



# Taiwan Semiconductor Manufacturing (TSM)

Updated January 12<sup>th</sup>, 2023 by Aristofanis Papadatos

## Key Metrics

<b>Current Price:</b>	\$84	<b>5 Year CAGR Estimate:</b>	14.6%	<b>Market Cap:</b>	\$421 B
<b>Fair Value Price:</b>	\$100	<b>5 Year Growth Estimate:</b>	9.0%	<b>Ex-Dividend Date:</b>	3/16/23
<b>% Fair Value:</b>	84%	<b>5 Year Valuation Multiple Estimate:</b>	3.6%	<b>Dividend Payment Date:</b>	4/13/23
<b>Dividend Yield:</b>	2.0%	<b>5 Year Price Target</b>	\$154	<b>Years Of Dividend Growth:</b>	0
<b>Dividend Risk Score:</b>	D	<b>Retirement Suitability Score:</b>	F	<b>Rating:</b>	Buy

## Overview & Current Events

Taiwan Semiconductor Manufacturing is the world's largest dedicated foundry for semiconductor components. The company is headquartered in Hsinchu, Taiwan. American investors can initiate an ownership stake in Taiwan Semiconductor through American Depository Receipts on the New York Stock Exchange, where they trade under the ticker TSM with a market capitalization of US\$421 billion.

In mid-January, Taiwan Semiconductor reported (1/12/23) financial results for the fourth quarter of fiscal 2022. Revenue grew 43% and earnings-per-share increased 78% over the prior year's quarter thanks to sustained strength in the demand for 5-nanometer and 7-nanometer technology. The company posted excessive margins; gross margin of 62.2%, operating margin of 52.0% and net profit margin of 47.3%. Earnings-per-share exceeded the analysts' consensus of \$1.77 by \$0.05. Taiwan Semiconductor has exceeded the analysts' earnings-per-share estimates for 20 consecutive quarters.

Despite the all-time high earnings of the company amid strong demand for its chips in smartphones, vehicles and high-performance computing, the stock has plunged -37% in the last 12 months due to fears of an upcoming recession and a decrease in global demand for chips. We agree with the market's fears for a slowdown but we expect global demand for chips to recover in late 2023 or 2024. The stock has bounced 40% off its bottom in November.

## Growth on a Per-Share Basis

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2028
<b>EPS</b>	\$1.22	\$1.68	\$1.87	\$2.01	\$2.19	\$2.24	\$2.15	\$3.39	\$4.11	\$6.53	<b>\$5.90</b>	<b>\$9.08</b>
<b>DPS</b>	\$0.50	\$0.50	\$0.73	\$0.94	\$1.16	\$1.31	\$1.60	\$1.72	\$1.88	\$1.82	<b>\$1.72</b>	<b>\$2.90</b>
<b>Shares<sup>1</sup></b>	5,190	5,190	5,190	5,190	5,190	5,190	5,190	5,190	5,190	5,190	<b>5,190</b>	<b>5,190</b>

As the leader in the semiconductor manufacturing industry, it is unsurprising that Taiwan Semiconductor has generated tremendous growth over the last decade. Indeed, the company has compounded its adjusted earnings-per-share by 20.5% per year over this time period. The company decelerated in 2015-2019, with 3.5% average annual earnings-per-share growth, partly due to a defective chemical from a supplier which damaged production in early 2019. Nevertheless, that non-recurring issue now belongs to the past and the company has returned to strong growth mode. We expect it to deliver approximately 9.0% annualized earnings-per-share growth over the next five years thanks to accelerated deployment of 5G and the growing adoption of 7-nanometer solutions in High Performance Computing. Moreover, we expect the company to grow its dividend significantly thanks to its healthy payout ratio and its rising earnings.

## Valuation Analysis

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Now	2028
<b>Avg. P/E</b>	14.6	12.1	12.1	13.3	16.3	18.1	20.4	20.6	28.9	13.9	<b>14.2</b>	<b>17.0</b>
<b>Avg. Yld.</b>	2.8%	2.5%	3.2%	3.5%	3.3%	3.1%	3.6%	2.5%	1.6%	2.0%	<b>2.0%</b>	<b>1.9%</b>

<sup>1</sup> In millions.

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Taiwan Semiconductor has traded at an average price-to-earnings ratio of 17.0 over the last decade. The stock is currently trading at a price-to-earnings ratio of 14.2 due to fears of a recession and the impact of inflation on valuation, as the present value of future cash flows is much lower now. We expect the stock to revert to its average valuation level over the next five years. If this were to come to fruition, the stock would enjoy a 3.6% annualized gain.

From an income perspective, Taiwan Semiconductor trades with a gross dividend yield of 2.0%, although a 21% withholding tax from the Taiwanese government reduces its after-tax yield to 1.6%.

## Safety, Quality, Competitive Advantage, & Recession Resiliency

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2028
<b>Payout</b>	41.0%	29.8%	39.0%	46.8%	53.0%	55.8%	74.4%	50.7%	45.7%	27.9%	<b>29.2%</b>	<b>31.9%</b>

Taiwan Semiconductor has a remarkably strong balance sheet. As very few companies are debt-free, the exceptional balance sheet of the semiconductor manufacturer is a testament to the strength of its business model, which does not require debt to fuel growth and generates ample free cash flows.

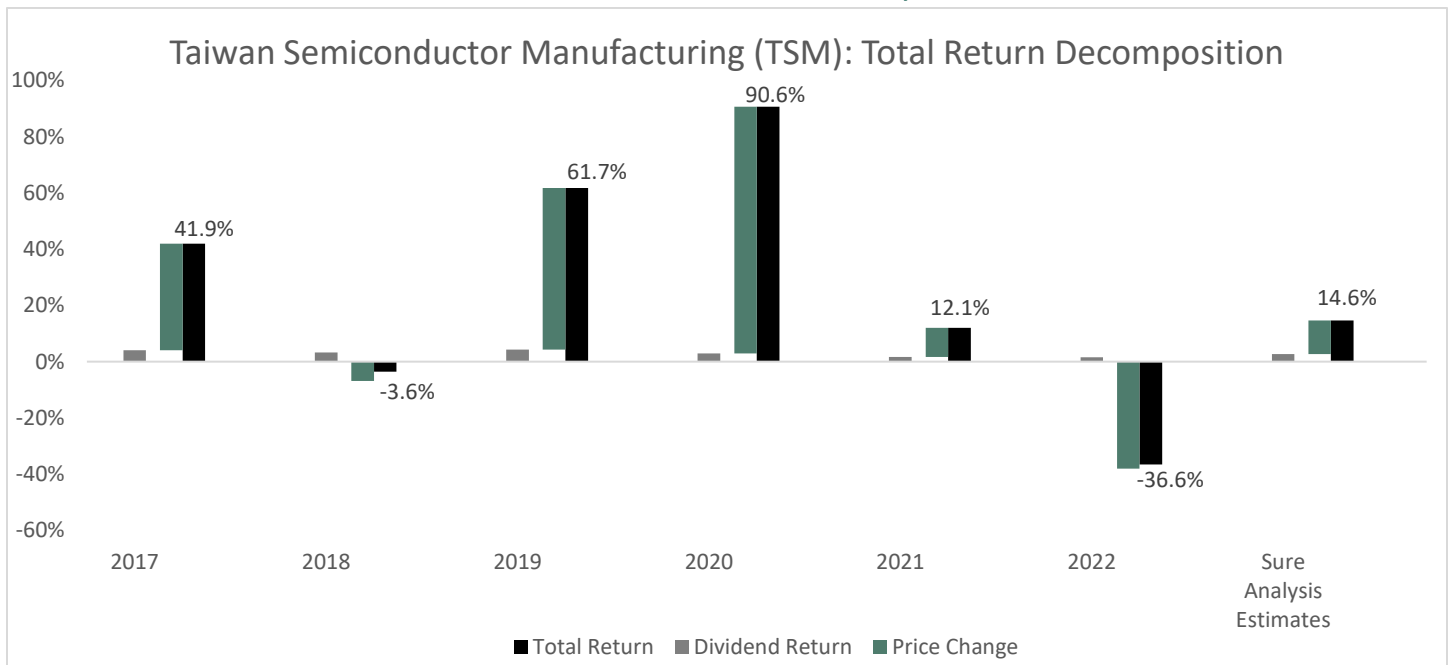
On the other hand, investors should realize that the growth trajectory of the company is strongly tied to the growth trajectory of smartphones. While smartphones will remain a vital component of human lifestyle for the foreseeable future, it is unknown how much their sales can increase from the current level.

Moreover, the stock is likely to underperform in a recession, as smartphone sales could plunge in such an event. However, in the recent recession, which resulted from the pandemic, the company managed to grow its sales and earnings thanks to strong growth in 5G smartphones and product launches in high-performance computing.

## Final Thoughts & Recommendation

Taiwan Semiconductor has rallied 31% since our last research report, in October, but it remains attractive from a long-term point of view. We expect the stock to offer a 14.6% average annual return over the next five years thanks to 9.0% earnings growth, a 2.0% dividend and a 3.6% annualized valuation tailwind. We maintain our buy rating.

## Total Return Breakdown by Year



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## Income Statement Metrics

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>Revenue</b>	17,138	20,108	25,168	26,576	29,402	32,129	34,233	34,630	45,489	56,818
<b>Gross Profit</b>	8,257	9,477	12,462	12,930	14,728	16,265	16,526	15,946	24,154	29,333
<b>Gross Margin</b>	48.2%	47.1%	49.5%	48.7%	50.1%	50.6%	48.3%	46.0%	53.1%	51.6%
<b>SG&amp;A Exp.</b>	748	788	793	722	797	893	871	909	1,208	1,592
<b>D&amp;A Exp.</b>	4,442	5,260	6,607	7,010	6,943	8,551	9,710	9,285	11,267	15,119
<b>Operating Profit</b>	6,142	7,074	9,793	10,137	11,722	12,710	12,733	12,062	19,252	23,265
<b>Op. Margin</b>	35.8%	35.2%	38.9%	38.1%	39.9%	39.6%	37.2%	34.8%	42.3%	40.9%
<b>Net Profit</b>	5,394	6,197	8,390	9,542	10,289	11,340	12,051	11,455	17,591	21,352
<b>Net Margin</b>	31.5%	30.8%	33.3%	35.9%	35.0%	35.3%	35.2%	33.1%	38.7%	37.6%
<b>Free Cash Flow</b>	1,253	1,921	4,260	8,446	6,413	8,199	8,340	4,705	10,230	9,770
<b>Income Tax</b>	757	1,082	1,580	1,501	1,679	1,680	1,143	1,160	2,263	2,364

## Balance Sheet Metrics

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>Total Assets</b>	33,195	42,190	47,148	49,009	58,400	67,101	68,340	75,617	98,974	134,196
<b>Cash &amp; Equivalents</b>	4,952	8,108	11,305	16,639	16,757	18,644	18,893	15,205	23,668	38,362
<b>Acc. Receivable</b>	1,995	2,394	3,619	2,515	3,973	4,097	4,088	4,540	5,119	7,143
<b>Inventories</b>	1,306	1,253	2,092	1,983	1,507	2,489	3,375	2,771	4,924	6,956
<b>Goodwill &amp; Int.</b>	378	384	427	416	452	478	556	690	924	---
<b>Total Liabilities</b>	8,555	14,322	14,902	13,674	16,299	16,754	14,025	21,714	32,628	56,004
<b>Accounts Payable</b>	2,048	3,491	1,541	1,318	2,762	2,835	2,489	5,996	7,055	7,005
<b>Long-Term Debt</b>	4,012	7,566	7,881	6,845	6,535	7,209	4,763	4,795	12,355	26,279
<b>Total Equity</b>	24,553	27,859	32,241	35,307	42,076	50,324	54,293	53,880	66,312	78,104
<b>D/E Ratio</b>	0.16	0.27	0.24	0.19	0.16	0.14	0.09	0.09	0.19	0.34

## Profitability & Per Share Metrics

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>Return on Assets</b>	18.2%	16.4%	18.8%	19.7%	19.1%	18.1%	17.8%	15.9%	20.2%	18.4%
<b>Return on Equity</b>	23.8%	23.7%	27.9%	28.1%	26.5%	24.5%	23.0%	21.2%	29.3%	29.8%
<b>ROIC</b>	21.1%	19.3%	22.2%	23.0%	22.5%	21.4%	20.6%	19.5%	25.4%	23.4%
<b>Shares Out.</b>	5,185	5,190	5,190	5,190	5,190	5,190	5,190	5,190	5,190	5,190
<b>Revenue/Share</b>	3.30	3.88	4.85	5.09	5.64	6.20	6.59	6.68	8.78	10.96
<b>FCF/Share</b>	0.24	0.37	0.82	1.62	1.23	1.58	1.61	0.91	2.01	1.88

Note: All figures in millions of U.S. Dollars unless per share or indicated otherwise.

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