

TAIWAN SEMICONDUCTOR MANUFAC TSM

Report Date : 11Oct17 Price : \$ 40.35

Address: No. 8 Li-Hsin 6th Road
 @NA Taiwan 300
 Telephone: 886-3-563-6688
 Stock Exchange: NYSE
 Web Site: http://www.tsmc.com
 Fiscal Year: December
 Economic Sector: Information Technology
 SIC: 3674
 Price / Earning Ratio: 18.6

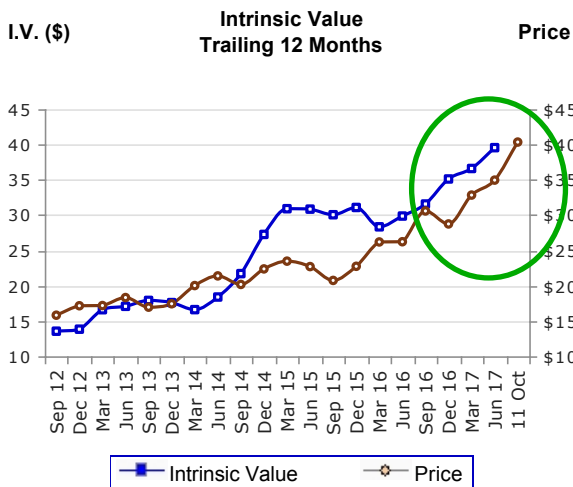
TSM is the largest dedicated chip producer (with around 54.5% of market share) with a market value of \$194B.

Intrinsic Value	IV	Price / IV
Trailing 12 Months :	\$ 39.56	1.02
Trailing 36 Months :	\$ 39.56	1.02
Market Value Added (MVA)	\$	%
Market Value of Total Capital :	211,534.291	100.0%
- Invested Capital :	48,560.642	23.0%
= Market Value Added :	162,973.649	77.0%
Future Growth Value (FGV)	\$	%
Market Value of Total Capital :	211,534.291	100.0%
- Current Operating Value :	136,567.232	64.6%
= Future Growth Value :	74,967.059	35.4%

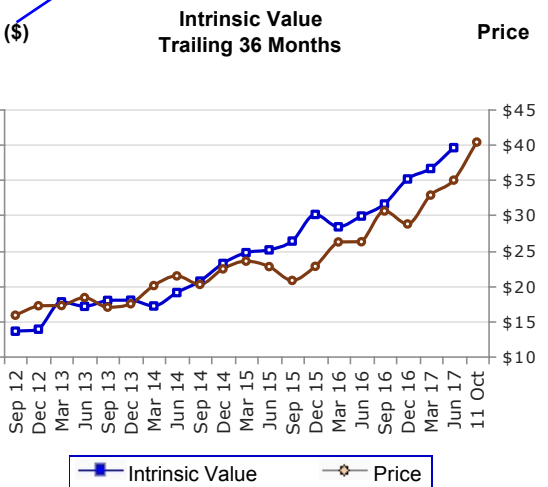
Peers US: ADI AMD AMKR A Peers CND: DNX. SEV. SECY STM TXN UMC

The IV has presented a bullish tendency over the last 5 years. Currently at \$39.56. Over the last last year, the IV grew by 32.54%

INTRINSIC VALUE



The stock is currently trading at a slight premium, the P/IV ratio being at 1.02. Even though this multiple doesn't seem very attractive, it could represent a nice opportunity given how quickly and regularly the intrinsic value has grown in the past.



Trailing 12 Months					Trailing 36 Months				
JUN13	JUN14	JUN15	JUN16	JUN17	JUN13	JUN14	JUN15	JUN16	JUN17
PERFORMANCE									
6,422.233	7,228.064	10,452.693	9,461.732	11,888.668	NOPAT	5,683.500	6,232.771	8,034.330	9,047.496
27,676.443	31,665.807	36,753.863	41,703.432	48,560.642	+ Capital	27,676.443	31,665.807	36,753.863	41,703.432
23.2%	22.8%	28.4%	22.7%	24.5%	= Return / Capital	23.3%	22.6%	25.1%	24.6%
9.7%	9.8%	9.8%	9.4%	8.7%	- Cost of Capital	9.7%	9.8%	9.8%	9.4%
13.5%	13.0%	18.6%	13.3%	15.8%	= Performance Spread	13.7%	12.8%	15.2%	15.3%
VALUATION									
65,594.617	69,632.545	129,010.771	117,756.833	158,773.951	Future EVA	65,594.617	72,908.323	99,079.241	117,756.833
28,985.414	33,185.836	38,518.569	43,609.637	50,630.230	+ Capital (Adj. Mid-Year)	28,985.414	33,185.836	38,518.569	43,609.637
94,580.030	102,818.381	167,529.339	161,366.470	209,404.181	= Total IV	94,580.030	106,094.159	137,597.810	161,366.470
5,691.636	7,088.308	6,568.247	5,620.378	3,556.856	- Long Term Debt	5,691.636	7,088.308	6,568.247	5,620.378
315.556	328.033	970.754	840.577	693.009	- Other Liabilities	315.556	328.033	970.754	840.577
88,572.839	95,402.041	159,990.338	154,905.515	205,154.316	= IV of Equity	88,572.839	98,677.819	130,058.808	154,905.515
5,185.660	5,185.866	5,186.075	5,186.076	5,186.076	+ Shares Outstanding	5,185.660	5,185.866	5,186.075	5,186.076
\$ 17.08	\$ 18.40	\$ 30.85	\$ 29.87	\$ 39.56	= IV of a Share	\$ 17.08	\$ 19.03	\$ 25.08	\$ 29.87
\$ 18.32	\$ 21.39	\$ 22.71	\$ 26.23	\$ 34.96	Share Price	\$ 18.32	\$ 21.39	\$ 22.71	\$ 26.23
1.07	1.16	0.74	0.88	0.88	Price / Intrin. Value	1.07	1.12	0.91	0.88

The return on capital currently stands at 24.5%, which is high. Even more impressive is the fact that it has been extremely stable over the past 5 years, hovering between 23% and 28%.

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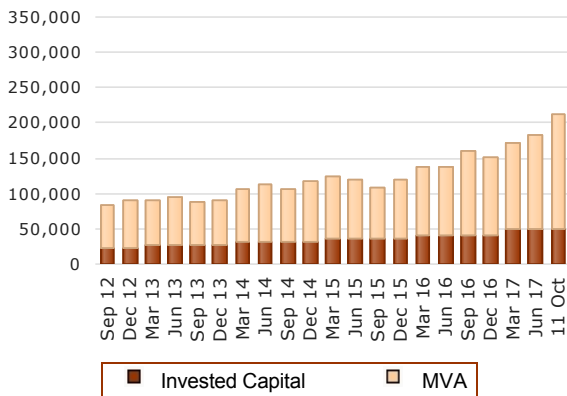
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 Price / Book Value Ratio: 4.52
 Currency: US \$ in Millions

Given the high economic performance and stability, the current Future Growth Value (FGV) premium of 35% seems reasonable: The Current Operating Value (COV) increased by 34.96% in the last 12 months. Therefore, the current premium reflects expectations of the equivalent of +/- 1 year of growth at the same growth rate.

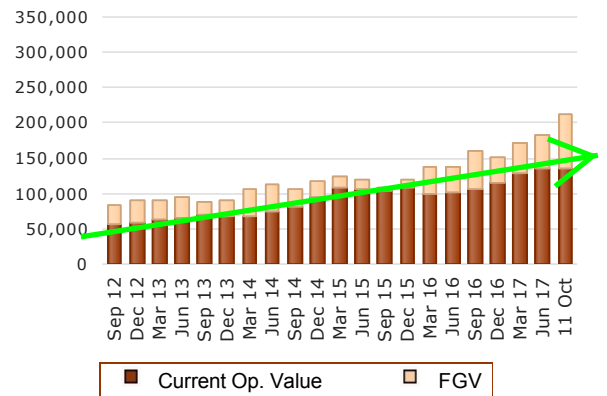
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MARKET PERFORMANCE

(M\$) Market Value Added (MVA)



(M\$) Future Growth Value (FGV)



Trailing 12 Months					Quarterly					
JUN13	JUN14	JUN15	JUN16	JUN17	Price	JUN16	SEP16	DEC16	MAR17	JUN17
\$ 18.32	\$ 21.39	\$ 22.71	\$ 26.23	\$ 34.96		\$ 26.23	\$ 30.59	\$ 28.75	\$ 32.84	\$ 34.96
Market Value Added (MVA)					Market Value Added (MVA)					
95,812.418	112,189.622	119,679.491	138,306.898	183,581.342	Total Market Value	138,306.898	160,918.190	151,375.810	172,586.861	183,581.342
27,676.443	31,665.807	36,753.863	41,703.432	48,560.642	- Invested Capital	41,703.432	41,703.432	41,703.432	48,560.642	48,560.642
68,135.975	80,523.815	82,925.628	96,603.466	135,020.700	= MVA	96,603.466	119,214.758	109,672.378	124,026.219	135,020.700
71%	72%	69%	70%	74%	% Market Value	70%	74%	72%	72%	74%
Current Operating Value (COV)					Current Operating Value (COV)					
6,422.233	7,228.064	10,452.693	9,461.732	11,888.668	NOPAT	9,461.732	10,070.318	10,626.491	11,823.223	11,888.668
9.7%	9.8%	9.8%	9.4%	8.7%	÷ Cost of Capital	9.4%	9.5%	9.3%	9.1%	8.7%
66,326.336	73,524.180	106,298.185	101,188.017	136,567.232	= COV	101,188.017	105,771.728	114,613.545	129,764.298	136,567.232
69%	66%	89%	73%	74%	% Market Value	73%	66%	76%	75%	74%
Future Growth Value (FGV)					Future Growth Value (FGV)					
95,812.418	112,189.622	119,679.491	138,306.898	183,581.342	Total Market Value	138,306.898	160,918.190	151,375.810	172,586.861	183,581.342
66,326.336	73,524.180	106,298.185	101,188.017	136,567.232	- COV	101,188.017	105,771.728	114,613.545	129,764.298	136,567.232
29,486.082	38,665.442	13,381.306	37,118.881	47,014.109	= FGV	37,118.881	55,146.462	36,762.265	42,822.563	47,014.109
31%	34%	11%	27%	26%	% Market Value	27%	34%	24%	25%	26%

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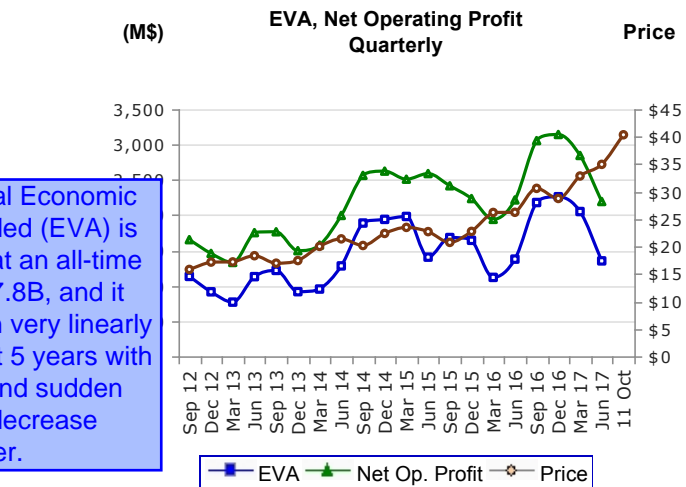
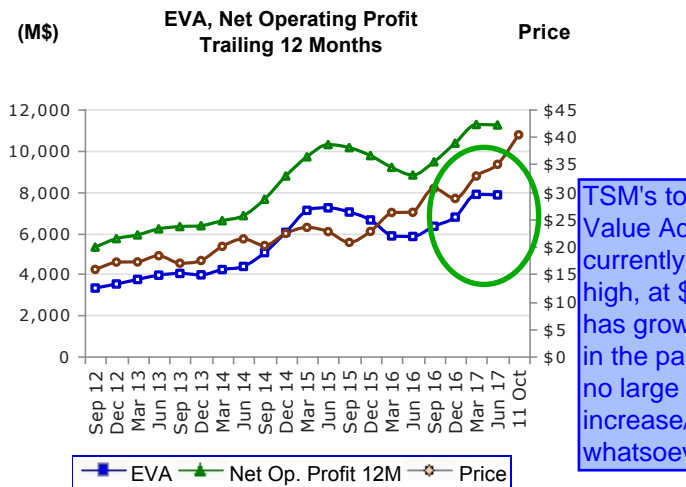
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 Peers CND: DNx .SEV.

ECONOMIC PERFORMANCE



TSM's total Economic Value Added (EVA) is currently at an all-time high, at \$7.8B, and it has grown very linearly in the past 5 years with no large and sudden increase/decrease whatsoever.

Trailing 12 Months					Quarterly					
JUN13	JUN14	JUN15	JUN16	JUN17		JUN16	SEP16	DEC16	MAR17	JUN17
Net Operating Profit After Tax (NOPAT)										
6,783.168	7,705.778	10,954.553	9,821.702	12,654.054	Operating Profit	2,820.886	3,353.922	3,447.291	3,095.265	2,757.576
650.830	851.679	1,269.754	1,207.181	1,086.575	+ Adjustments	191.201	192.346	189.862	370.094	334.273
1,011.765	1,329.393	1,771.614	1,567.151	1,851.960	- Income Tax	668.889	401.154	409.883	357.719	683.204
6,422.233	7,228.064	10,452.693	9,461.732	11,888.668	= NOPAT	2,343.199	3,145.113	3,227.271	3,107.640	2,408.644
Economic Value Added (EVA)										
6,422.233	7,228.064	10,452.693	9,461.732	11,888.668	NOPAT	2,343.199	3,145.113	3,227.271	3,107.640	2,408.644
2,481.457	2,862.730	3,239.495	3,641.887	4,046.973	- Capital Charge	966.642	966.642	966.642	1,056.845	1,056.845
3,940.776	4,365.333	7,213.198	5,819.845	7,841.695	= EVA	1,376.557	2,178.471	2,260.628	2,050.796	1,351.799
1,113.384	424.557	2,847.865	(1,393.353)	2,021.849	Change in EVA	258.711	801.914	82.158	(209.833)	(698.997)
Analysis										
27,676.443	31,665.807	36,753.863	41,703.432	48,560.642	Capital	41,703.432	41,703.432	41,703.432	48,560.642	48,560.642
23.2%	22.8%	28.4%	22.7%	24.5%	Return / Capital	5.6%	7.5%	7.7%	6.4%	5.0%
2.40	2.32	2.89	2.43	2.81	Performance Index	0.60	0.79	0.83	0.70	0.57
0.12	0.12	0.17	0.12	0.16	EVA / Capital	0.03	0.04	0.05	0.04	0.03
\$ 0.76	\$ 0.84	\$ 1.39	\$ 1.12	\$ 1.51	EVA / Share	\$ 0.27	\$ 0.42	\$ 0.44	\$ 0.40	\$ 0.26
\$ 0.21	\$ 0.08	\$ 0.55	\$ (0.27)	\$ 0.39	Change in EVA / Share	\$ 0.05	\$ 0.15	\$ 0.02	\$ (0.04)	\$ (0.13)

since 2013, the invested capital has grown at an average rate of 15% per year, and last year's growth was the highest, at 16.4%. These capital investments have paid off quickly: over the same period, the NOPAT has grown at an average rate of 18% per year, which is even higher than the invested capital growth itself.

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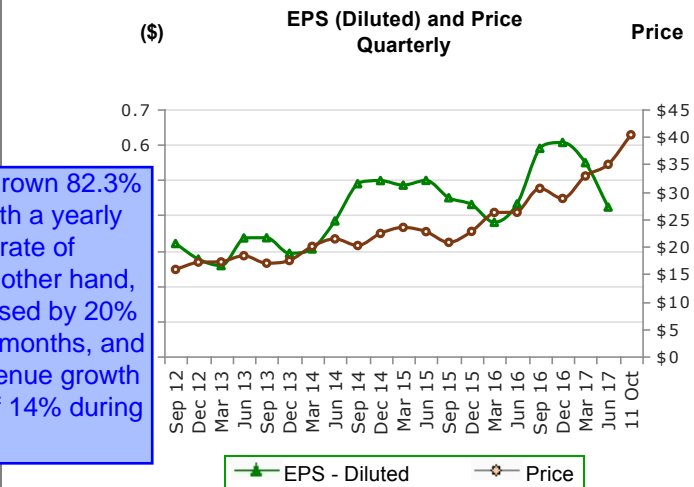
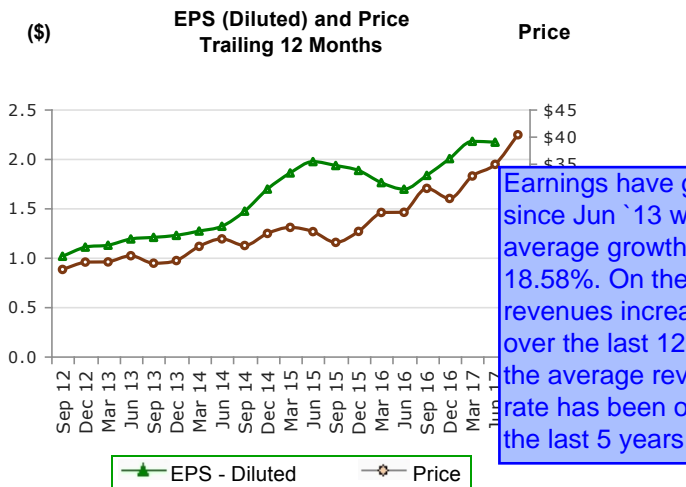
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As a bonus, the current P/E is of 18.0, which is way better than the average S&P500 P/E of 25.

Peers US: ADI AMD AMKR ASX AVGO IFNNY MCHP MU NVDA NXPI ON RNECY STM TXN UMC
 Peers CND: DNX. SEV.

ACCOUNTING PERFORMANCE



Earnings have grown 82.3% since Jun `13 with a yearly average growth rate of 18.58%. On the other hand, revenues increased by 20% over the last 12 months, and the average revenue growth rate has been of 14% during the last 5 years.

Trailing 12 Months					Quarterly				
JUN13	JUN14	JUN15	JUN16	JUN17	JUN16	SEP16	DEC16	MAR17	JUN17

Selected Income Statement Items										
18,964.661	21,359.541	27,884.035	25,842.301	31,117.730	Sales	6,851.490	8,223.988	8,223.419	7,595.329	7,074.994
5,416.930	6,020.949	7,349.549	7,018.328	8,320.774	Cost of Goods Sold	1,752.136	2,418.642	2,303.590	1,864.033	1,734.509
1,478.668	1,710.077	2,094.802	1,986.539	2,478.219	R + D	522.150	591.314	625.973	630.320	630.611
6,783.168	7,705.778	10,954.553	9,821.702	12,654.054	Operating Profit	2,820.886	3,353.922	3,447.291	3,095.265	2,757.576
6,156.605	6,822.708	10,218.030	8,769.366	11,236.151	Net Income	2,239.720	3,055.651	3,142.282	2,845.310	2,192.908
\$ 0.40	\$ 0.40	\$ 0.58	\$ 0.75	@NA	Dividends	0.00	0.00	\$ 0.92	@NA	@NA
\$ 1.19	\$ 1.32	\$ 1.97	\$ 1.69	\$ 2.17	EPS	\$ 0.43	\$ 0.59	\$ 0.61	\$ 0.55	\$ 0.42
\$ 1.19	\$ 1.32	\$ 1.97	\$ 1.69	\$ 2.17	EPS - Diluted	\$ 0.43	\$ 0.59	\$ 0.61	\$ 0.55	\$ 0.42
5,185.660	5,185.866	5,186.075	5,186.076	5,186.076	Common Shares	5,186.076	5,186.076	5,186.000	5,186.076	5,186.076

Selected Balance Sheet and CashFlow Items										
11,761.669	15,378.593	23,703.662	26,428.277	27,546.689	Current Assets	26,428.277	22,635.968	25,374.135	27,213.814	27,546.689
@NA	@NA	@NA	@NA	@NA	Other Assets	@NA	@NA	@NA	@NA	@NA
8,129.982	8,259.809	10,026.997	12,360.911	17,207.680	Current Liabilities	12,360.911	8,216.008	9,874.965	10,599.294	17,207.680
14,137.173	15,676.149	17,573.529	18,821.978	21,462.827	Total Liabilities	18,821.978	13,869.932	15,403.422	15,766.539	21,462.827
24,891.075	29,363.580	34,567.870	37,090.078	43,808.894	Common Equity	37,090.078	40,931.306	43,108.374	47,973.720	43,808.894
(2,131.083)	(542.359)	7,593.908	3,369.862	311.013	Free CashFlow	1,053.633	(3,870.705)	2,251.213	1,922.072	8.432

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