

Investment Opportunities in Taiwan's Machine tool Industry

I. The Taiwan Machine Tool Industry's Top Ten Attractions for Investors

1. A 60-km-long "Golden Valley" of machine tool manufacturers that has worldwide influence and an annual output of NT\$ 900 billion.
2. The world's number-one machine tool industry cluster.
3. Taiwan's status as the world's fourth-largest exporter of machine tools.
4. Taiwan's status as the world's fifth-largest machine tool producer in terms of output value.
5. Woodworking machinery exports that rank third in the world.
6. Plastics machinery exports that rank fifth in the world.
7. Machinery products that have one of the highest C/P ratings in the world.
8. The world-known Central Taiwan Machinery Corridor.
9. The world's most comprehensive central-satellite plant system for machine tools.
10. Taiwan's hosting of Asia's second-largest machine tool industry show.

II. Overview of Taiwan's Major Machine Tool Manufacturers

Taiwan has a large number of top-notch machine tool manufacturers, most of which are clustered in the island's central region. As many as 633 plants are located in the Greater Taichung area alone, including such big names as the Hiwin Corp., Tongtai Machine & Tool Co., Yeong Chin Machinery Industries, Awea, Goodway Machine Corp., Taiwan Takisawa Technology, Victor Taichung, and Shieh Yih Machinery Industry. All enjoy above-average profit margins and sales growth, as shown in Table 1. Numerous companies reported operating revenues

above NT\$3 billion for 2013, including Hiwin Corp., Tongtai Machine & Tool Co., Airtac International Group, Goodway and Shieh Yih. Hiwin, Goodway, Airtac International, and Chin Fong Machine Industrial Co. all reported a net profit margin far above 10% in 2013. The highest net profit margin, 23.6%, was reported by Airtac International, a manufacturer that specializes in pneumatic components and control elements for the production of automated equipment; profit margin of Hiwin, a maker of high-precision transmission control products, was 15.4%. These statistics are a clear reflection of the competitiveness and strategic advantages of Taiwan's machine tool industry.

Table 1 Top machine tool manufacturers in Taiwan

	2013		2012		2011	
	Revenue (NT\$100 million)	Net profit margin (%)	Revenue NT\$100 million	Net profit margin (%)	Revenue NT\$100 million	Net profit margin (%)
Hiwin(2049)	124.40	15.40	109.04	18.37	141.34	26.94
Tongtai(4526)	76.07	4.87	45.22	4.89	66.02	8.72
Chin Fong(1557)	22.70	N/A	21.78	15.15	24.91	14.28
Goodway(1583)	58.83	9.08	28.08	14.36	25.85	18.65
Airtac(1590)	73.00	23.60	56.67	19.72	56.38	24.41
Shieh Yih(4533)	40.89	4.80	19.57	6.23	24.37	7.29
TW Takisawa(6609)	28.39	7.26	26.14	5.02	29.62	5.00
Awea(1530)	29.93	7.89	33.6	7.92	32.08	7.71
Basso(1527)	27.05	19.40	25.28	2.28	27.75	13.64
Falcon(4513)	23.01	-1.02	16.56	1.43	18.22	4.54
KAFO(4510)	20.20	6.63	14.01	1.33	16.27	3.98
Chang Type(1541)	18.38	-1.24	13.05	-6.20	10.69	-0.37
Roundtop(1540)	9.39	12.50	12.31	7.65	13.2	10.28

Source: Market Observation Post System (2014/06)

III. Cross-Strait Economic and Trade Liberalization Promotes Explosive Growth in the Competitive Machine Tool Industry

Machine tools are pieces of machinery used to produce parts and components for the assembly of all kinds of industrial production machines, which is why they

are often referred to as the “mothers of machines.” The machine tool industry is one of the most important foundations of a nation’s industrial development, and is a major industrial sector in its own right. In 2012 Japan was the world’s leading exporter of machine tools, while Taiwan occupied the fourth spot (see Table 2) with an export volume of US\$4.236 billion. Taiwan’s biggest export markets for machine tools are Mainland China and United States (see Table 3), with China being the biggest buyer; in 2013 alone, Taiwan machine tool exports to China were worth more than US\$1.157 billion, accounting for 35.26% of the total export value. One major driving force behind the growing export numbers is the continuous demand from overseas Taiwanese entrepreneurs, a trend that has become even more obvious after the opening of the “three links” across the Taiwan Strait and the signing of the Economic Cooperation Framework Agreement (ECFA) with China.

Table 2 Top 10 Machine Tool Exporters Worldwide in 2012

2012 Ranking	Country	2012 Export Value (US\$ million)	2011 Export Value (US\$ million)	Growth (%)
1	Japan	11,565	11,563	0.00
2	Germany	10,410	9,451	10.20
3	Italy	4,434	4,271	3.80
4	Taiwan	4,236	4,000	5.90
5	Switzerland	2,773	3,080	-10.00
6	China	2,750	2,420	13.60
7	S. Korea	2,551	2,301	10.90
8	USA	2,088	1,881	11.00
9	Spain	983	967	1.70
10	Belgium	862	880.6	-2.10
	Other	5,245	4,981	5.30
	Total	47,896	45,795	4.60

Source: Gardner Publications; 2013 Machinery Industry Yearbook, IEK (2013/05)

Table 3 Taiwan's top 10 machine tool export markets, 2011-2012

Ranking	Country	2013		2012	
		Export value (US\$ million)	Share (%)	Export value (US\$ million)	Share (%)
1	China	1,191	33.57	1,494	35.26
2	USA	403	11.35	533	12.58
3	Thailand	225	6.35	266	6.28
4	Turkey	177	5.00	204	4.82
5	Germany	119	3.36	131	3.10
6	Indonesia	106	2.98	119	2.82
7	S. Korea	98	2.75	86	2.04
8	Russia	93	2.62	87	2.04
9	Malaysia	92	2.60	111	2.61
10	Nederland	89	2.50	96	2.26
	Other	955	26.92	1,109	26.18
	Total	3,548	100.00	4,236	100.00

Source: Customs Administration; TMBA (2014/04)

IV. The World's Most Influential Machine Tool Industrial Cluster

As a key player in the machine tool supply chain, central Taiwan has a concentration of machine tool manufacturers around Taichung that accounts for more than half of all machine tool companies on the island and forms the world's only industrial cluster for machine tools and parts. This area, therefore, is able to satisfy machine tool and machine tool parts companies around the globe. The close geographical proximity and seamless cooperation among all the manufacturers in this comprehensive supply chain greatly enhance the performance of the island's machine tool industry and add immeasurably to its competitive advantage. For example, Taiwan's Golden Valley," giving an in-depth account of the precision machinery industrial cluster situated on Taichung's Dadu Plateau, a narrow 60-kilometer strip extending from Shengang in Taichung to Fangyuan in Nantou, that generates an annual output of roughly NT\$900 billion and is the main factor behind Taiwan's success as one of the

world's main exporters of machine tools. With 1,500 major manufacturers and more than 10,000 satellite factories, and with Taiwan's vital position in the global supply chain, machines from this area are involved in the processes that turn out half of all iPhones produced worldwide.

V. Innovative R&D Allows Taiwan Machine Tool Manufacturers to Dominate the Global Market

Machine tool manufacturing is one of the few Taiwanese industries that have created a name-brand image in the international market. The industry also enjoys a strong competitive edge in terms of technological integration, product management, sales strategies, and customer service. Moreover, in recent years Taiwan's government has thrown its support behind the industry, in particular by supporting innovative R&D in precision machinery and equipment, giving the industry an increasingly high-tech and high-precision profile. This, plus the fact that Taiwanese manufacturers are relatively experienced in the global market, brightens the prospects for the future development of the island's machine tool industry.

Thanks to their innovative R&D departments, Taiwanese machine tool makers are regular winners of industrial awards, including Taiwan Excellence Awards, SME Rising Star Awards, and Machine Tool R&D Awards. Continuing investment in product development, new technologies, and innovative concepts allows manufacturers to improve their product quality, design, and image, thereby increasing the added value of Taiwan's industrial products. The Hiwin Corp., Kao Fong Machinery, and Victor Taichung deserve particular credit in this context, as they have won numerous R&D/industrial awards, making them prime examples of the nation's machine tool industry and its long-standing tradition of superior research, development, design, quality, and marketing.

Numerous Taiwanese machine tool makers, including the Hiwin Corp., Victor Taichung, Tongtai Machine & Tool Co., Awea, Goodway Machine Corp., Ching Fong Machine Industrial Co., Airtac International Group, Chevalier-Falcon Machine Tools, Shieh Yih Machinery Industry, Taiwan Takisawa Technology, You Ji Machine Industrial, She Hong Industrial, and Fair Friend Group, not only have distributors on all major continents but have also established subsidiary companies in China, Germany, the United States, Japan, Switzerland, the Czech Republic, France, and Israel. This makes it obvious that

the Taiwanese machine tool industry is not only firmly rooted at home, but is also actively expanding into new markets and raising its global profile.

VI. The Bright Future of Taiwanese Machine Tool Industry

With the signing of the ECFA between China and Taiwan, cross-strait trade and industrial relations have entered a new era of increasing goodwill and cooperation. Seventeen types of low- and medium-level machine tools have already been put on ECFA's Early Harvest List for Trade in Goods, meaning that they enjoy reduced or zero import tariffs in China (see Table 4). Beginning in 2014, high-level machine tools that use China- or Taiwan-made controllers will also be tariff-exempt. Mainland China's rapid economic development creates a huge demand for specific types of machine tools; Taiwanese products carry lower prices than similar product made by manufacturers from Germany, Japan, or other countries, and their price/performance ratio is higher than those made in China, giving them a clear competitive advantage. The quality of Taiwan-made low- and medium-level machine tools is also better than that of Chinese products, and Taiwanese machine tool makers are better at modifying and customizing their tools, allowing them to quickly and reliably meet the specific needs of their buyers. This keeps delivery times short and response times rapid.

An overview of the Taiwanese machine tool industry shows it to be superior to that of most of other countries in terms of industrial clusters, R&D, cooperation between central and satellite plants, customer service, operational management, and industrial supply chain. Moreover, professional staff, efficient collaboration, and a division of labor among up-, mid-, and downstream companies enable Taiwan's manufacturers to build a powerful industrial network that is further boosted by the island's leading position in the ICT sector. In sum, Taiwanese machine tool makers offer more competitive prices as well as high-quality products, flexible production methods, and custom designs, giving them a key role in the global supply chain for the machine tool industry. This means that Taiwanese machine tool industry is exceedingly attractive to domestic and international investors.

**Table 4 Low- and Medium-level Machine Tool Products on the on the
Early Harvest List**

No.	Item	No.	Item
1	Horizontal lathes numerically controlled	10	Sawing' cutting-off machines by removing metal
2	Lathes nes numerically controlled	11	Double-column(open-side) planing machines
3	Drilling machine nes, numerically controlled	12	Forging' die-stamping mach & hammers,numerically controlled
4	Fl-surf grindg mach,pos of one axis acc to 0.01mm, numerically controlled	13	Forging' die-stamping mach & hammers, not numerically contrld
5	Lapping machines	14	Punching/notching machines, not numerically controlled
6	Grinding wheel mechines	15	Mechanical presses
7	Polishing machines	16	Other planing machines, nes
8	Slotting machines	17	Cold-drawing tube benches, over 300t
9	Broaching machines		

Source: TMBA