing Sources/(Uses)	(1.02)	3.84	0.26
Net Investing Sources/(Uses)	(171.61)	(108.29)	(117.26)
Increase (Decrease) in Short-term Loans	35.68	7.33	14.30
Cash Dividends	(51.86)	(207.44)	0.00
Other Financing Sources/(Uses)	(1.00)	(29.00)	(0.02)
Net Financing Sources/(Uses)	(17.18)	(229.11)	14.28
Exchange Rate Changes	(11.20)	(1.62)	2.69
Cash Position Net Changes	2.97	(197.27)	89.08
Ending Cash Balance	455.40	452.43	577.81

Summary of Cash Flow:

During the fourth quarter, cash generated from operating activities totaled NT\$202.96 billion, including (1) NT\$128.78 billion from income before tax, (2) NT\$67.53 billion from depreciation & amortization expenses, and (3) NT\$6.65 billion from other operating sources.

Net cash used in investing activities was NT\$171.61 billion in 4Q19, primarily reflecting capital expenditures of NT\$170.01 billion.

Net cash used in financing activities was NT\$17.18 billion, reflecting the payment of 1Q19 cash dividends, partially offset by the increase in short-term loans.

As a result, cash position slightly increased NT\$2.97 billion to NT\$455.40 billion at the end of 4Q19.

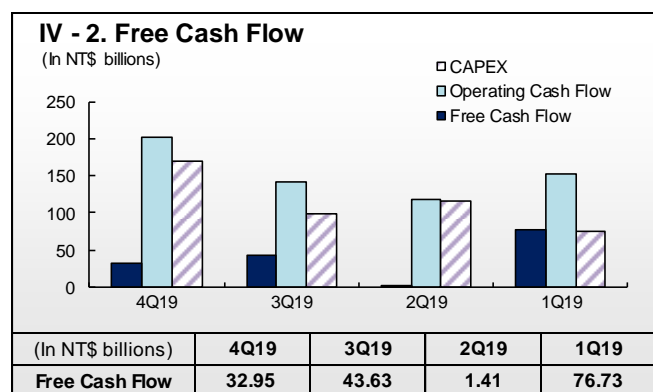
IV - 1.2. Annual Cash Flow Analysis			
(In NT\$ billions)	<u>2019</u>	<u>2018</u>	<u>Diff.</u>
Income before Tax	389.85	397.51	(7.66)
Depreciation & Amortization	286.88	292.55	(5.67)
Other Operating Sources/(Uses)	(61.59)	(116.11)	54.52
Net Operating Sources/(Uses)	615.14	573.95	41.19
Capital Expenditure	(460.42)	(315.58)	(144.84)
Marketable Financial Instruments	(10.79)	(9.86)	(0.93)
Other Investing Sources/(Uses)	12.41	11.17	1.24
Net Investing Sources/(Uses)	(458.80)	(314.27)	(144.53)
Increase (Decrease) in Short-term Loans	31.80	23.92	7.88
Cash Dividends	(259.30)	(207.44)	(51.86)
Other Financing Sources/(Uses)	(42.14)	(61.60)	19.46
Net Financing Sources/(Uses)	(269.64)	(245.12)	(24.52)
Exchange Rate Changes	(9.11)	9.86	(18.97)
Cash Position Net Changes	(122.41)	24.42	(146.83)
Ending Cash Balance	455.40	577.81	(122.41)

On a full year basis, cash generated from operating activities totaled NT\$615.14 billion, including (1) NT\$389.85 billion from income before tax, (2) NT\$286.88 billion from depreciation & amortization, and (3) NT\$61.59 billion for other operating uses, which mainly included income tax payment and the changes in working capital.

Net cash used in investing activities were NT\$458.80 billion, primarily including capital expenditures of NT\$460.42 billion.

Net cash used in financing activities totaled NT\$269.64 billion, mainly reflecting the payment of cash dividends and the repayment of corporate bonds, partially offset by the increase in short-term loans.

At the end of 2019, cash position was NT\$455.40 billion.



Operating and Free Cash Flow:

Free cash flow decreased NT\$10.68 billion to NT\$32.95 billion in 4Q19, as a result of a faster increase in capital expenditures than the increase in operating cash flow during the quarter.

Total free cash flow generated in 2019 was NT\$154.72 billion, a decrease from NT\$258.37 billion in 2018, as capital expenditures increased faster than that of operating cash flow for 2019.

V. CapEx

V. Capital Expenditures
(in US\$ billions)

	<u>4Q19</u>	<u>3Q19</u>	<u>2Q19</u>	<u>1Q19</u>	<u>2019</u>
Capital Expenditures	5.55	3.14	3.75	2.46	14.90

Capital Expenditures:

Capital expenditures for TSMC on a consolidated basis totaled US\$5.55 billion in 4Q19 and US\$14.90 billion for the year.

VI. Recap of Recent Important Events & Announcements

- TSMC Recognizes Outstanding Suppliers at 2019 Supply Chain Management Forum (2019/12/05)
- University of Tokyo and TSMC Announce Organization-Wide Advanced Semiconductor Technology Collaboration (2019/11/27)
- TSMC Board of Directors Approves NT\$2.5 Cash Dividend for Third Quarter 2019 and Sets March 19 as Ex-Dividend Date, March 25 as the record date and April 16, 2020 as the distribution date (2019/11/12)
- MediaTek's World-Leading 8K DTV SoC in Volume Production on TSMC 12FFC Technology (2019/11/08)
- TSMC and GLOBALFOUNDRIES Announce Resolution of Global Disputes Through Broad Global Patent Cross-License (2019/10/29)