

Review and Outlook of Taiwan Fastener Industry in H1 2022

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Global Fastener Market Overview: Try to Shorten the Gap Between the Supply and the Demand Amid the Pandemic

The top 10 global fastener exporters in 2021 (see **Table 1**) were China (US\$10.6 billion), Germany (US\$8 billion), Taiwan (US\$5.6 billion), USA (US\$4.6 billion), Japan (US\$3 billion), Italy (US\$2.4 billion), France (US\$1.7 billion), Switzerland (US\$1.2 billion), the Netherlands (US\$1.1 billion) and South Korea (US\$1 billion). In 2021, the total value of global fastener export was US\$52.1 billion, an increase of 22% over 2020, and the top 10 fastener exporters accounted for nearly 80% of the global total.

Affected by the low base period in 2020 and the recovery of global demand in 2021, **the top 10 global exporters in 2021 all grew by 10-20%. The most eye-catching achievement was Taiwan, whose export in 2021 increased by 33.8% compared with the same period last year,** mainly due to Taiwan's initial success in epidemic prevention and supply chain self-sufficiency, as well as maintaining stable shipments in the most difficult 2020-2021, not to mention the soaring global steel raw materials / freight rates and the lack of labor, etc.

Table 1. Top 10 Exporters of the Global Fastener Industry in 2021 Unit: US\$ 0.1 bn

Ranking	Exporter	Amount	Year-over-year (YOY)	Global Market Share
1	China	106	17.8%	20.4%
2	Germany	80	20.6%	15.4%
3	Taiwan	56	33.8%	10.7%
4	USA	46	13.9%	8.8%
5	Japan	30	23.0%	5.7%
6	Italy	24	27.8%	4.6%
7	France	17	11.2%	3.2%
8	Switzerland	12	19.2%	2.2%
9	Netherlands	11	21.1%	2.1%
10	S. Korea	10	17.1%	2.0%

Data source: International Trade Centre
MIRDC MII-ITIS research team (2022/06)

In terms of major fastener importers, the total value of global imports in 2021 was about US\$55.1 billion, a significant increase of 26% over 2020, and the top 10 importers were shown as **Table 2**. Italy in 2021 grew by nearly 50% compared with the same period in 2020, which shows that the resumption of work was good; Poland's import grew sharply by 68.9% in 2020, and under the high base period, it grew by 34.5% in 2021, making it the most obvious emerging fastener market in Europe; China's import rose only 8.8% due to weak domestic demand and high freight rates. The remaining countries grew by 20-40% in the 2nd year of the pandemic, with the top three being Italy (47.6%), the UK (35.9%) and Poland (34.5%).

Table 2. Top 10 Importers of the Global Fastener Industry in 2021 Unit: US\$ 0.1 bn

Ranking	Importer	Amount	Year-over-year (YOY)	Global Market Share
1	USA	82	32.7%	14.9%
2	Germany	50	27.3%	9.1%
3	Mexico	35	29.3%	6.3%
4	China	33	8.8%	6.0%
5	France	21	22.0%	3.7%
6	Canada	19	20.5%	3.4%
7	U.K.	17	35.9%	3.1%
8	Italy	15	47.6%	2.7%
9	Poland	14	34.5%	2.5%
10	Netherlands	13	29.5%	2.4%

Data source: International Trade Centre
MIRDC MII-ITIS Research Team (2022/06)

There are about 1,879 fastener manufacturers in Taiwan with the total employment of about 40,000 people. Their total output value in 2021 was NT\$166.34 billion and the total export value was NT\$154.69 billion (equivalent to US\$5.24 billion), a new high in the history of Taiwan's fastener exports; their total import value was NT\$6.01 billion and the proportion of export sales was 93%, which shows that fasteners have created a large trade surplus for Taiwan.



The epidemic has made the overall inventory of European and American customers low, so it ushered in the explosion of orders in the first half of 2021-2022, and some manufacturers felt that customer inventory replenishment and urgent demand increased, even better than the pre-epidemic rate level, but the shortage of labor problem gradually worsened. The fastener industry is highly dependent on foreign migrant workers, whose original retention period is 12 years, so Taiwan's government has developed a new plan for migrant workers, through the policy for the fastener industry to retain high-quality and experienced migrant workers, while the government also calls on employers to release better treatment. After all, the labor market follows a free mechanism and salary and treatment, prospects are tools for other factories and even industries to hire new employees.

H1 2022 Review: Influx of Hot Money is Over, But That for Fasteners Has Not Ended

During the epidemic period, in order to stabilize the society, countries have thrown money into markets, stimulating people's livelihood consumption, and the stock and housing markets are all bustling. In 2021, the overall export and order performance of the fastener industry gradually rose to the pre-epidemic level, and most manufacturers' revenues were better than in 2020, but the raw materials and other operating costs caused by the epidemic, jammed ports, and the Russian-Ukrainian war rose sharply, affecting the profits of fastener exporters. The industry generally has a large increase in revenue but ordinary profits.

Since the end of 2021, Central Banks of many countries have stopped their monetary easing policies, when some economists warned that inflation caused by hot money and supply chain imbalances might make the post-epidemic economic recovery difficult, and now the warning has been proven. At the beginning of 2022, the supply chain began to appear problems, and popular car models such as Tesla and M. Benz had to wait for more than six months on average to be delivered; In Q2 2022, Taiwan's machine tools, and many other industries faced headwinds, and the reduction of inventory backlog demand was frequently circulated, China's dynamic lockdowns and the Russian-Ukrainian war have exacerbated inflation. IMF believes that the risk of recession in H2 2022 may increase and 2023 may be more difficult.

At the same time, Taiwan's fastener industry still delivered good results. Its output value in Q2 2022 was estimated at NT\$51.33 billion and its export value was estimated at NT\$47.74 billion, up 3.9% quarter-on-quarter and 30.4% year-on-year; its total import value is estimated at NT\$1.64 billion, up 7.2% quarter-on-quarter and 9.3% year-on-year. In Q2, Taiwanese manufacturers facing China's lockdown and the intensification of the Russian-Ukrainian war still delivered a good result of 30% growth over the previous year. However, some manufacturers believe that the bullwhip effect has appeared, and also observed that steel, machine tools and other industries seem to encounter a sudden freeze of order intake. We must pay close attention to the order intake in Q3. If there is no freeze, the total export value is expected to be NT\$185.57 billion, a 20% increase over the previous year (see Table 3).

Table 3. Fastener Industry & Market Data for Q2 2022

Unit: NT\$0.1 bn ; %

Year Item	2021			2022					2021	2022 (Estimate)	Year-on- year Growth (Previous Year vs. Current Year)
	Q2	Q3	Q4	Q1	Q2	Quarter-on- Quarter	The Same Period Ratio	Q3 (Estimate)			
Production	393.7	430.9	461.8	494.3	513.3	3.9%	30.4%	479.7	1,663.5	1,995.4	19.9%
Import	15.0	13.9	16.6	15.3	16.4	7.2%	9.3%	13.9	59.9	62.2	3.8%
Export	366.1	400.7	429.5	459.7	477.4	3.9%	30.4%	446.1	1,547.0	1,855.7	19.9%

Data source: Taiwan Customs/MIRDC MII-ITIS Research Team (2022/08)

With the epidemic and the Russian-Ukrainian war, the current wire rod supply and exchange rates have stabilized, but freight rates, wire rod prices and post-manufacturing processes (i.e., electroplating, heat treatment, packaging, etc.) are the key to whether the fastener industry will be profitable in 2022. Issues such as semiconductor plant expansion and post-war reconstruction may stimulate demand for fasteners. The annual output value in 2022 is estimated to be NT\$199.54 billion, and the export amount is estimated to be NT\$185.57 billion. Compared with the high base period in 2021, although the annual industrial performance grew by 20% over the previous year, it actually expressed that the quotation under the influence of inflation was higher, not necessarily caused by higher profits.

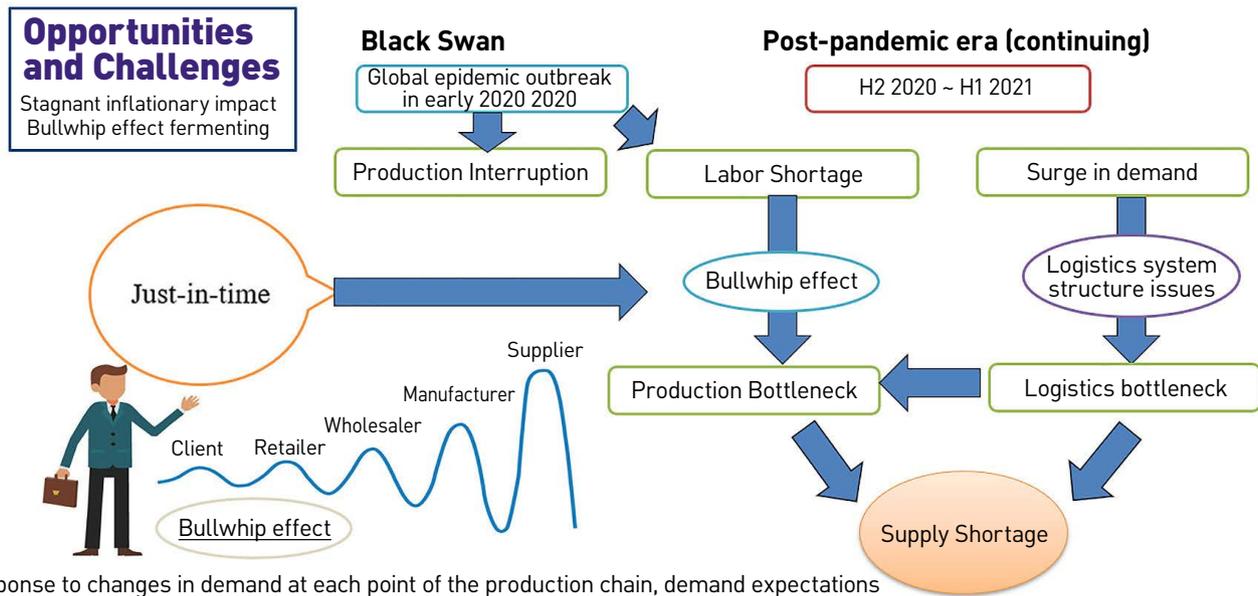
Outlook: Although Forecasts are Diverging, Flexibility Helps Break Through Difficulties

Official economic institutions such as the IMF implied an increase in the risk of recession based on inflation, war, energy, interest rate hikes, balance sheet reductions, geopolitical risks, etc.; financial institutions such as Goldman Sachs said that the first nine countries to tighten their monetary policy are mainly emerging markets in Latin America, Central & Eastern Europe and New Zealand, where the labor market is still vibrant and no recession has been found. To review the history of the U.S., most recessions were accompanied by severe job losses and high unemployment. However, the U.S. unemployment rate announced in August 2022 was at a half-century low, making it difficult to judge the imminent recession; the same situation also happened to the fastener



Figure 1. The Current Supply Chain Problems and Phenomena of the Manufacturing Industry

Data source: UDN/MIRDC MII-ITIS Research Team (2022/08)



In response to changes in demand at each point of the production chain, demand expectations are generated, and inventories are reduced or increased accordingly. Market signals are transmitted upstream and amplified. Like swinging a bullwhip, the farther away the greater the range.

industry. From Q4 2021, some automotive fastener manufacturers predicted that the order situation in 2022 would not be optimistic; at the end of Q1 2022, some large manufacturers said that orders were still seen through Q1 2023; in Q2 2022, some manufacturers of small screws said that the operation rate was significantly reduced and their factories were adjusting working hours. At the same time, a wood screw supplier said that the U.S. orders have increased greatly and the market is bullish, while the automotive fastener industry feels the long-whip effect, **Figure 1** shows the current supply chain problems and phenomena of the manufacturing industry.

The market atmosphere is falling prey to pessimism of disbelief, but there are still winners, such as stainless steel/construction/custom carbon steel fasteners, bonded washers, etc., who are winning not only on technology, but also on corporate governance, namely industrial flexibility. In other words, regardless of the changes in the economic situation, fastener is a necessity for the industry. As long as they know how to manage and show flexibility, they will make a lot of money in good times and not as much as losing money in bad times. **How to show the governance of fastener industry and give full play to the toughness? Fastener business leaders should focus on: lean management, environmental management, and quality management.**

Let's talk about **lean management** first. Digital transformation is emerging in Taiwan fastener industry. Generally speaking, after cross-industry communication, digital transformation will be activated, but lots of SMEs don't know how to carry out effective digital transformation. The first reason is that factories mainly focus on manufacturing and lack IT talents. The second reason is that introducing external digital products require clear management approaches, so **the most important prerequisite for digital transformation is lean management, in order to help factories improve their manufacturing service momentum.**

The second is **environmental management**, especially carbon emissions management. Screw and nuts are important foreign-exchange-generating products, so suppliers receiving orders from the int'l market will be affected by int'l policies. For example, N. America accounts for 39% of Taiwan's fastener export and Taiwan is also N. America's largest import trading partner. The 2nd largest fastener export destination for Taiwan is the EU, accounting for 34% of its exports. With nearly 140 countries proposing net-zero emissions, the EU is the most active one in promoting green transformation and sustainable development. Originally, there were only five major product categories involved (incl. cement, electricity, fertilizer, steel and aluminum), but now they have been extended to cover chemicals, plastics, hydrogen and ammonia. CBAM (Carbon Border Adjustment Mechanism) will officially take effect in 2027. **As important customers of Taiwan fastener industry are located in the EU, if the EU manufacturers are required by their Governments, these EU business owners will certainly turn to ask partnered OEMs to cooperate with carbon reduction. As a result, early preparations for relevant regulations should be made ASAP.**

The third is **quality management**. **Taiwan fasteners are mainly for export, and in terms of export, the most likely to cause trade disputes is who should be accountable for good return, which means quality management & certification is a key step to ensure good product quality.** In particular, Taiwan fasteners are almost single-order (non-planned) production, so it is difficult to expand the production scale in the short term, but if suppliers can work on quality control, they can definitely enhance the int'l competitiveness.

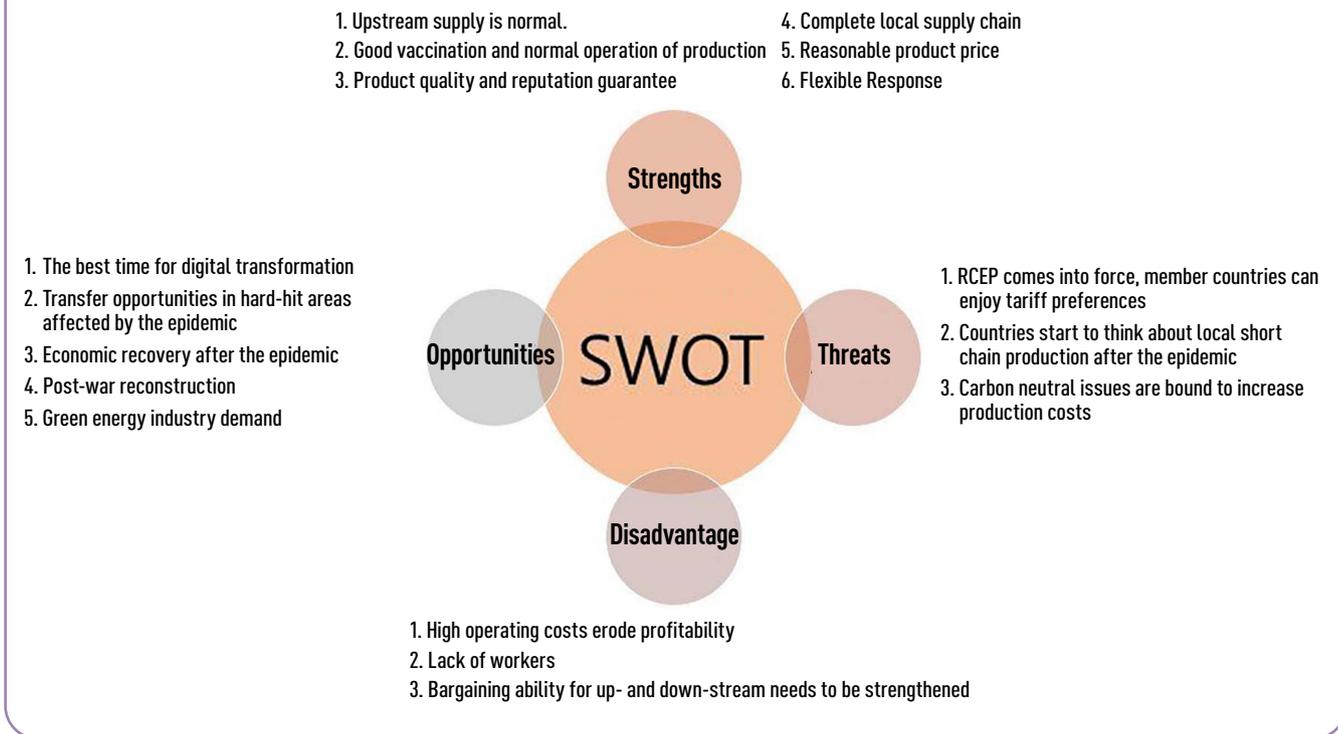
Finally, let's utilize SWOT to analyze the competitiveness of Taiwan fastener industry after the epidemic. **The global industrial recovery after the epidemic can be expected, and the current biggest impacts are supply shortages and delivery problems.** For example, car chip shortages leading to the shutdown of car factories



are a situation that has never been imagined before the outbreak of Covid. Screws and nuts are deemed basic industrial products, and when the demand side (e.g., car factories) has problems, it will affect the fastener industry, and when the effect continues, the economy may face deflation (a bad economy leads to cheaper sales of products, and consumers live within their means) rather than inflation (increased costs and high prices of goods). As the situation may turn around instantly, most fastener factories take orders conservatively and do not rashly expand their factories or purchase new equipment to meet the rapid changes; however, there are also flexible companies which take advantage of the depreciation of JPY and the euro to invest in high-end equipment.

Figure 2. SWOT Analysis of Taiwan Fastener Industry

Data source: MIRDC MII-IT IS Research Team (2022/04)



Conclusions

a. Know Trends, Be Conservative and Keep Passion

The metal products industry is the least active among other industries to invest in equipment, as with the uncertainties in the post-epidemic era, the fastener industry is worried about the bullwhip effect leading to repeated orders, inflation-incurred reduction in customer demand, or even operating costs or competitiveness in order intake increased by future green product certification, which may eventually lead to a situation of production shrinkage, so they reduce investment, which may also reduce the future competitiveness of Taiwan fastener industry in the high value-added field. Academic research institutions should continue to use government resources to plan fastener industry exchanges, so that fastener factories can have opportunities for peer learning and cross-industry cooperation to stimulate new sparks.

b. Developing New Applications and Multiple Product Lines for a Success

Looking into product applications, the trend of orders for automotive fasteners in 2022 shows convergence due to chip, labor, and material shortages. In contrast, orders for construction fasteners are doing very well, thanks to increased home improvements and a surge in new house sales. **What's worth mentioning is that construction fasteners are the mainstream amid the epidemic over the past two years, incl. steel structure bolt assemblies, wood screws, gypsum board screws, expansion anchor bolts, chemical anchor bolts, etc.** The epidemic has shifted most activities at home, stimulating demand for building repairs and an outbreak of orders; furthermore, the demand for large infrastructure projects increased greatly because century-old buildings or bridge piers in Europe and the U.S. have exceeded their service life. The certification of safety and environmental protection has also been given more and more attention, such as CE is a must-have certificate for construction fasteners sold to the EU.

Winners amid the epidemic also include electronic screws. As most of the society's offline activities have been changed to be virtual, the increasing demand for electronic devices for home entertainment and WFH has also increased. In addition, the demand for medical electronic devices also resulted in the fully booked capacity for electronics screws. However, electric/auto-pilot vehicles are considered the fourth C after 3C



products. People seem to pay more attention to in-vehicle entertainment and audio-visual enjoyment, so there is still much space left for electronic screws in future development of the automotive industry development.

Another products positively impacted by the market are energy fasteners. With many countries starting to seek net-zero carbon emission, solar energy has once again become the main force of renewable energy development since 2022. Outdoor solar panels are not only required to be used with anti-loosening fasteners for safety reasons, but also required to be corrosion resistant, which is regarded as a derivative application of high-value construction fasteners. **Special products such as stainless steel screws and nuts, composite screws, and anti-loosening nuts have significant potential for further development;** the future energy sources also include wind power and green hydrogen. Infrastructure and environment require the use of functional fasteners. The fastener industry is glad to see the emergence of new industries. Where there is an industry, where there is fastener demand. The more advanced technologies and materials are, the bigger challenges in technology and certification are.

c. Post-Pandemic Challenges Doubled. Lean Management is a Necessity

Taiwan fastener industry is self-sufficient in production and its quality and delivery are outstanding, so it has long been a leader in the world. After the epidemic peak, its operating costs have increased significantly, eroding profits. However, due to long-term trading habits it is difficult to raise prices. RCEP member countries have reduced or exempted each other's tariffs since Jan. 2022. Taiwan, however, hasn't reached trade agreements with them, which is unfavorable to its competitiveness. Overall, long-term advantages should offset short-term disadvantages, but everyone wants to grasp opportunities but does not grasp them all. Threat is imminent, the carbon tax is expected to increase the steel cost, so fasteners will be definitely affected. In the post-epidemic era, countries tend to choose to coexist with the virus, which is the only way to keep the economy running. **If Taiwan wants to keep connected with the world, whether it can maintain production and capacity will be a big challenge.**

The fastener industry is an important foreign-exchange-generating industry in Taiwan and has close ties with industries worldwide. Although Taiwan is currently leading in the global supply chain, most Taiwanese companies are still holding a traditional mindset for onsite management. They should think about how to increase revenue and reduce costs and continue to improve on quality, cost and efficiency in each value chain from the perspective of customers and competitors. However, what improvement should be done first must be determined. The first step is to determine where the organization needs to focus its efforts (improve growth or costs?): If it's growth, resources must be invested to meet customer needs; if it is cost, resources should be used to improve efficiency and eliminate waste. Be it growth or cost, core workforce adjustment, facility improvement and streamlined production system are all necessary. ■

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