

Influence of Emergence of China Supply Chain

on Taiwanese Fastener Industry

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China's Import Substitution Strategy Gives Rise to the Red Supply Chain

Taiwan's export has been dropping for 7 consecutive months till August 2015. Rumor has it that the red supply chain could be the culprit, and suddenly Taiwanese suppliers feel insecure. What is the red supply chain? It is the result of China's ongoing import substitution policy where intermediate goods were originally imported from abroad but are now produced domestically in China. This forms a local supply chain, and people call it a red supply chain because China prefers the red color.

After 10 years of development, China has turned from its previous role as a world factory into a world market. It has gradually got rid of the role of OEM and started to develop its own supply chain. Based on many years of experience with the U.S. and European countries, and learning from Taiwan and Japan, China gradually established its own complete industrial chain from the upstream to the downstream.

The related policies for China's red supply chain include localization of foreign investors, the min. 30% limit of the use of domestically made parts, and aggressive investments and M&A. Furthermore, China proposed the concept of China Manufacturing 4.0, which will last for 10 years (China Manufacturing 2025), intending to add technical R&D to its advantage in workforce and capital. In the past, China's fastener industry could not compete with Taiwan due to the U.S. and European anti-dumping measures and its inconsistent quality, but now China is rising up with its advantages (capital, land, and workforce) to attract foreign companies for cooperation as well as its bold deployment in the entire supply chain (materials, R&D, technology, market). In light of the increasingly competitive and strong rival, this article will explore how Taiwanese fastener industry is affected by the red supply chain and its corresponding strategies.

Analyzing the Current Condition of Taiwanese Fastener Industry

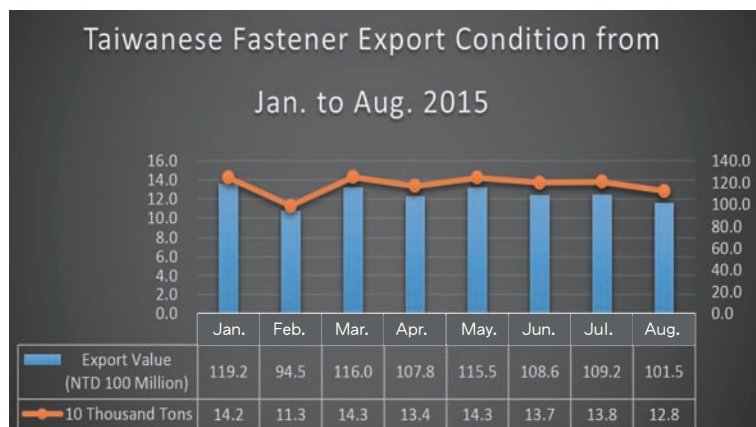
To understand if the rise of the red supply chain has affected Taiwan, let's start with a description of the status quo of Taiwanese fastener industry and look at the fastener trading condition between Taiwan and China and their trading performance in the international buyers market.

Import & Export Analysis

In August 2015, the drop in Taiwanese total export amounted to 14.8%, marking the 7th consecutive export decline as well as the 3rd consecutive 2-digit drop. This has been the biggest drop since the economic crisis last

time. Comparatively, in August 2015 the decline in Taiwanese fastener industry was not as drastic as in other industries. As shown in **Fig. 1**, the fastener export value in August was estimated at NTD 10.16 billion, down 5.5% from NTD 10.74 billion in 2014's corresponding period. The export volume in August was estimated at 12.8 thousand tons, down 2.7% from 13.2 thousand tons in 2014's corresponding period. In August, the export volume and value were both predicted to decline by 7%, but still lesser than the margin of the 15% decline in the entire industry.

Fig. 1 Taiwanese Fastener Export



Condition from Jan. to Aug. 2015

Source: Customs data from TIER; compiled by MIRDC in Sep. 2015

Another relieving news should be the result of Taiwanese fastener export in the first half of 2015. As everyone knows, 2014 was a good year for the fastener industry. The export value broke the USD 4 billion mark, and both the volume and price set new records over the past decade. Despite the fact that the first half of 2015 experienced investment deflation and conservative market sentiment, Taiwanese fastener export value in the first half grew 5.3% (NTD 3.3 billion) over the previous same period. The export volume grew 3.8% (30 thousand tons) over the previous same period (Refer to **Table 1**).

Table 1. Comparison of Taiwanese Fastener Exports Between H1 2014 and H1 2015

Fastener Industry	Export Value (NTD 100 Million)	Export Volume (10 Thousand)
H1 2014	628.4	78.2
H1 2015	661.6	81.2
Growth Rate	5.3%	3.8%

Source: Customs data from TIER; compiled by MIRDC in Sep. 2015

From January to July 2015, Taiwan imported 3 thousand tons (NTD 190 million; average price NTD 56.9/kg) of fasteners from China. In contrast, Taiwan exported 11 thousand tons (NTD 1.92 billion; average price NTD 181.7/kg) of fasteners to China. A look at import and export data reveals trade surplus in Taiwan's fastener trade with China (refer to **Fig. 2**). Notably, the average export price of Taiwanese fasteners in 2014 was NTD 80.9/kg, while Taiwan's fastener export price to China was as high as NTD 181.7/kg. This indicates Taiwan mostly exported high value added fasteners to China, which should be mostly applied to high-end industries such as automotive and aerospace. This also reveals that China has successfully developed high-end downstream industries, and therefore, gives rise to the demand for high value added fasteners. Refer to **Table 2** for fasteners exported from Taiwan to China. The import and export performance indicates that China is still dependent upon Taiwanese fasteners. However, coupled with China's downstream application industry, if China wants to support its local fastener industry and foster localized supply in the next decade, this will be negative to the fastener export from Taiwan to China.

(2)Market Analysis

To look at the influence of the red supply chain at a macro-perspective, we have to not only observe the trade between Taiwan and China, but also observe global buyers' trade with Taiwan and China. We must observe

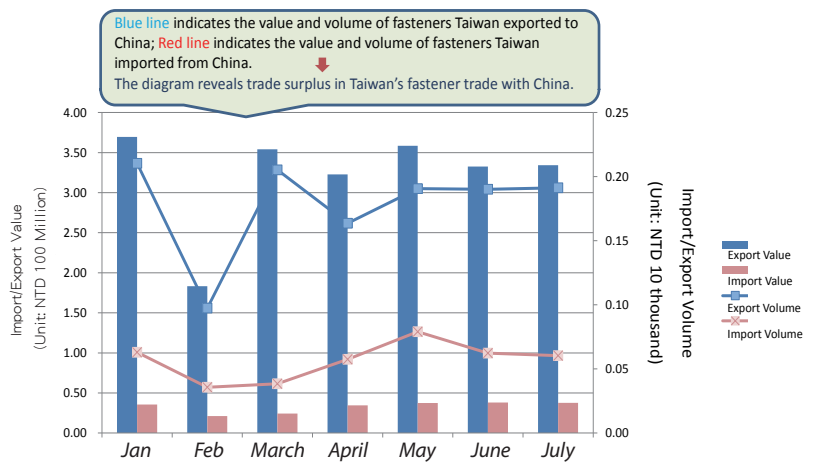


Fig. 2 Taiwan's Import & Export Performance with China in Jan.-July 2015
Source: Customs data from TIER; compiled by MIRDC in Sep. 2015

Table 2. Fastener Items Exported from Taiwan to China in 2014

Fastener Items Exported from Taiwan to China	Value (NTD 100 Million)	% in All Types of Fasteners
1 Other iron and steel screws and bolts with/without nuts and washers	18.9	47%
2 Iron and steel screws and nuts	8.5	21%
3 Other iron and steel threaded products	2.3	6%
4 Other steel washers	1.9	5%
5 Other steel non-threaded products	1.4	4%
Total of All Fastener Items Exported from Taiwan to China	40.5	100%

Source: Customs data from TIER; compiled by MIRDC in Sep. 2015

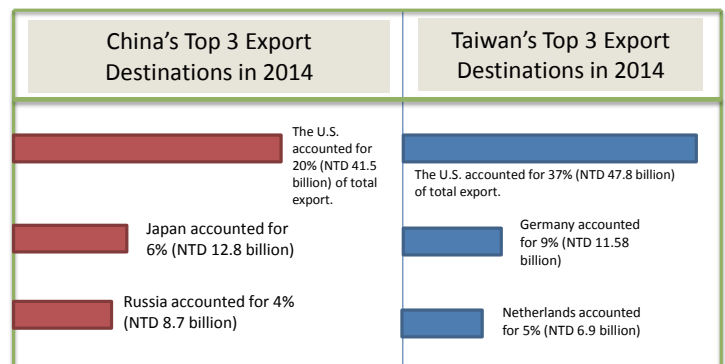


Fig. 3 Comparison Between Taiwan's and China's Fastener Export Destinations in 2014
Source: Customs data from TIER; compiled by MIRDC in Sep. 2015

whether there is any sign that Taiwanese fastener are being replaced by China in the global market.

Currently the U.S. is the largest consumers market in the world, followed by the EU. Taiwan is so far the top production partner with the U.S. In 2014, Taiwan exported NTD 47.8 billion

worth of fasteners to the U.S., which nearly accounted for 40% of the whole Taiwanese fastener export. China follows behind Taiwan and exported NTD 41.5 billion worth of fasteners to the U.S. in 2014, which accounted for 20% of its whole fastener export. Refer to **Fig.3** for comparison among other countries.

In the first half of 2015, Taiwan was the top fastener import origin for the U.S., followed by China. (Refer to **Table 3**). From January to July 2015, the U.S. imported a total of USD 3.96 billion worth of fasteners, and those imported from China were worth USD 1.03 billion, up 13.2% from USD 910 million in 2014's same period. Those imported from Taiwan were worth USD 1.17 billion, accounting for 30% of U.S. total import value, up 14.7% from USD 102 million in 2014's same period.

Table 3. U.S. Fastener Import Condition from January to July 2015

Unit: USD 100 Million

Importing Country	Jan	Feb	Mar	Apr	May	Jun	July	Jan-July (cumulative)	% in total
World	5.6	4.3	6.5	6.3	5.8	5.5	5.5	39.6	100%
Taiwan	1.5	1.2	2.1	1.9	1.7	1.6	1.6	11.7	30%
China	1.5	1.0	1.6	1.5	1.7	1.5	1.4	10.3	26%

Source: Customs data from TIER; compiled by MIRDC in Sep. 2015

The second largest fastener consuming market in the world is the EU. Starting in 2012 the EU imposed the anti-dumping duty up to 74.1% on carbon steel screws imported from China and caused a big impact on China's fastener industry. China once had around 8 thousand fastener companies. However, since the anti-dumping measure was imposed, nearly 1/3 of them have stopped production or

shut down, and order intake has dropped by 40%. Another 1/3 of the still existing fastener companies are expected to go bankrupt or shut down. After the EU imposed the anti-dumping measure on China, China's fastener export volume to the EU dropped to 500 thousand tons (2014) from 1.17 million tons (2008), and the export value dropped to NTD 28.2 billion.

In contrast, Taiwan is the EU's largest fastener import origin, accounting for as high as 30% of the EU's total fastener import. In 2014, Taiwan exported as high as 560 thousand tons of fasteners to the EU, with a 7% CAGR from 2010 to 2014. As indicated in **Fig. 4**, after the EU accused China of dumping carbon steel fasteners, Taiwan has evidently replaced China as the top import source for the EU. In the last 4 consecutive years, Taiwan's fastener export to the EU has outperformed China in terms of the reverse situation in the export volume and the increasing export value. This indicates that Taiwan is trending for exporting high value added fasteners. This will help consolidate the position of Taiwanese fastener industry in the EU market and keep Taiwan from the impact of the red supply chain.

The data above show that the export value of Taiwanese fastener industry in the 1st half of 2015 was 5% higher than the record in 2014. If it were not for the influence of the macroeconomic conditions and the currency market that postponed the investment activities of advanced countries, there would have been better performance for sure. On the other hand, the surplus in

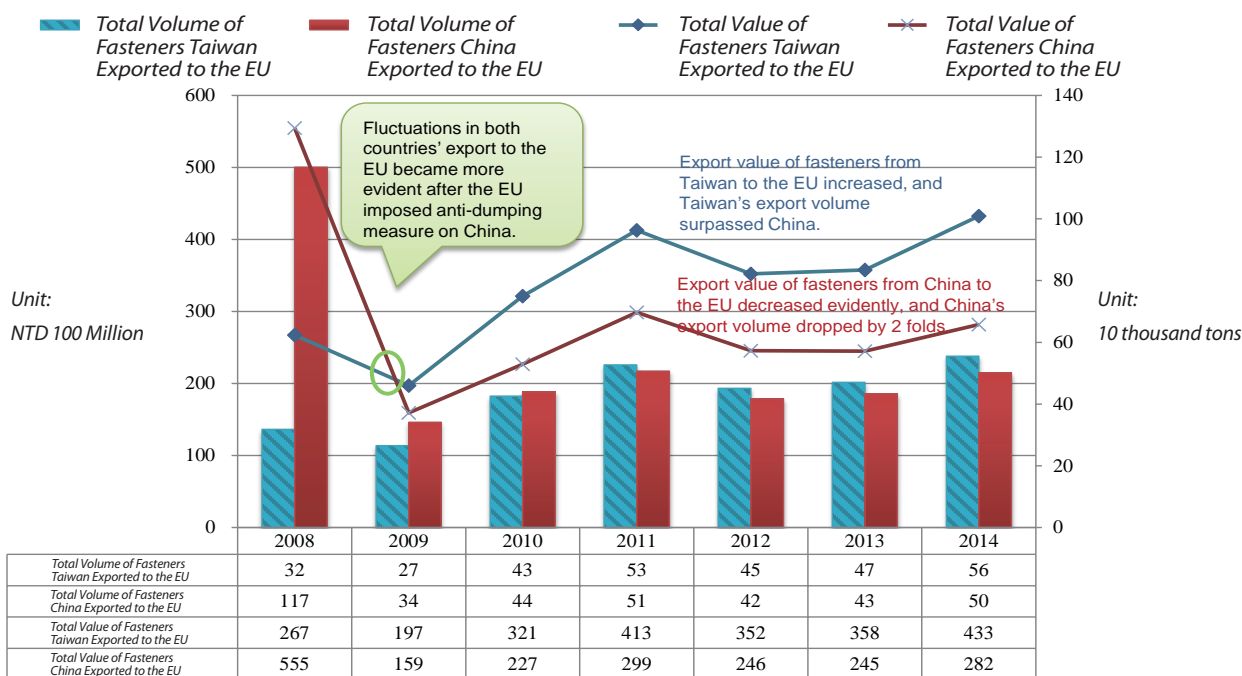


Fig. 4 Taiwan's and China's Fastener Export to the EU from 2008 to 2014

Source: Customs data from TIER; compiled by MIRDC in Sep. 2015

Taiwan's fastener export to China means that China has a certain level of dependence upon fasteners from Taiwan. In addition, to compare the customers of Taiwan and China in the U.S. and Europe, Taiwan is still going ahead of China and may not be easily replaced by China in the short term. As a result, it is observed that the current Taiwanese fastener industry has not yet been greatly influenced by the emergence of China's red supply chain. With the worldwide market fluctuations such as the cancelation of China's favorable tax abatement for boron wire rods, the stock market slump in Q2 2015, low demand for steel, and the competition in currency depreciation, the industry in the 2nd half of 2015 would continue to be conservative before investors could regain their confidence in the market. The annual export value is estimated to slightly grow 2-5%, which may be a quite good result.

Quality and Value are Keys to Differentiating Taiwanese and Chinese Products

To compare the current fastener industries between Taiwan and China, there are nearly 10,000 fastener producers and traders in China with more than 1 million employees. In Taiwan, there are about 1,300 fastener producers and traders with nearly 30,000 employees. In terms of industrial scale, Taiwan is smaller than China. Chinese suppliers mainly supply fasteners of lower grades mostly for machinery, construction, and general industrial applications and the domestic demand for high strength/precision fasteners used in automotive and electronic appliances sectors relies on imports.

Taiwanese suppliers began the production of low carbon steel fasteners 30 years ago (earlier than their Chinese competitors) and experienced the global economic crises twice. Some Taiwanese companies turned to invest abroad in 2000 while others staying in the homeland kept striving for business upgrade to improve their own techniques and elevate product quality. The year 2008 put them into another economic crisis again, but the business upgrade could be already observed in that year, making Taiwanese fastener industry turn from manufacturing standard parts to manufacturing higher grades of fasteners for European/U.S. car manufacturers and construction. In addition, Taiwanese suppliers also continue to research and develop new types of aerospace fasteners in various alloys and have even obtained certificates and trial orders from major aircraft manufacturers (Boeing, for example).

New Directions for Taiwanese Fastener Industry

A current popular saying goes, "The most terrifying thing in the world is to see someone, who is better than you, works harder than you do." It is true that upstream Chinese suppliers can offer many materials and the middle and downstream companies are also working harder than before. In the early years, China could attract foreign investments with its labor-intensive industries. During the time, it indirectly learned the techniques and obtained talented staff. Many years later, Chinese suppliers went to acquire foreign enterprises with abundant capital, getting lots of manufacturing facilities and technical patents. Facing the competition from China, Taiwanese fastener industry, as an exemplary model among other traditional industries, also has to figure out strategies to keep the leading position in global fastener export in the next 10 years. Below are 3 suggestions to achieving this goal.

Continuous Product Upgrade

Technology continues to be upgraded and invented (e.g., from the invention of power generator to the later invented computer, or, from the beginning of industrial revolution to the current Manufacturing 4.0). Although the fastener industry is very traditional, the addition of automation and intelligent technology can be still taken into account. For example, British Rota Bolt has recently debuted its first bolt that can monitor the system on which it is installed and send alert immediately via emails or SMS to maintenance staff should there is a problem of tension loss. This bolt can also collect data on various bolts and transmit reports via WWW or GSM to its safety server to ensure protective measures are all in place. Another Taiwanese leading fastener manufacturer Jinn Her is also active in developing similar screws, which are mainly used in areas with potential risks of displacement and loosening, including bridges, road monitoring systems, building monitoring systems, and even key components used on aircrafts or engines, as well as other applications for sophisticated equipment, communication, and wave filters. Its most significant feature is that it has optical fibers to sense outer environmental changes such as bridge cutoff, soil liquefaction, and abnormal temperature change in the mountain area or under the seawater in order to take precautions against damages. This product is now in application for EU, U.S., Japanese, and Taiwanese patents. If the product is patented, mass production will be soon started. In addition to the development of "smarter" fasteners, fasteners for biological and medical

device industries will be another focus of business transition. HC Bio-S, Taiwan Shan Yin, Alliance Global Technology are all examples which were once traditional fastener manufacturers and later turned to the R&D of dental implants. The continuous upgrade of products (whether it is carried out with the introduction of IT/Communication applications or the change from the original application to another one) can pave a new way for the fastener industry. And, the increase in added values usually means the increase in unit prices, which could make Taiwanese fastener suppliers drag other competitors from other emerging countries further behind.

Inspection Equipment Industry May Benefit from the Red Supply Chain

Taiwanese electronics industry is the first one which is facing this “red” trend. As Chinese LCD, LED, solar energy, and mobile phones industries are gradually showing their international competitive edge and continue to acquire other enterprises and expand capacity, other supporting companies providing facility maintenance & repair, inspection service & failure analyses of

chip designs, reliability analysis & specification certifications may benefit from the growing red supply chain. For the same reason, the fastener inspection industry in Taiwan has established its own presence in related industries for so long and has many experiences in cooperation with Japanese and German companies. Under the influence of the red supply chain, you don’t really have to be hostile to them. Transferring the advantages of Taiwanese inspection equipment to China can be also one of the industry strategies.

Being Active in M&A, Technical Cooperation, and Even New Business Expansion

In 2014, QST International acquired one of the 3 largest European auto parts suppliers- German ESKA (Nearly 70% of ESKA’s revenue was generated from its direct sales to Germany-headquartered 3 largest car manufacturers- Benz, BMW, and VW). In recent years, Chinese government has been devoted to localizing production of auto parts. After acquiring ESKA, QST is now able to expand its business in China with German technology and customer relationship. However,

as most fastener suppliers are SMEs, not everyone of them can acquire other companies. In addition, the international acquisition or merger usually has to be approved first by the government or must be acquired through the third party equity, which is very sophisticated. The problems of retiring at very old ages and 2nd generation succession could happen in many countries/ regions. Taiwanese fastener companies have good relationship with Japanese and German companies, so in the future, in order to consolidate the base for the next 10 years, hiring retired Japanese/German technicians or purchasing their facilities out of service may be taken into account. Expanding business to emerging markets is also inevitable. Major trade markets with promotion in reviving their own manufacturing will demonstrate competition for sure, and in emerging markets there show strong demand for manufacturing activities as they have not had a well-established industry supply chain. If Taiwanese fastener suppliers focus on the infrastructure and railway construction in ASEAN, they can definitely do something good.

In general, the production volume and export value of the red supply chain take the lead around the world. But in terms of the fastener industry, it is still not mature yet and does leave room for further penetration and differentiation. As a result, Taiwanese companies should try to offer different product categories and quality and make the most of external resources to upgrade technology, in order to face challenges from the red supply chain and achieve sustainable operation.

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