

Investment Opportunities in the Machine Tool Industry in Taiwan

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 2012, including Hiwin Corp., Tongtai Machine & Tool Co., Airtac International Group, and Awea. Hiwin, Goodway, Airtac International, and Chin Fong Machine Industrial Co. all reported a net profit margin far above 10% in 2012. The highest net profit margin, 19.72%, was reported by Airtac International, a manufacturer that specializes in pneumatic components and control elements for the production of automated equipment; Hiwin, a maker of high-precision transmission control products, was second with 18.37%. 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

Unit: NT\$ million

	2012		2011		2010	
	Revenue	Net profit margin (%)	Revenue	Net profit margin (%)	Revenue	Net profit margin (%)
Hiwin	10,904	18.37%	14,134	26.94%	821	20.56%
Tongtai	4,522	4.89%	6,602	8.72%	6,646	9.10%
Chin Fong	2,178	15.15%	2,491	14.28%	338	15.23%
Goodway	2,808	14.36%	2,585	18.65%	1,928	10.90%
Airtac	5,667	19.72%	5,638	24.41%	4,299	24.42%
Shieh Yih	1,957	6.23%	2,437	7.29%	1,819	6.01%
Taiwan Takisawa	2,614	5.02%	2,962	5.00%	3,020	4.34%
Awea	3,360	7.92%	3,208	7.71%	2,641	8.77%
Basso	2,528	2.28%	2,775	13.64%	2,735	0.25%
Falcon	1,656	1.43%	1,822	4.54%	1,096	-3.77%
KAFO	1,401	1.33%	1,627	3.98%	1,302	6.97%
Chang Type	1,305	-6.20%	1,069	-0.37%	1,296	3.03%
Roundtop	1,231	7.65%	1,320	10.28%	1,174	8.49%

Source: Market Observation Post System (2013/05)

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 2012 alone, Taiwan machine tool exports to China were worth more than US\$1.493 billion, accounting for 35.3% 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. The industry’s 2012 exports of US\$4.236 billion were up 5.9% over 2011’s US\$4 billion.

Table 2 Worldwide machine tool exports

Unit: US\$ million

2012 Ranking	Country	2012 (est.)		2011		2010		2009		2008	
		Export value	Growth	Export value	Growth	Export value	Growth	Export value	Growth	Export value	Growth
1	Japan	11,565	0%	11,562	32.22%	7,833	85.79%	4,219	-50.46%	8,517	14.20%
2	Germany	10,410	9.22%	9,450	29.90%	6,624	-8.61%	7,203	-29.80%	10,262	12.10%
3	Italy	4,434	3.67%	4,271	22.7%	3,299	-1.12%	3,316	-29.31%	4,691	15.50%
4	Taiwan	4,236	5.57%	4,000	25.12%	2,995	72.14%	1,824	-45.30%	3,334	9.80%
5	Switzerland	2,773	-11.07%	3,080	40.87%	1,821	-0.59%	1,936	-47.70%	3,701	6.60%
6	China	2,750	12%	2,420	25.61%	1,800	27.66%	1,400	-33.50%	2,106	27.60%
7	S. Korea	2,551	9.80%	2,301	27.07%	1,678	38.45%	1,212	-36.50%	1,910	5.90%
8	USA	2,088	9.91%	1,881	26.63%	1,380	11.76%	1,215	-35.80%	1,893	14.20%
9	Spain	983	1.62%	967	37.84%	601	-21.65%	800	-25.70%	1,077	26.60%
10	Austria	834	4.10%	799	9.01%	727	10.53%	682	-33.50%	1,025	31.50%

Source: Gardner Publications; Commercial Development Research Institution

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

Unit: US\$ million

Ranking	2012			2011	
	Country	Export value	Share	Export value	Share
1	China	1,493	35.3%	1,546	38.6%
2	USA	533	12.6%	353	8.8%
3	Thailand	265	6.3%	177	4.4%
4	Turkey	204	4.8%	200	5.0%
5	Germany	131	3.1%	143	3.6%
6	Indonesia	119	2.8%	100	2.5%
7	India	117	2.8%	141	3.5%
8	Malaysia	111	2.6%	113	2.8%
9	Holland	96	2.3%	104	2.6%
10	Russia	87	2.0%	61	1.5%
	Other	1,078	25.5%	106	26.5%
	Total	4,236	100.0%	4,001	100.0%

Source: Customs Administration; TMBA (2013/03)

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. The May 2011 issue of Taiwan's *Business Week* magazine featured a report titled "60 Kilometers that Stretch around the Globe—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 (see Table 4). 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.

Table 4 Awards Won by Taiwan’s Machine Tool Makers

Numbers of Awards won since 2000	
HIWIN TECHNOLOGIES CORP.	21
KAO FONG MACHINERT CO., LTD	9
VICTOR TAICHUNG MACHINERY WORKS CO., LTD.	4
FALCON MACHINE TOOLS CO., LTD.	3
CHANG TYPE INDUSTRIAL CORP.	3
FAIR FRIEND ENTERPRISE CO., LTD.	2
SHIEH YIH MACHINERY INDUSTRY CO., LTD.	2
SHE HONG INDUSTRIAL CO., LTD.	2
CHIN FONG MACHINE INDUSTRIAL CO., LTD	1
GOODWAY MACHINE CORP	1

Awards: Taiwan Excellence Awards, The Rising Star Award,
Taiwan Machine Tool Industry Award for Excellence in
Research and Innovation

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 5). 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 5 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